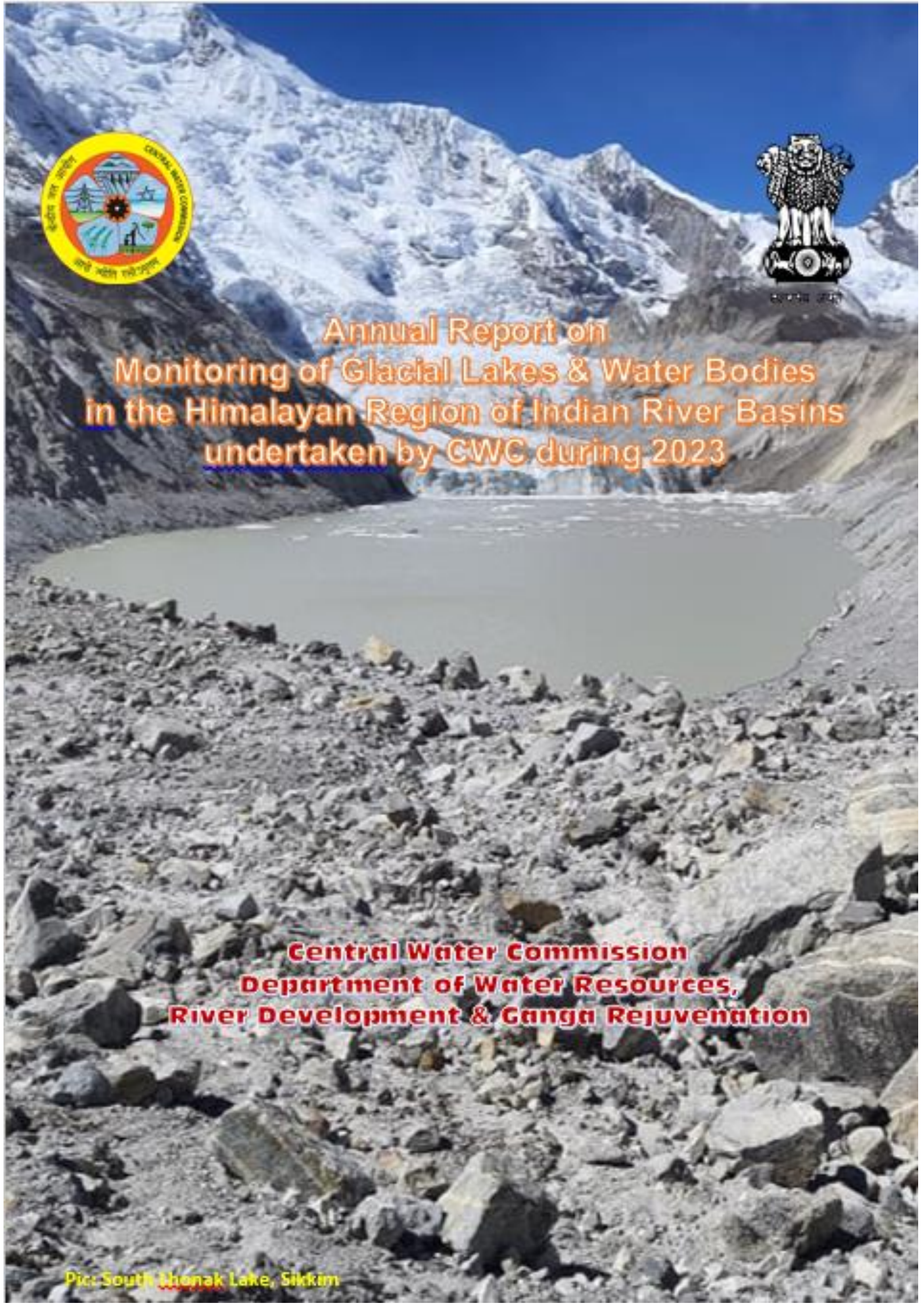
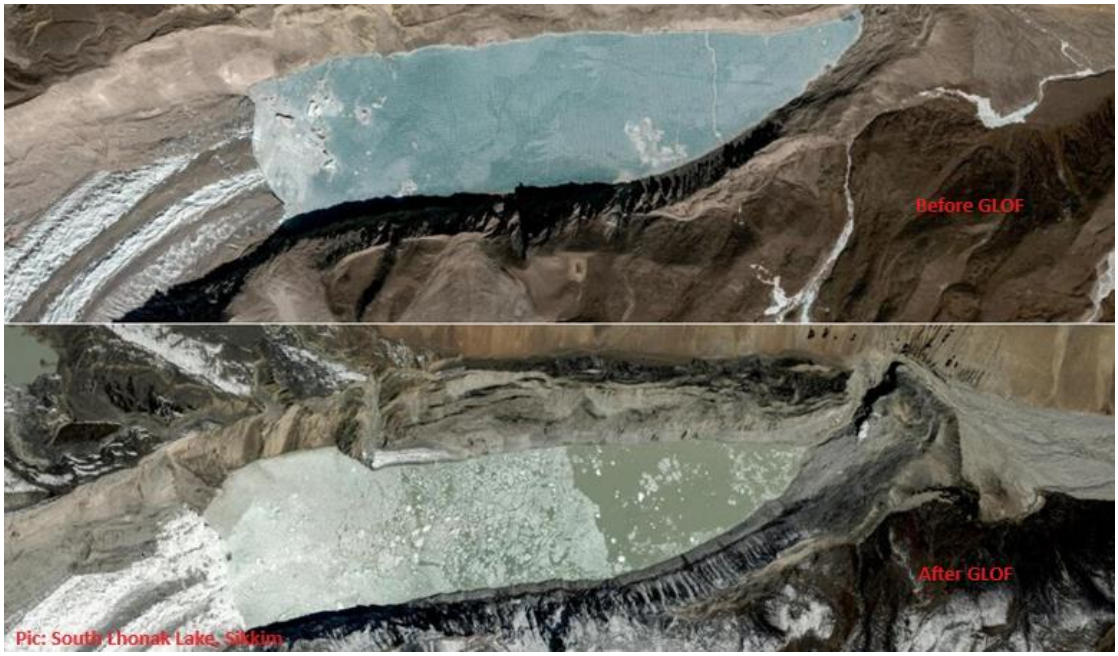


Annual Report on Monitoring of Glacial Lakes & Water Bodies in the Himalayan Region of Indian River Basins undertaken by CWC during 2023

Central Water Commission
Department of Water Resources,
River Development & Ganga Rejuvenation

Pic: South Lhonak Lake, Sikkim

Annual Report on Monitoring of Glacial Lakes & Water Bodies in the Himalayan Region of Indian River Basins undertaken by CWC during 2023



Morphology & Climate Change Directorate

Planning & Development Organisation

Central Water Commission

Department of Water Resources, River Development & Ganga Rejuvenation

Ministry of Jal Shakti, New Delhi

Document Control Sheet

1.	Report / Document Type	Technical Report			
2.	Document Control Number	CWC/M&CC/GLWB/ 2023/TR-6			
3.	Title	**Annual Report on Monitoring of Glacial Lakes & Water Bodies in the Himalayan Region of Indian River Basins undertaken by CWC during 2023**			
4.	Author(s)	Sh. V.D. Roy Sh. Piyush Kumar Smt. Archa Raj D. Sh. Rohit Kumar Yadav			
5.	Affiliation of authors	Morphology and Climate Change Directorate, CWC, New Delhi			
6.	Project Team	Sh. V.D. Roy Sh. Mohammad Zishan Smt. Archa Raj D. Sh. Rohit Kumar Yadav Sh. Chiradip Das			
7.	Scrutiny mechanism	Compiled by Sh. Mohammad Zishan Deputy Director Smt. Archa Raj D. Assistant Director-II	Reviewed by Sh. V.D. Roy, Director Sh Piyush Kumar, Smt Shobhika Singh Deputy Directors	Controlled by Sh. D.P.Mathuria, Chief Engineer, (P&DO)	Approved by Sh. P. M. Scott, Member (RM), CWC
8.	Originating unit	P&D organization, CWC, New Delhi			
9.	Date of Publication				
10.	Abstract (with Keywords): CWC monitors 902 Glacial Lakes & Water Bodies in the Himalayan region and Tibetan region, draining to India on monthly basis – June to Oct, every year, using Remote Sensing Data. The summary of monthly monitoring of 902 Glacial Lakes & Water Bodies during 2023, along with the analysis on changes in water spread area with reference to the base data of first monthly data of 2023, is presented in the report. Keywords: Glacial Lake, Water Bodies, Indian Himalayan Region, Satellite Images, Remote Sensing, Google Earth Engine.			

FOREWORD

The Himalayas are an abode to many glaciers and glacial lakes with vast tracts of snow cover. Rapid accumulation of water in the glacial lakes, particularly in those adjacent to receding glaciers, can lead to a sudden breach of their unstable moraine dams. The resultant high peak flood discharges by the dam failure called Glacial Lake Outburst Flood (GLOF) has catastrophic effects downstream of the lakes along the river stretch. Hence, monitoring of these glacial lakes has become a necessity in management & mitigation of disaster risk and climate change impact assessment.

Monitoring of Glacial Lakes/Water Bodies (GLs/WBs) using remote sensing technique was taken up by CWC, DoWR, RD&DR, Ministry of Jal Shakti, during XI Plan period in the year 2009 under DWRIS Plan scheme. Monitoring of 477 GLs/WBs of size more than 50 ha (from Glacial Lake Inventory 2011) for change in water spread area, was carried out during monsoon months (June to October) every year since 2011. The monitoring activity was initiated in NRSC in the year 2011 which continued till 2015.CWC has taken up monitoring during 2016 and the work was done by downloading and manually digitising Advanced Wide Field Sensor (AWiFS) Satellite imageries procured/ downloaded from NRSC and processing them in Arc GIS. This continued till 2021. From 2022, monitoring of additional 425 GLs having size of 10ha to 50ha was also included. This includes 385 Glacial Lakes of water spread area between 10-50 Ha from Glacial Lake Inventory 2011 and 40 high priority Glacial Lakes identified by Swiss Agency for Development and Cooperation (SDC) for NDMA. CWC is presently monitoring a total of 902 GLs/WBs. High resolution multi-spectral and microwave (SAR) images of foreign satellites at 10 m resolution have been processed and analysed in open-source cloud computing platform, Google Earth Engine, using automatic algorithm which CWC has been developed in-house. Visual inspections & manual digitisation were carried out to supplement the automatic algorithm to complete the task.

The Annual Monitoring Report 2023 is the compilation of abstract of the monthly monitoring reports of June to October 2023, and the analysis on changes in water spread area with reference to the base data of first monthly data of 2023. The lake-wise details are systematically documented at State/UT level for Indian region whereas those for transboundary region have been documented separately.

The report forms a useful reference data for GLOF risk assessment and long-term climate impact analysis.

I hope that document will be useful to the officers and scientists of Central/State water resources, environmental & disaster management Organisations and to those who particularly have a flair for the subject. Suggestions, if any, are always welcome for improvement of future reports.

New Delhi
July, 2024

(P. Manroi Scott)
Member (RM), CWC

Contents

List of Figures:

List of Tables:

ABBREVIATIONS	
AR	Arunachal Pradesh
CWC	Central Water Commission
DoWR, RD & GR	Department of Water Resources, River Development & Ganga Rejuvenation
DWRIS	Development of Water Resources Information System
GEE	Google Earth Engine
GL(s)	Glacial Lake(s)
GLOF	Glacial Lake Outburst Flood
FCC	False Color Composite
ha	Hectare
HP	Himachal Pradesh
J&K	Jammu & Kashmir
LAT	Latitude
LONG	Longitude
LU/LC	Land Use /Land Cover
NDWI	Normalized Difference Water Index
NDMA	National Disaster Management Authority
NIR	Near-Infrared
NRSC	National Remote Sensing Centre
SAR	Synthetic Aperture Radar
SDC	Swiss Agency for Development and Cooperation
SK	Sikkim
TAR	Tibet Autonomous Region
UID	Unique Identification
UK	Uttarakhand
WB(s)	Water Body(ies)

Executive Summary

The Himalayan Region (HR) is facing important challenges in coping with the adverse effects of climate change. Physically, the shrinking of mountain glaciers and expansion of Glacial Lakes are amongst the most recognizable and dynamic impacts of climate warming in this environment. In combination with this, altered stability of surrounding rock and ice walls, the potential threat from Glacial Lake Outburst Flood (GLOF) is evolving over time. Therefore, under such changing environment, a close watch on the relative change in water spread area of even smaller lakes has become very crucial in this region.

Analysis of worldwide literature on the outburst of glacial lakes and the field and theoretical experience have led to the conclusion that it is not feasible to make a reliable prediction of a specific occurrence on the basis of our existing knowledge. As direct predictions cannot be made, there is an urgent need to monitor a careful selection of prioritized lakes on a regular basis. This should be carried out in collaboration with other institutions, both nationally and internationally.

The work of monitoring of Glacial Lakes/Water Bodies (GLs/WBs) using remote sensing technique was taken up by CWC, DoWR, RD&DR, Ministry of Jal Shakti, during XI Plan period in the year 2009 under DWRIS Plan scheme. The inventory of GLs/WBs was published in June, 2011 in association with National Remote Sensing Centre (NRSC), Hyderabad based on the satellite data of Advanced Wide Field Sensor (AWiFS) of the Indian Remote Sensing Satellite, Resourcesat-2 collected from May-Nov, 2009. This inventory is therefore hereafter referred as *Inventory of Glacial Lakes & Water Bodies (2011).* As per this inventory, there are 2028 GLs/WBs with size more than 10 ha in the Himalayan Region draining towards India. The country wise & basin wise details of the inventory are given in **Table ES.1.**

Table ES.1: Country wise & Basin wise Distribution of Glacial lakes and Water bodies above 10 Ha(in Nos.)

Country-wise Distribution			
Country	**Glacial Lakes (>10 Ha)**	**Water Bodies (>10 Ha)**	**Total (>10 Ha)**
India	60	448	508
Bhutan	77	124	201
Nepal	57	45	102
China	309	904	1213
Myanmar	-	4	4
Total	**503**	**1525**	**2028**

Basin-wise Distribution			
Basin Name	**Glacial Lakes**	**Water Bodies**	**Total**
Brahmaputra	294	1099	1393
Ganga	178	105	283
Indus	31	321	352
Total	**503**	**1525**	**2028**

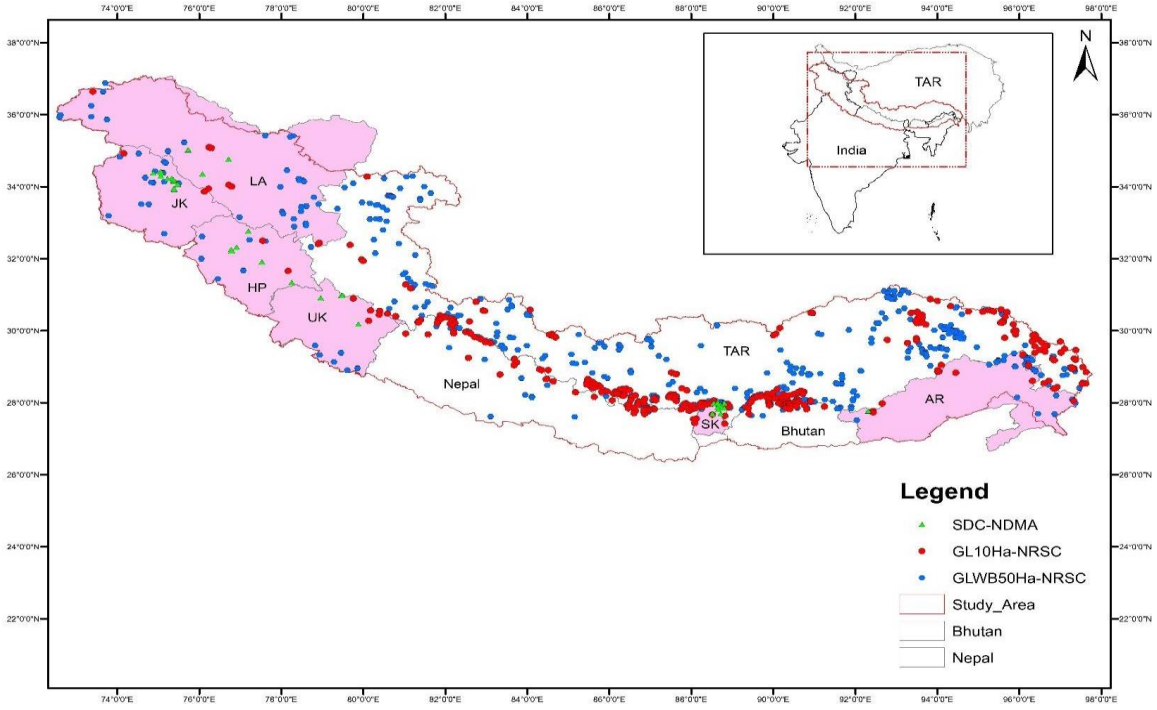
Monitoring of 477 GLs/WBs with size more than 50 ha, sourced from Glacial Lake Inventory 2011, for change in water spread area, was carried out during monsoon season (June to October) every year since 2011. The monitoring activity initiated in NRSC was continued till 2015. CWC has taken up monitoring during 2016 and the work was undertaken by downloading and manually digitising Advanced Wide Field Sensor (AWiFS) Satellite imageries procured/ downloaded from NRSC and processing them in Arc GIS. This continued till 2021. From 2022, monitoring of additional 425 GLs with sizes of 10ha to 50ha was also included. This includes 385 Glacial Lakes with water spread area between 10-50 Ha from Glacial Lake Inventory (2011) and 40 high priority Glacial Lakes identified by Swiss Agency for Development and Cooperation (SDC) for NDMA. Thus, currently CWC is monitoring a total of 902 GLs/WBs. High resolution multi-spectral and microwave (SAR) images of foreign satellites at 10 m resolution have been processed

and analysed in open-source cloud computing platform Google Earth Engine using automatic algorithm which has been developed in-house. Visual inspection & manual digitisation has been used to supplement the automatic algorithm to complete the task. The Monthly Monitoring Report is shared with all stakeholders through email for further necessary action. The reports are also e-published on CWC website for any time access by the concerned *(https://cwc.gov.in/glacial-lakeswater-bodies-himalayan-region)*. The abstract of 902 GL/WB is given in **Table ES.2.**

Table ES.2: Abstract of 902 GLs/WBs

Country/ Area	State/ Union Territory	No of Glacial Lakes				No of Water Bodies				Grand Total
		Indus Basin	Ganga Basin	Brahma-putra Basin	Total	Indus Basin	Ganga Basin	Brahma-putra Basin	Total	
India	Ladakh	15	0	0	15	26	0	0	26	41
	Jammu & Kashmir	15	0	0	15	16	0	0	16	31
	Himachal Pradesh	10	0	0	10	5	0	0	5	15
	Uttarakhand	0	9	0	9	0	6	0	6	15
	Sikkim	0	0	42	42	0	0	1	1	42
	Arunachal Pradesh	0	0	9	9	0	0	25	25	35
	Total	40	9	51	100	47	6	26	79	179
	India Total	100				79				179
Transboundary	China	12	110	187	309	49	19	191	259	568
	Bhutan	0	0	71	71	0	0	11	11	82
	Nepal	0	64	0	64	0	9	0	9	73
	Total	12	174	258	444	49	28	202	279	723
	Transboundary Total	444				279				723
Grand Total		544				358				902

Map of Study Area showing Glacial Lakes and Water Bodies being monitored by CWC



Limitations and Assumptions:

Limitations:

- Glacial lake identification can be done either using visual interpretation or automatic mapping methods. The automatic mapping procedures have limitations due to varying terrain conditions such as lakes situated in the shadow portions of mountains, presence of snow cover, cloud cover, lakes being partly frozen, etc. As lake water absorbs the incident radiation making it appear in darker tone and colour in the standard FCC of satellite data, similar response also prevails over shadow region of clouds or mountains on surface, which may lead to incorrect mapping. Moreover, a mountain shadow covering a lake partly/completely within its vicinity, also makes it difficult to accurately map the lake boundary.
- A few Glacial lakes could not be mapped owing to the constraints such as Glacial lakes being under frozen condition, presence of snow or cloud cover over the lakes, lakes under mountain shadow or lakes in dried up condition.

Assumptions:

- Inclusion or exclusion of water pixels near lake boundaries depending on more than or less than certain fraction of its area falling within the lake boundary.

This document presents the abstract of monthly monitoring data of 902 GL&WBs for the year 2022. The lakes are analysed monthly for change in water spread area with respect to area of Inventory 2009 and are categorized into 5 classes such as GLs & WBs showing

(i) increase in water spread area greater than 40%

(ii) increase in water spread area up to 40%

(iii) no change in water spread area

(iv) decrease in water spread area

(v) change detection could not be performed due to reasons such as frozen condition, dried up condition, cloud cover etc.

The number of lakes in each class has been identified for each month. The lakes showing an increase in water spread area greater than 40% have been identified as those requiring vigorous monitoring for disaster purpose.

The trend of monthly change in water spread area of the Glacial Lakes (100 Nos.) and Water Bodies (79 Nos.) within India has been analyzed for 4 months of 2023 (July, August, September & October) for increasing, decreasing and no change trend with reference to the base data of first monthly data of 2023, for a variation of ± 5%. This facilitate easy identification of growing lakes for monitoring purpose in the upcoming year.

Results of Monthly Monitoring Report and Conclusion:

Month	No of GL/WB monitored	No of GL/WB showing increase in area	No of GL/WB showing decrease in area	No of GL/WB showing no change in area	No of GL/WB with change detection not performed
June	902	258	460	33	151
July	902	312	469	55	66
August	902	376	421	55	50
September	902	359	458	53	32
October	902	429	376	65	32

- For the year 2023, it can be interpreted that the number of glacial lakes and water bodies showing an increase in area showed a gradual increase from June to October 2023, whereas the number of Glacial Lakes showing decrease in area gradually decreased. This may be due to melting of the surface of the frozen lake as well as the mother glacier feeding to the glacial lake.

- Form the trend analysis on change in water spread area of Glacial Lakes (100 Nos.) and Water Bodies (79) located in India, 44 Glacial Lakes and 33 Water Bodies have shown an increasing trend during the year 2023.

- The total Inventory area of Glacial Lakes and Water Bodies was 5,33,045 Ha during the year 2011 which has increased to 5,57,499 Ha during the year 2023. There is a **4.59%** increase in area. (*Out of 902 GLs & WBs, only 840 were considered for this interpretation. This includes 40 SDC GLs which have no inventory details as well as GLs & WBs which were not analysed during the year 2023.*

- The total Inventory area of Glacial Lakes was 20,647 Ha during the year 2011 which has increased to 23,329 Ha during the year 2023. There is a **12.99%** increase in area. *(Out of 544 GLs, only 495 were considered for this interpretation. This includes 40 SDC GLs which have no inventory details as well as lakes which were not analysed during the year 2023.)*

- The total Inventory area of Glacial Lakes within India was 1,962 Ha during the year 2011 which has increased to 2,531 Ha during the year 2023. There is a **29%** increase in area. *(Out of 100GsL, only 58 lakes were considered for this interpretation. This includes 40 SDC lakes which have no inventory details as well as lakes which were not analysed during the year 2023.)*

- Most of the GLs & WBs exhibiting 40% or more increase in water spread area lie in transboundary region.

1. Introduction

1.1 Glacial Lakes and Water Bodies

A glacial lake is a body of water with origins from a glacier. It is formed when a glacier erodes the surface before melting and the melt water fills the resulting depression. The water in Glacial Lakes accumulates behind loose naturally formed 'glacial/moraine dams' made of ice, sand, pebbles and ice residue as the glaciers melt. Various types of lakes may have different levels of hazard potential depending upon many factors such as the nature of damming materials, position of the lake, volume of the water, the nature and position of the associated mother glacier, physical and topographical conditions, and other physical conditions of the surroundings. Interaction between the risk factors and triggering processes such as ice avalanches, debris flows, rock fall, earthquake or landslides reaching a lake strongly affect the risk of a lake outburst. Moraine-dammed lakes located at the snout of a glacier have a high probability of breaching with high hazard potential and can breach suddenly leading to catastrophic floods. Such outburst floods are known as Glacial Lake Outburst Flood (GLOF).

A water Body referred in this report is the body of water retained permanently due to obstruction created naturally or artificially but not directly associated with Glaciers.

1.2 Glacial Lakes in Indian Himalayan Region

The Indian Himalayan Region (IHR) contains the world's largest number of glaciers and snow outside the Polar Regions and are aptly called Third Pole of the world. It consist of three major river systems, ie, Indus, Ganga and Brahmaputra stretching over five countries viz. India, China, Nepal, Pakistan and Bhutan.

1.3 Inventory of Glacial Lakes & Water Bodies 2011

The work of monitoring of Glacial Lakes/Water Bodies (GLs/WBs) was taken up by CWC, DoWR, RD&DR, Ministry of Jal Shakti, during XI Plan period in the year 2009, under DWRIS Plan scheme. The inventory of glacial lakes and water bodies of the Himalayan region of Indian river basins published in June, 2011 was done in association with National Remote Sensing Centre (NRSC), Hyderabad based on the satellite data of Advanced Wide Field Sensor (AWiFS) of the Indian Remote Sensing Satellite, Resourcesat-2 collected from May to November, 2009. The inventory consisted of a total of 2028 glacial lakes and water bodies with water spread area greater than 10 Ha. The country-wise and basin-wise details of the Inventory are furnished in **Table No. 1.1** and **Table No. 1.2**

Table 1.1: Country-wise details of Glacial Lakes & Water Bodies of Inventory (2011)

Country	Glacial Lakes >10 Ha (Nos.)	Water Bodies >10 Ha (Nos.)	Total >10 Ha (Nos.)
India	60	448	508
Bhutan	77	124	201
Nepal	57	45	102
China	309	904	1213
Myanmar	-	4	4
Total	**503**	**1525**	**2028**

Table 1.2: Basin-wise details of Glacial Lakes & Water Bodies of Inventory (2011)

Basin Name	Glacial Lakes (Nos.)	Water Bodies (Nos.)	Total (Nos.)
Brahmaputra	294	1099	1393
Ganga	178	105	283
Indus	31	321	352
Total	**503**	**1525**	**2028**

1.4 Objectives

The broad objectives of the study are

- To monitor the spatial extent in terms of water spread area of the Glacial Lakes &Water Bodies from the inventory on monthly basis during June to October.
- To detect temporal changes in water spread area of Glacial Lakes & Water Bodies.
- To share the report with concerned stakeholders including National Disaster Management Authority / State Disaster Management Authority for suitable action.

1.5 Limitations and Assumption

Limitations

- Glacial lake identification can be done either using visual interpretation or automatic mapping methods. The automatic mapping procedures have limitations due to varying terrain conditions such as lakes being situated in the shadow portions of mountains, presence of snow cover, cloud cover, lakes being partly frozen, etc. As lake water absorbs the incident radiation making it appear in darker tone and colour in the standard FCC of satellite data, similar response also prevails over shadow region of clouds or mountains on surface, which may lead to incorrect mapping. Moreover, a mountain shadow covering a lake partly/completely within its vicinity, also makes it difficult to accurately map the lake boundary.

- A few Glacial lakes could not be mapped owing to the constraints such as they being under frozen condition, presence of snow or cloud cover over the lakes, lakes under mountain shadow or lakes in dried-up condition.

Assumptions:

- Inclusion or exclusion of water pixels near lake boundaries depending on more than or less than certain fraction of its area falling within the lake boundary.

2. Monitoring of Glacial Lakes and Water Bodies

2.1 Study Area

The present study area covers the Glacial Lakes & Water Bodies (GLs & WBs) lying in the region of Himalaya and TAR, that drain to India, based on 2011 Inventory of NRSC. The study area extends across the countries of India, Nepal, Bhutan and China.

The Glacial Lakes and Water Bodies taken up for monitoring in the study area are as follows:

(i) **477** Glacial Lakes/Water Bodies, with water spread area greater than 50Ha which have been sourced from the inventory of Glacial Lakes & Water Bodies in the Indian Himalayan region(2011) (Ref: NRSC Report No. NRSC-RS&GISAA-WRG-CWC-Lakes- May2011-TR255).

The state-wise and basin-wise details of the 477 GLs/WBs above 50 Ha are shown in **Table.2.1**

Table 2.1: State-wise and Basin-wise details of the 477 GLs/WBs above 50 Ha (Nos.)

Country/ Area	State/UT	Glacial Lake>50Ha				Water Body >50Ha				Grand Total
		Indus Basin	Ganga Basin	Brahma-putra Basin	Total	Indus Basin	Ganga Basin	Brahma-putra Basin	Total	
India	Ladakh	3	0	0	3	26	0	0	26	26
	Jammu & Kashmir	0	0	0	0	16	0	0	16	16
	Himachal Pradesh	2	0	0	2	5	0	0	5	7
	Uttarakhand	0	0	0	0	0	6	0	6	6
	Sikkim	0	0	10	10	0	0	1	1	11
	Arunachal Pradesh	0	0	0	0	0	0	25	25	25
	Total	5	0	10	15	47	6	26	79	94
	India Total	15				79				94
Transboundary	China	1	36	40	77	49	19	191	259	336
	Bhutan	0	0	15	15	0	0	11	11	26
	Nepal	0	12	0	12	0	9	0	9	21
	Total	1	48	55	104	49	28	202	279	383
	Total Transboundary	104				279				383
Grand Total		**Total Glacial Lakes = 119**				**Total Water Bodies = 358**				477

(ii) **385** Glacial Lakes, with spatial extent greater than 10 ha, have been taken from the inventory of Glacial Lakes & Water Bodies in the Indian Himalayan region(2011) (Ref: NRSC Report No. NRSC-RS&GISAA-WRG-CWC-Lakes-May2011-TR255).

(iii) **40** Glacial Lakes, which have been listed as high priority lakes, as per "Synthesis report on GLOF hazard and risk across the Indian Himalayan Region" prepared by Swiss Agency for Development and Cooperation (SDC) for NDMA.

This adds up to a total of **425 Glacial Lakes of water spread area between 10Ha and 50Ha.** The state-wise and basin-wise details of these lakes are shown in **Table No. 2.2.**

Table 2.2: State-wise and Basin-wise details of the 425 GLs/WBs with water spread area between 10Ha and 50 Ha

Country/Area	Glacial Lake of size 10Ha -50 Ha				Grand Total (Nos.)
	State/UT	Indus Basin (Nos.)	Ganga Basin (Nos.)	Brahmaputra Basin (Nos.)	
India	Ladakh	**12**	0	0	12
	Jammu & Kashmir	**15**	0	0	15
	Himachal Pradesh	**8**	0	0	8
	Uttarakhand	0	**9**	0	9
	Sikkim	0	0	**32**	32
	Arunachal Pradesh	0	0	**9**	9
	Total	35	9	41	85
	India Total	85			
Transboundary	China	**11**	**74**	**147**	232
	Bhutan	0	0	**56**	56
	Nepal	0	**52**	0	52
	Total	11	126	203	340
	Total Transboundary	340			
Grand Total		425			

Currently, a total of **902 Glacial Lakes and Water Bodies** are being monitored by CWC. Of these, 544 are Glacial Lakes and 358 are Water Bodies. The break-up of Glacial Lakes and Water Bodies is shown in **Figure 2.1**. The abstract of state-wise and basin-wise details of the 902 GLs & WBs being monitored by CWC on monthly basis are furnished in **Table no. 2.3.**

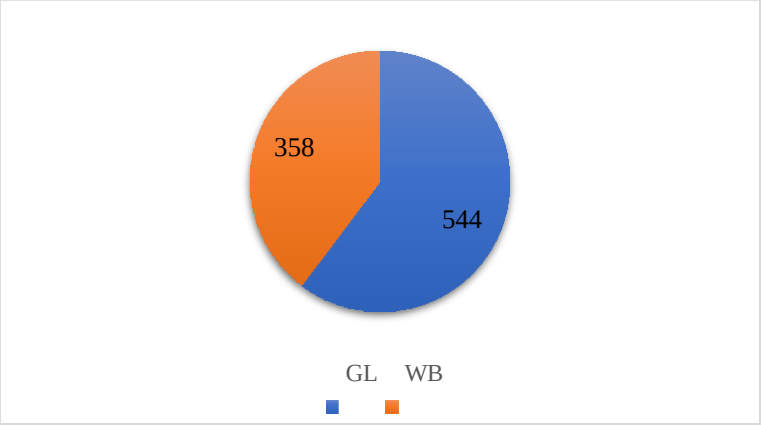


Figure 2.1: Lake Type Distribution

Table 2.3: Abstract of State-wise & Basin-wise details of GLs&WBs being monitored monthly by CWC

Country/ Area	State/ Union Territory	No of Glacial Lakes					No of Water Bodies				Grand Total
		Indus Basin	Ganga Basin	Brahma-putra Basin	Total		Indus Basin	Ganga Basin	Brahma-putra Basin	Total	
India	Ladakh	15	0	0	15		26	0	0	26	41
	Jammu & Kashmir	15	0	0	15		16	0	0	16	31
	Himachal Pradesh	10	0	0	10		5	0	0	5	15
	Uttarakhand	0	9	0	9		0	6	0	6	15
	Sikkim	0	0	42	42		0	0	1	1	42
	Arunachal Pradesh	0	0	9	9		0	0	25	25	35
	Total	40	9	51	100		47	6	26	79	179
	India Total	100					79				179
Transboundary	China	12	110	187	309		49	19	191	259	568
	Bhutan	0	0	71	71		0	0	11	11	82
	Nepal	0	64	0	64		0	9	0	9	73
	Total	12	174	258	444		49	28	202	279	723
	Transboundary Total	444					279				723
Grand Total		544					358				902

The index map of the study area is shown in **Figure. 2.2,** and the location map of the study area showing the glacial lakes and Water Bodies being monitored by CWC is shown in **Figure.2.3**.

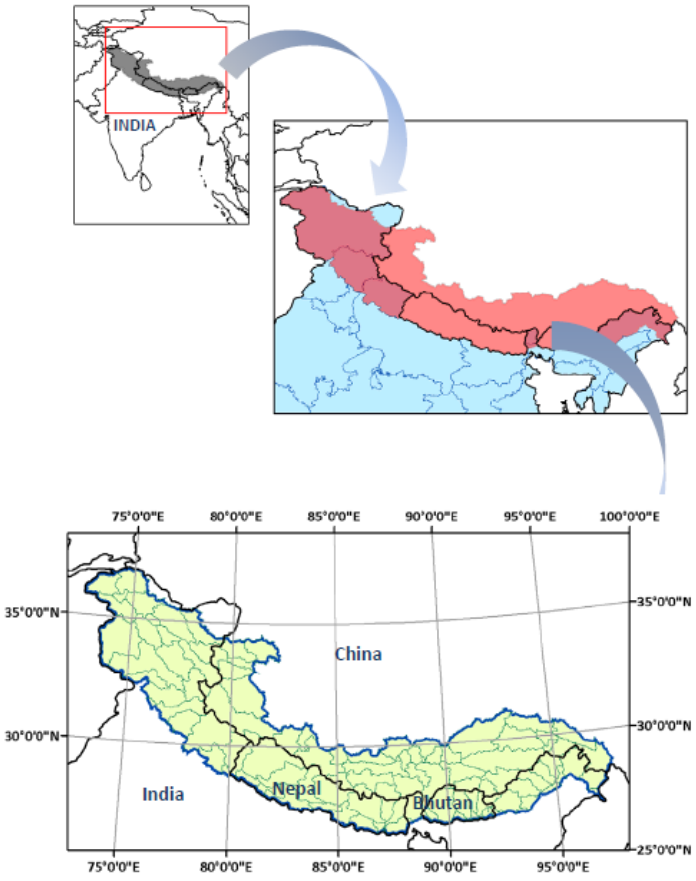


Figure 2.2: Index Map of Study Are

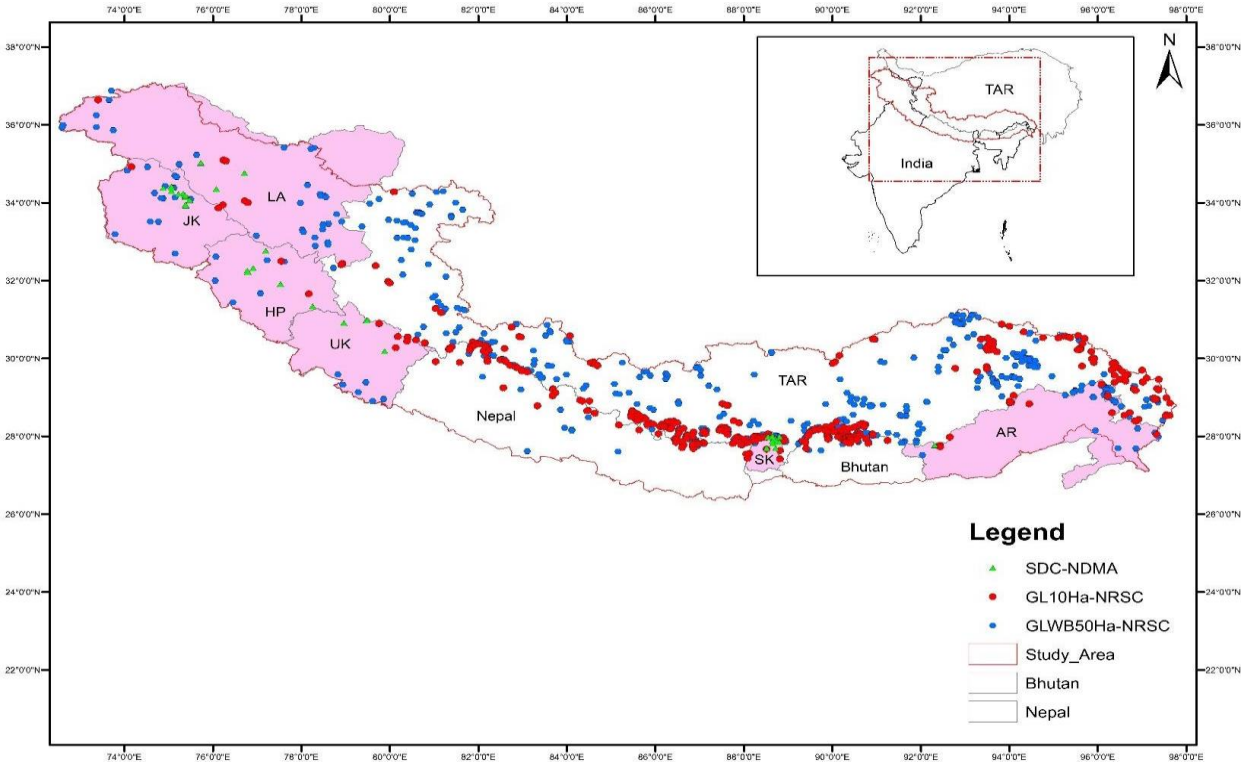


Figure 2.3: **Map of Study Area showing Glacial Lakes and Water Bodies being monitored by CWC**

The GLs & WBs are mostly located at an elevation range of 3000m to 5000m. A few of them are located above elevation of 5000m and some below 3000m. The elevation of Waterbodies range from 200 m to 5000m. This can be visualized by comparing the location map of study area (**Figure 2.3**) with the relief map of the study area shown in **Figure 2.4**. The elevation range of GLs & WBs being monitored by CWC is shown in **Figure 2.5**

Figure 2.4: **Relief Map of the Study Area**

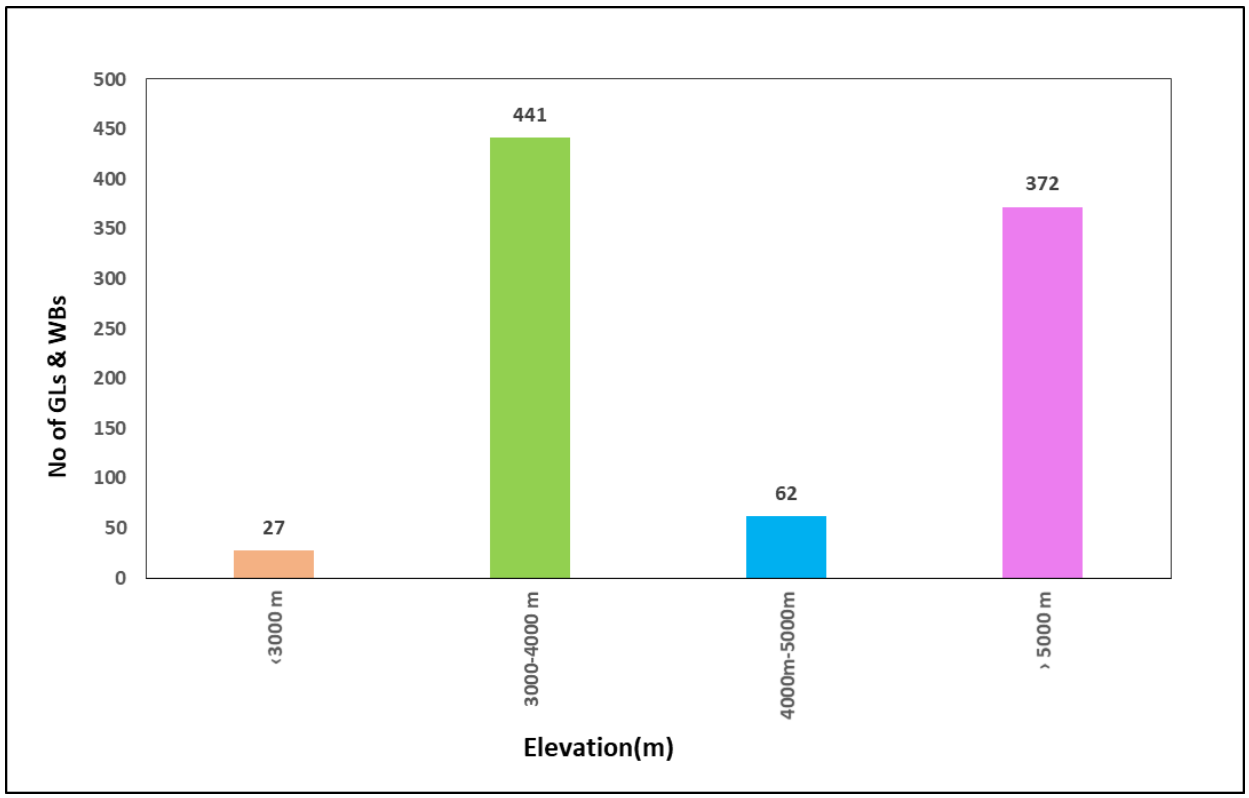


Figure 2.5: Elevation Range of GLs&WBs within Indian Himalayan Region being monitored by CWC

The country-wise distribution of Glacial Lakes & Water Bodiess being monitored by CWC is shown in **Figure 2.6**.

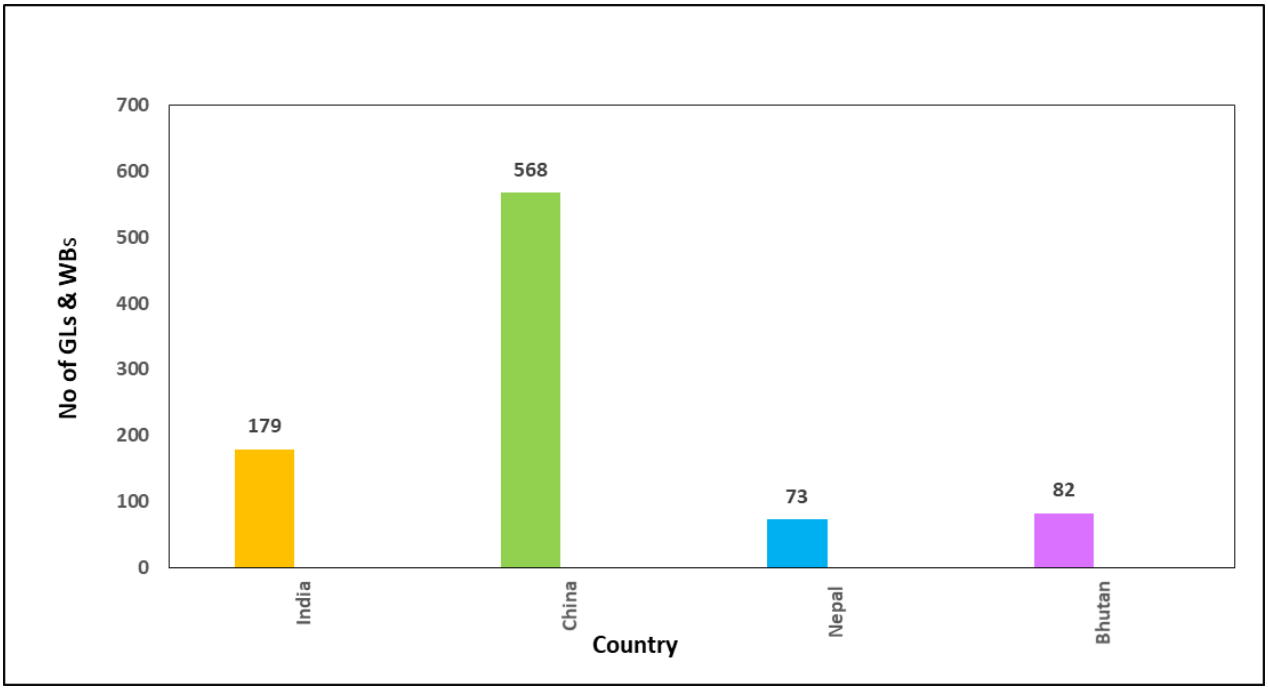


Figure 2.6:**Country-wise distribution of GLs & WBs in Indian Himalayan Region being monitored by CWC**

The state-wise distribution of Glacial Lakes being monitored by CWC within India is shown in **Figure 2.7**.

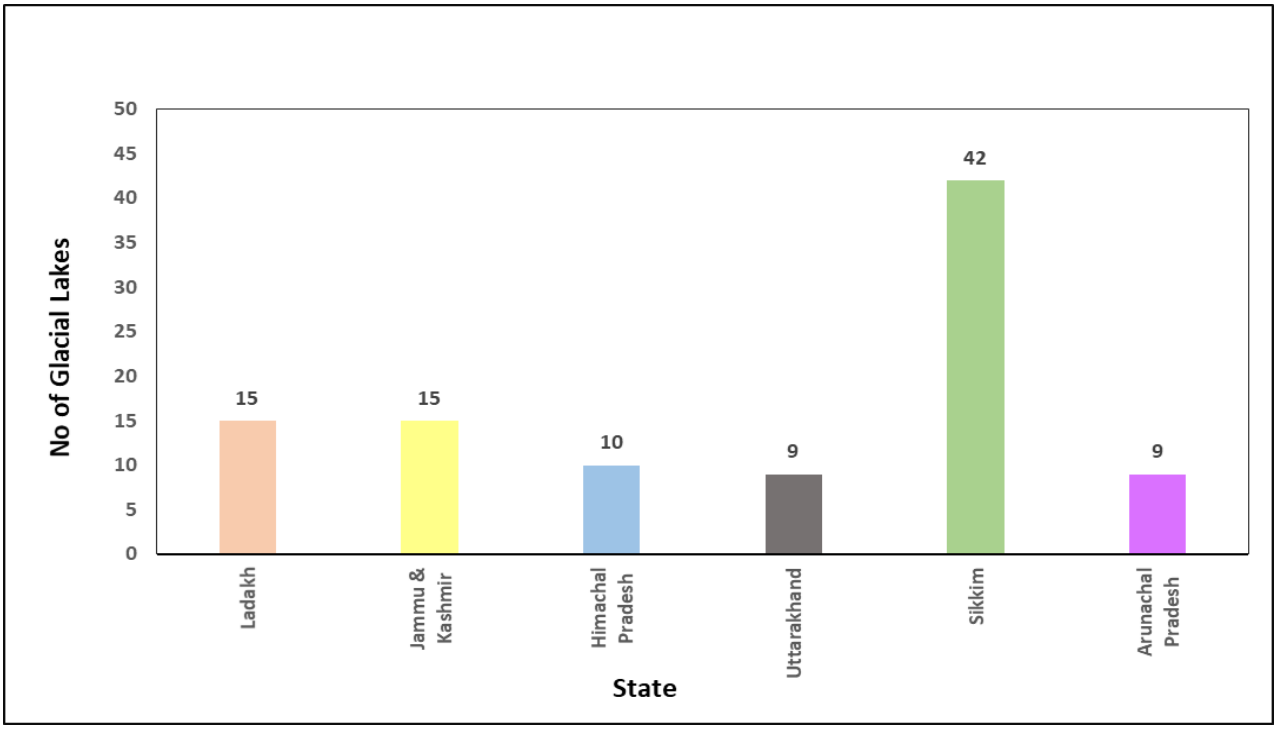


Figure: 2.7: State-wise Distribution of Glacial Lakes within India being monitored by CWC

The State-wise distribution of Water Bodies within India being monitored by CWC is shown in **Figure 2.8.**

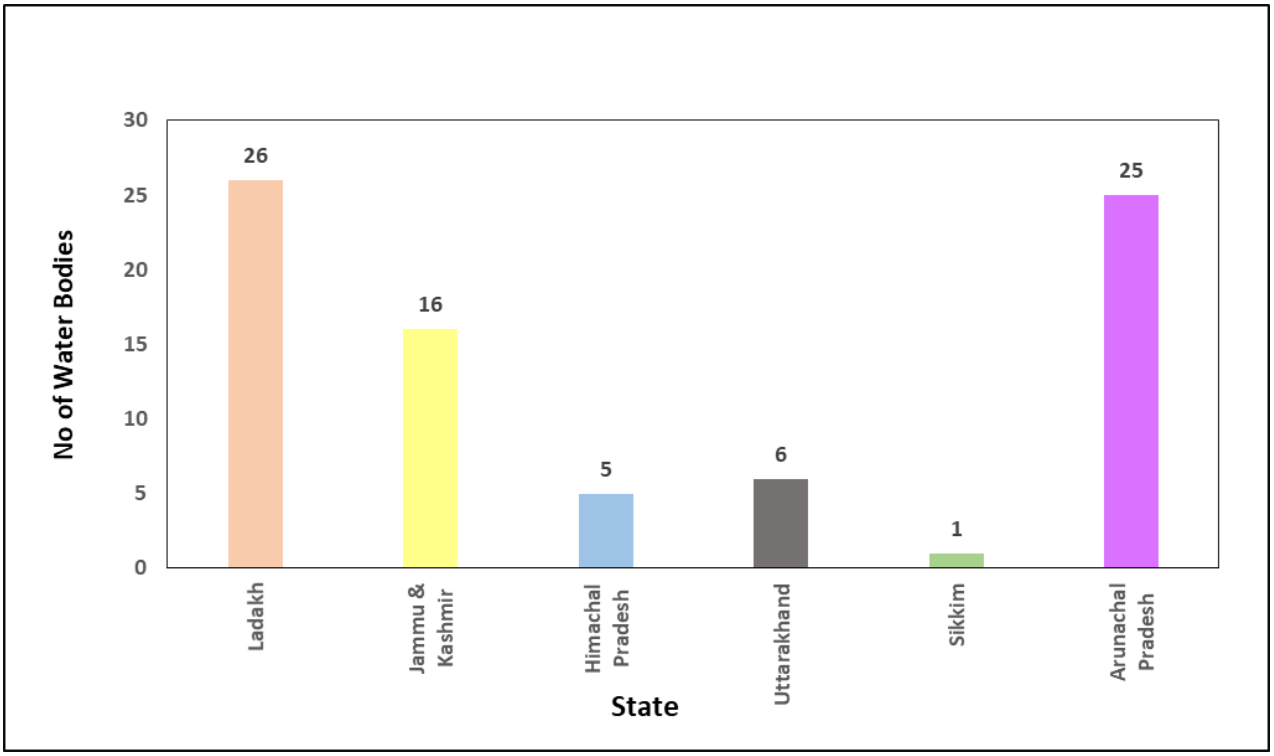


Figure: 2.8 State-wise Distribution of Water Bodies being monitored by CWC

2.2 Remote Sensing Technology

Remote sensing is the science of acquiring information about the Earth's surface without actually being in contact with it. This is done by sensing and recording reflected or emitted energy and processing, analysing, and applying that information. Satellite remote sensing technology has contributed significantly to the acquisition of Earth's resources, thus helping in their better management. They also plays a complementary role to the conventional data collection procedures. Satellite remote sensing offers several unique advantages like quick and repetitive data collection, reliability, accuracy, geometric integrity and digital storage, which makes it an ideal tool for mapping,inventorying and monitoring the natural resources.

Monitoring of glacial lakes located in remote mountain areas with rugged terrain and inclement weather by traditional means is very tedious and difficult. Hence Remote Sensing data plays a greater role in generating information on glacial lakes. Satellites with high spatial, spectral and temporal resolution sensors are useful in deriving lake information with better accuracy at regular intervals. Visual and digital image processing and analysis techniques integrated with Geographic Information Systems (GIS) are very useful for the study and monitoring of Glacial Lakes and Water Bodies.

The monitoring was done by downloading and manually digitising Advanced Wide Field Sensor (AWiFS) Satellite imageries procured/ downloaded from NRSC till 2021. The SENTINEL-2 Multispectral Imagery (MSI) and Sentinel-1 Synthetic Aperture Radar (SAR) data (Microwave Imagery) have been utilized for the study.

2.2.1 Sentinel-2 Multi Spectral Imagery

The Sentinal-2 mission comprises of a constellation of two polar-orbiting satellites placed in the same sun-synchronous orbit, phased at 180° to each other. It is a wide-swath, high-resolution, multi-spectral imaging mission for monitoring of vegetation, soil and water cover, inland waterways and coastal areas. The SENTINEL-2 Multi-Spectral Instrument (MSI) has visible, near infrared and shortwave infrared sensors sampling 13 spectral bands - 4 bands at 10 m, 6 bands at 20 m and 3 bands at 60 m spatial resolution with a swath width of 290 km. The revisit frequency of each single SENTINEL-2 satellite is 10 days and the combined constellation revisit is 5 days. The Green, Red and NIR bands have been utilized for this study.

2.2.2 Sentinel-1 Synthetic Aperture Radar (Microwave Imagery)

The Sentinel-1 mission comprises a constellation of two polar-orbiting satellites, Sentinel-1A and Sentinel-1B, sharing the same orbital plane. It has C-band synthetic aperture radar (SAR) active sensor. Synthetic Aperture Radar (SAR) has the advantage of operating at wavelengths not impeded by cloud cover or a lack of illumination and can acquire data over a site during day or night time under all weather conditions. SAR actively transmits microwave signals towards the Earth and receives a portion of transmitted energy as backscatter from the ground. The SAR instrument provides radar backscatter measurements influenced by the terrain structure and surface roughness. Generally, the more roughness or structure on the ground, the greater the backscatter. Rough surfaces will scatter the energy and return a significant amount back to the antenna resulting in a bright feature. The C-band imaging operates in four exclusive imaging modes with different resolution (down to 5 m) and coverage (up to 400 km). It provides dual polarisation capability, very short revisit times and rapid product delivery. It can transmit a signal in either horizontal (H) or vertical (V) polarisation, and then receive in both H and V polarisations. For each observation, precise measurements of spacecraft position and altitude are available. The repeat orbit cycle of each Sentinel-1 satellite is 12-day. The backscatter intensity of vertical transmit-vertical receive (X) band (VV band) data has been utilized for the study.

2.2.3 Challenges in Identification of Lakes from Satellite Imagery

Glacial lake identification can be done either using visual interpretation or automatic mapping methods. The automatic mapping procedures have limitations due to varying terrain conditions such as lakes situated in the shadow portions of mountains, presence of snow cover, cloud cover, lakes being partly frozen, etc. As lake water absorbs the incident radiation making it appear in darker tone and colour in the standard FCC of satellite data, similar response also prevails over shadow region of clouds or mountains on surface, which may lead to incorrect mapping. Moreover, a mountain shadow covering a lake partly/completely within its vicinity, also make it difficult to accurately map the lake boundary.

2.2.4 Limitations in Remote Sensing Technology

The Sentinel satellite images used for monitoring of Glacial Lakes were occasionally obscured with cloud and seasonal/permanent snow. Also, the Himalayan region being highly varying in topography with steep slopes, the satellite images have hill shadows. Thus, a few Glacial lakes could not be mapped owing to the following constraints

- Glacial lakes being under frozen condition
- Presence of snow or cloud cover over the glacial lakes
- Glacial Lakes under mountain shadow
- Dried up Glacial Lakes

The month-wise details of Multispectral and Microwave satellite imageries processed from June to October 2023, is given in **Figure No. 2.9**.

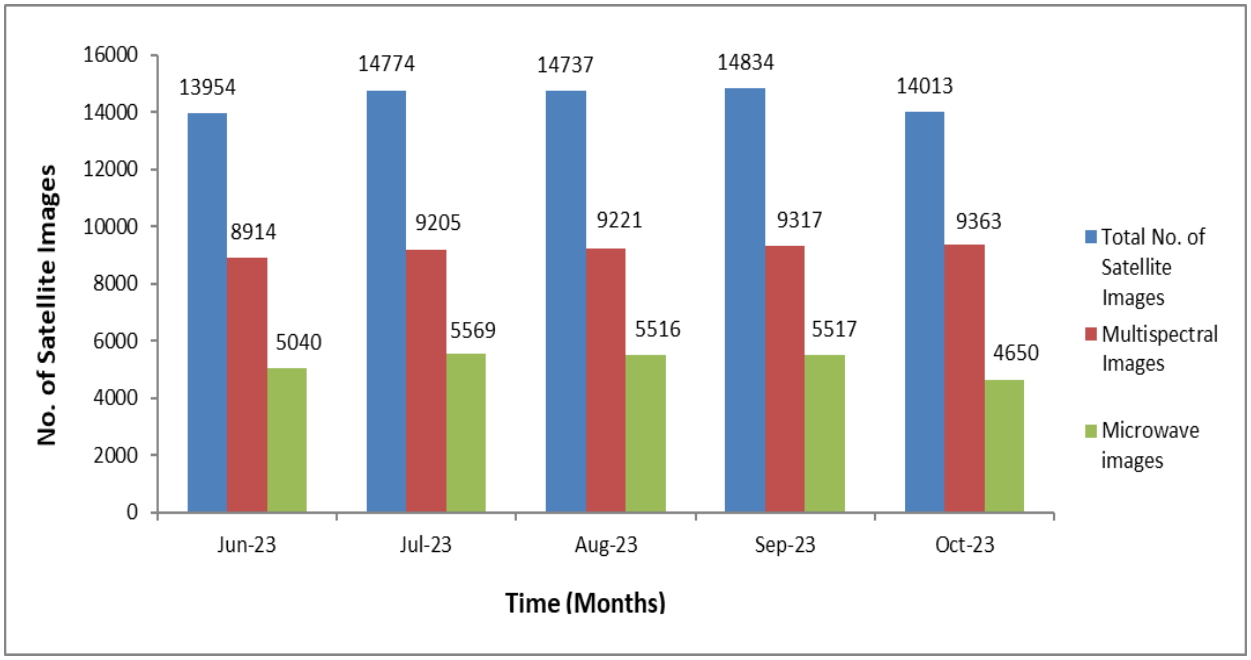


Figure 2.9: Details of Satellite Images processed during 2023

3. Methodology

Google Earth Engine(GEE) has been used to process the Multispectral and Microwave Sentinel image data for the monitoring of Glacial Lakes & Water Bodies. Google Earth Engine (GEE) is a cloud-based geospatial analysis platform that enables users to visualize and analyze satellite images. The Microwave and Multispectral Satellite works on different principle, and hence separate methodology has been adopted to compute the water spread area of GL&WBs in an automatic manner.

Multispectral data consist of visible and infrared bands. The spectral combination of NIR, red & green bands is used to generate false colour composite (FCC). The Normalised Difference Water Index (NDWI) is computed using green and NIR band. The process of calculation of NDWI and FCC is repeated for each GL&WB. The OTSU algorithm is further used to identify the threshold of NDWI for segregating water pixels from other types of features. The detected water pixels are further summed to calculate water spread area in the region of interest.

Microwave data of Sentinel-1 is a phase-preserving dual polarisation SAR system. The backscatter intensity of vertical transmit vertical receive (X) band has been used to distinguish water pixels from other types of features. The OTSU algorithm is further used to identify the threshold of backscatter intensity for segregation. The water spread area of each lake has been calculated by summation of water pixels in the region of interest.

The automated area of the GLs&WBs are then verified manually in GEE. The lakes which show discrepancy in automated area extraction are required to be delineated manually based on the visual interpretation. This is required as the region being monitored has rugged terrain with high mountains and deep valleys, which may lead to effects like foreshortening, layover, mountain shadows etc in the microwave/SAR data. Cloud cover hinders the performance of Multispectral Satelliteimages.

The change detection in water spread area of a Lake has been calculated for the following three cases for each month.

- Difference between the current area of lake and base year area(2009)
- Difference between the current area of lake and Last five years average area
- Difference between the current area of lake and Last ten years average area

The minimum of change observed from the above three cases has been adopted to identify increase, decrease and no change in water spread area.

Thereafter the lakes are categorized as lakes with increase in water spread area greater than 40%, increase in water spread area up to 40%, no change in water spread area, decrease in water spread area and lakes for which analysis could not be performed due to limitations in remote sensing technology such as cloud cover, frozen condition, dried up condition etc.

The detailed flow-chart on methodology for automatic monitoring of Glacial Lakes and Water Bodies using satellite images is given below in **Figure 3.1**

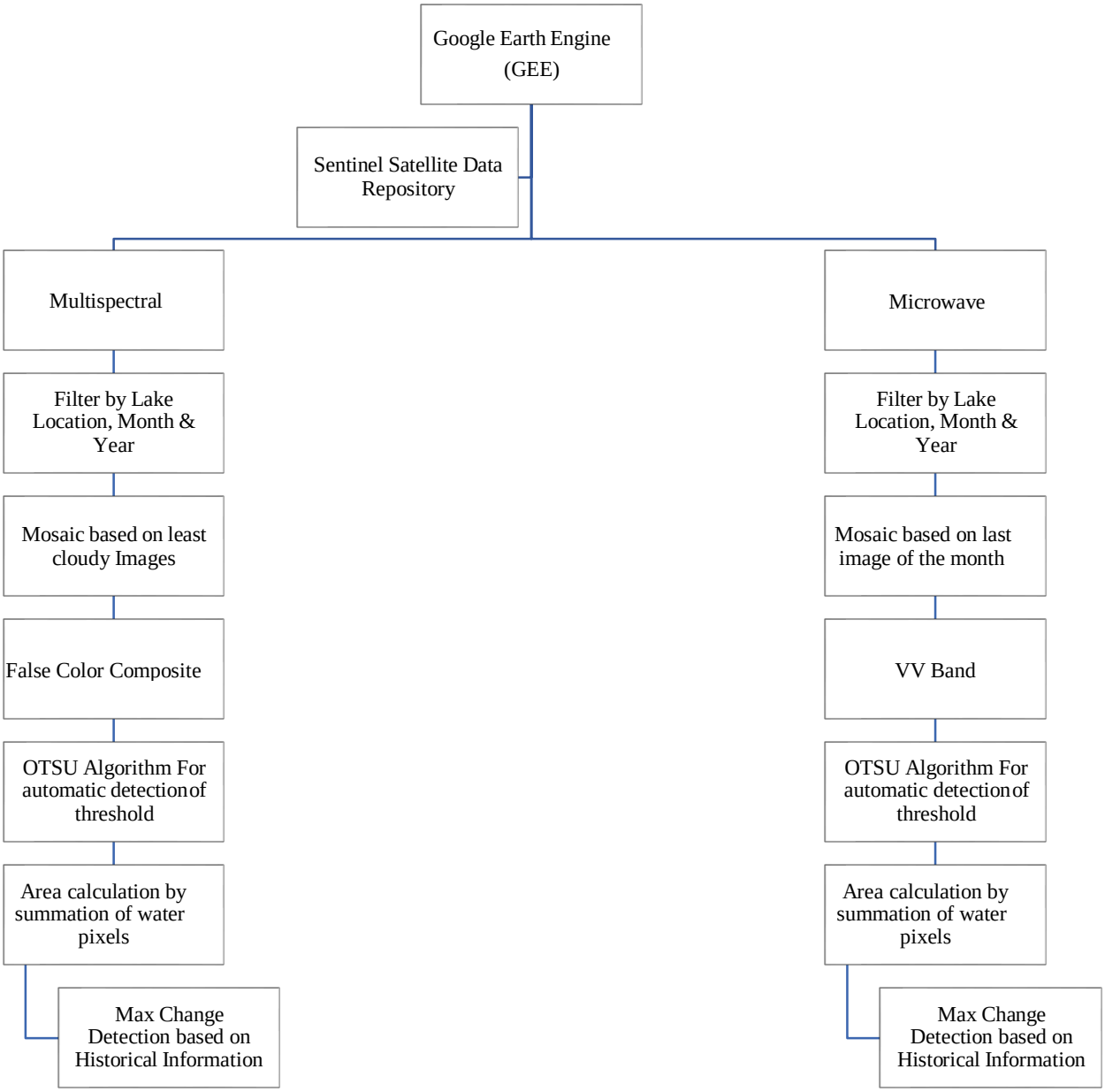


Figure 3.1: **Flowchart on Methodology for automatic monitoring of Glacial Lakes & Water Bodies using Satellite Images**

4. Results

Monthly monitoring of 902 GLs & WBs was carried out during the year 2023 for the months of June, July, August, September & October. The month-wise brief of results is given below.

4.1 June 2023

During June 2023, it was observed that 258 GLs & WBs exhibited an increase in area, 460 exhibited decrease in area and 33 exhibited no change in area. The change detection of 151 GLs& WBs could not be performed.The same is shown in **Figure 4.1.**

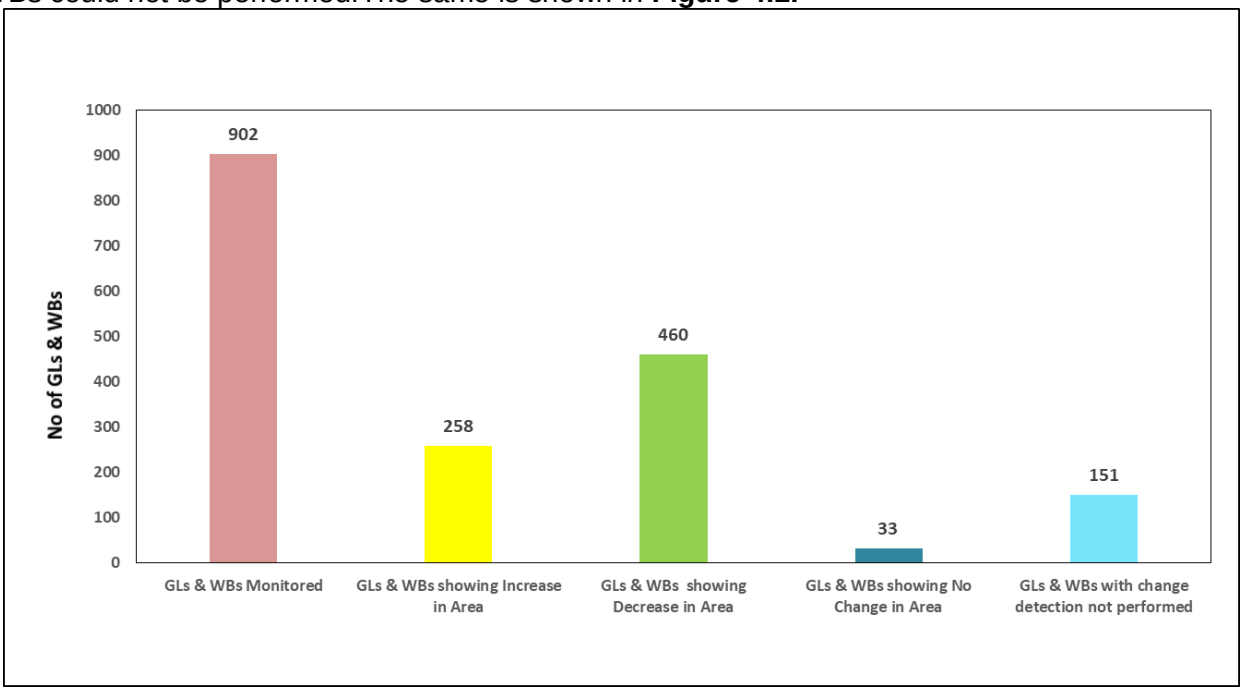


Figure 4.1: **Outcome of monitoring of GLs/WBs for June 2023**

4.2 July 2023

During July 2023, it was observed that 312 GLs & WBs exhibited an increase in area, 469 exhibited decrease in area and 55 exhibited no change in area. The change detection of 66 GLs & WBs could not be performed.The same is shown in **Figure 4.2.**

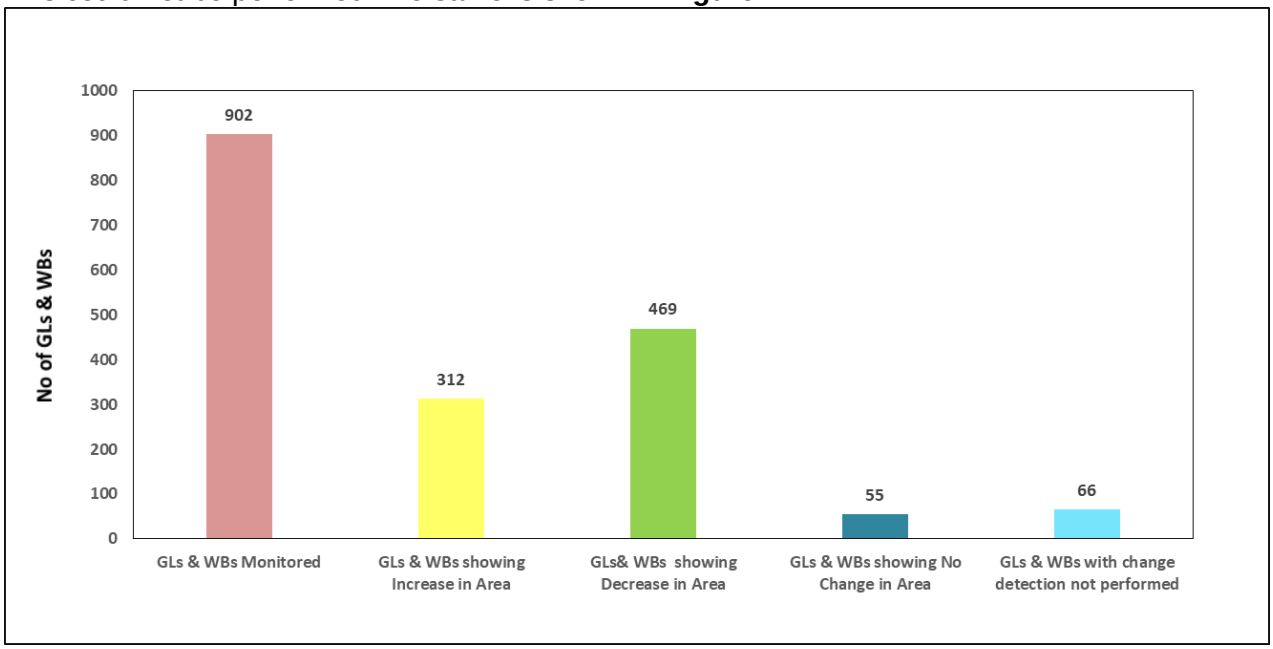


Figure 4.2: **Outcome of monitoring of GLs/WBs for July, 2023**

4.3 August 2023

During August 2023, it was observed that out 376 GLs & WBs exhibited an increase in area, 421 exhibited decrease in area and 55 exhibited no change in area. The change detection of 50 GLs& WBs could not be performed.The same is shown in **Figure 4.3.**

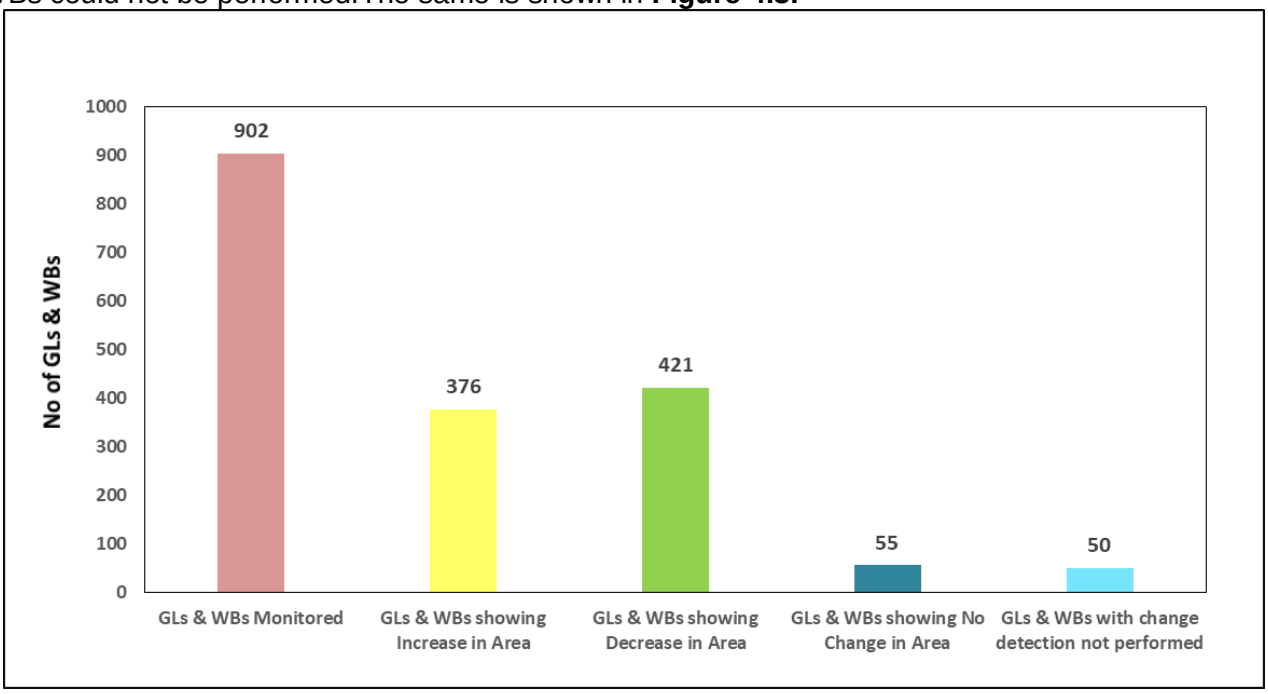


Figure 4.3: Outcome of monitoring of GLs/WBs for August, 2023

4.4 September 2023

During September 2023, it was observed that 359 GLs & WBs exhibited an increase in area, 458 exhibited decrease in area and 53 exhibited no change in area. The change detection of 32 GLs & WBs could not be performed.The same is shown in **Figure 4.3.**

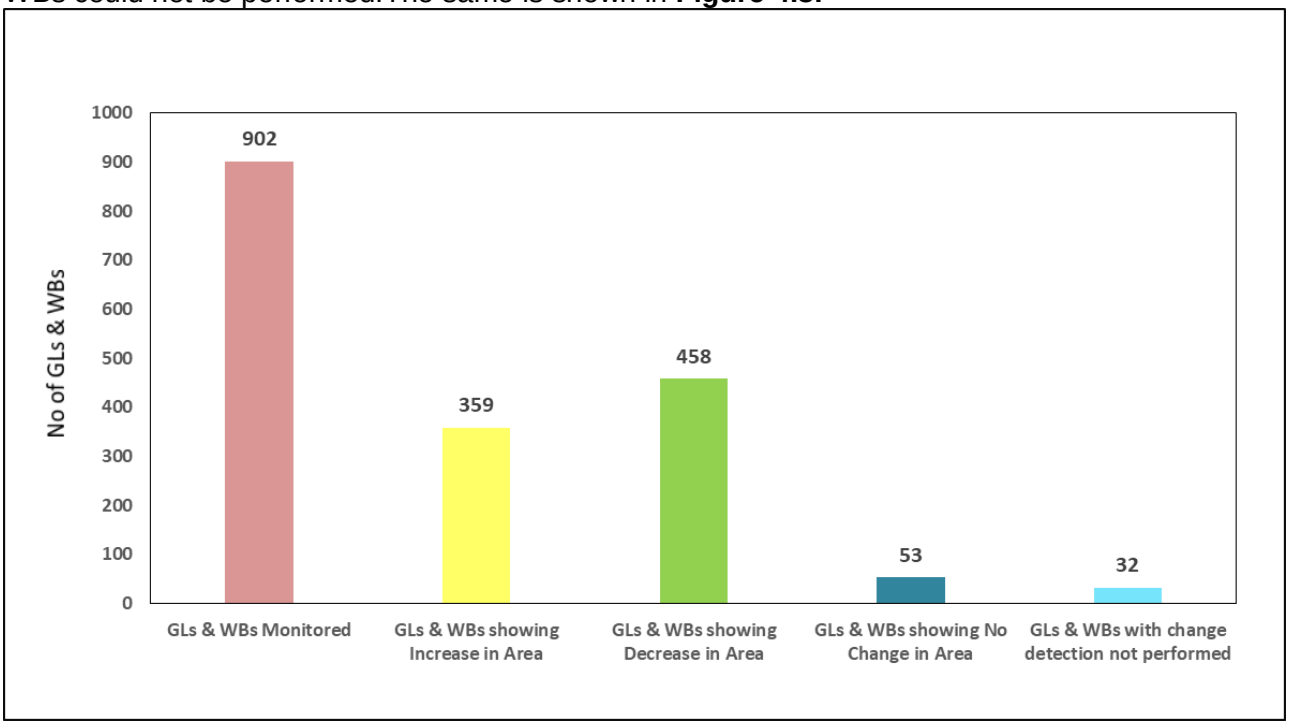


Figure 4.4: Outcome of monitoring of GL/WBs for September 2023

4.5 October 2023

During October 2023, it was observed that 429 GLs & WBs exhibited an increase in area, 376 exhibited decrease in area and 65 exhibited no change in area. The change detection of 32 GLs & WBs could not be performed.The same is shown in **Figure 4.3.**

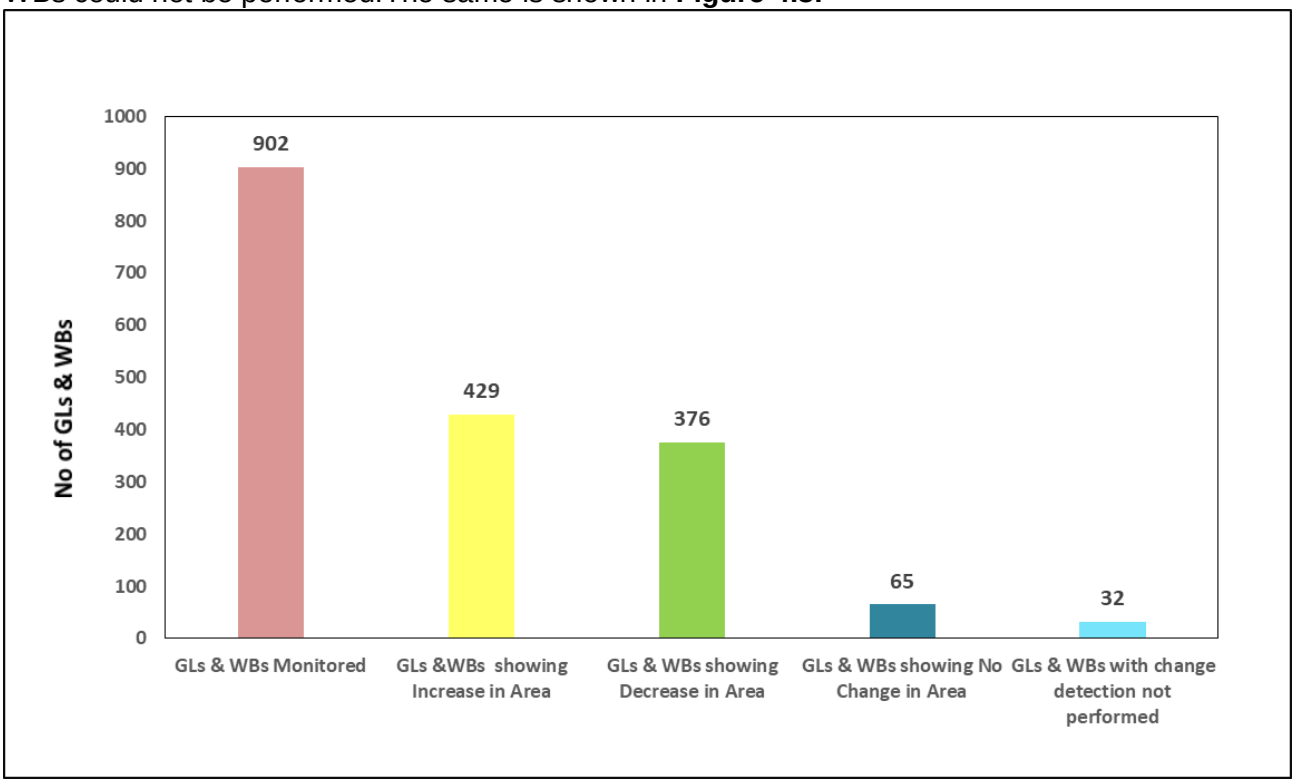


Figure 4.5: **Outcome of monitoring of GLs/WBs for October 2023**

5. Analysis of "Change in Water spread area of Glacial Lakes and Water Bodies within India" with reference to June data (or first available monthly data) for the year 2023

5.1 Methodology

There are a total of **179 GLs&WBs** within India which are being monitored on monthly basis using remote sensing technology. This includes **100 Glacial Lakes and 79 Water Bodies**. The Water Bodies have a water spread area greater than 50 Ha, meanwhile 15 GLs have water spread area greater than 50 Ha and the remaining 85 GL have an area between 10 Ha to 50 Ha.

The monthly water spread area for the months of June, July, August, September and October, 2023 was tabulated in Microsoft Excel for each of the lakes. A 2-D graph was plotted with ***Time*** along the X-axis and ***Water-spread area*** along the Y-axis to depict the variation in water spread area. A band has been created with June data ± 5% of June data. For lakes where June 2023 data was not available, the first available monthly data was considered. A Linear trend line was generated for each of the lakes. The trend line was used to categories the lakes into three categories– lakes with increasing tread, no change and decreasing trend, depending on the last point of trend line lies above, within or below the band respectively.

5.2 Inferences from the Analysis on Glacial Lakes

44 Glacial Lakes showed an increasing trend, 20 GLs showed no change in trend and 32 GLs showed a decreasing trend. The trend analysis of 4 GLs couldn't be analyzed due to limitations of remote sensing technology, for the year 2023. The same is shown in **Figure 5.2**.

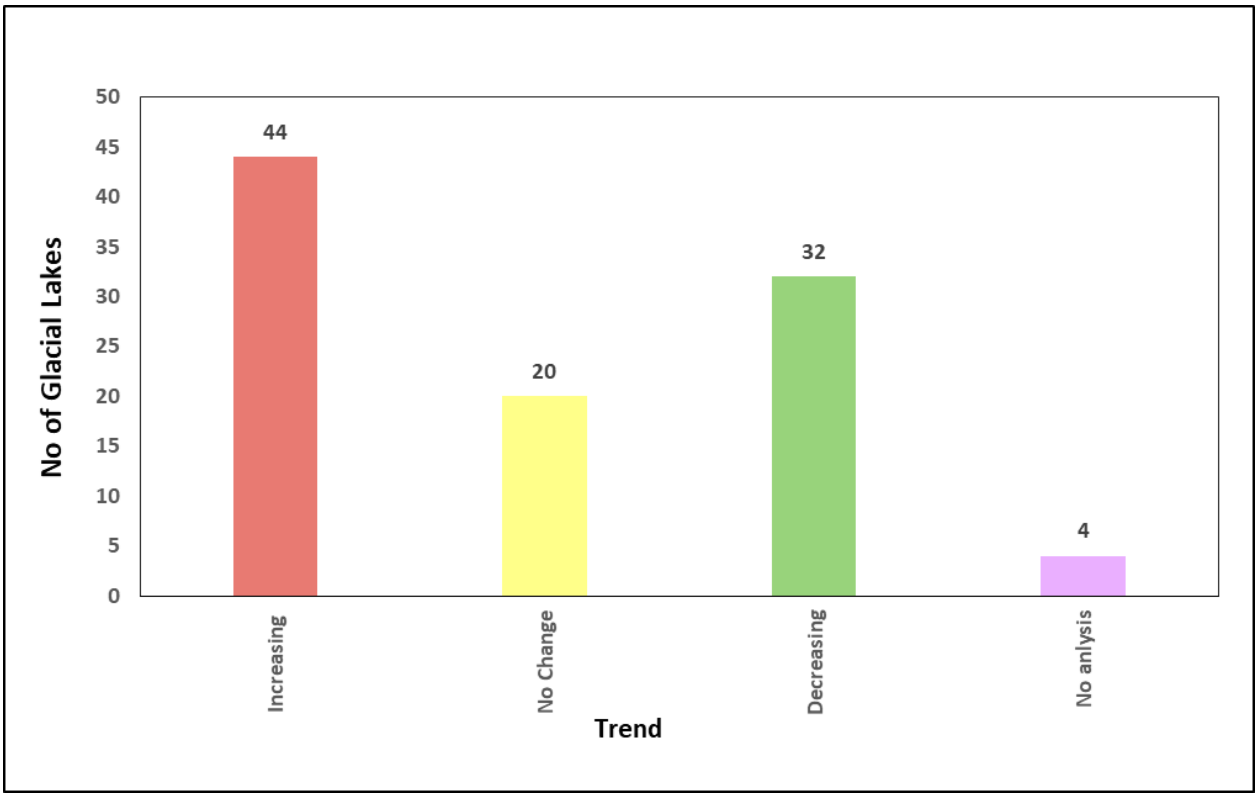


Figure 5.1: **Outcome of trend analysis of Glacial Lakes for the year 2023**

The consolidated details of the analysis of "Change in Water spread area of Glacial Lakes within India for the year 2023 are furnished in **Table No.5.1**. The details of lakes showing increasing trend,

decreasing trend, no change trend are shown in **Table No. 5.1.a, 5.1.b & 5.1.c** respectively. **Table No. 5.1.d** tabulates the lakes for which analysis was not possible.

5.3 Inferences from the Analysis on Water Bodies.

33 Water Bodies showed an increasing trend, 36 WBs showed no change in trend and 10 WBs showed a decreasing trend during the year 2023. The same is shown in **Figure 5.3**.

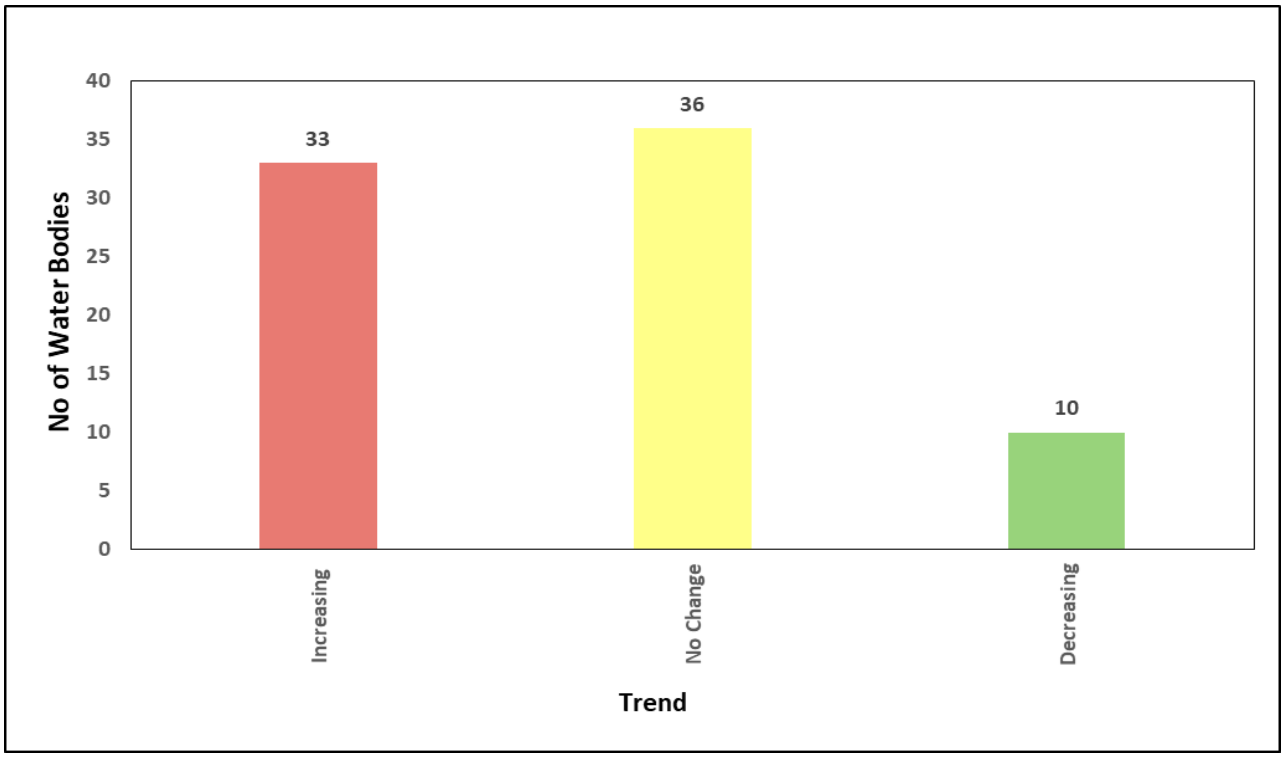


Figure 5.2: **Outcome of trend analysis of Water Bodies for the year 2023**

The consolidated details of the analysis of "Change in Water spread area of Water Bodies within India for the year 2023 are furnished in **Table No.5.2**. The details of lakes showing increasing trend, decreasing trend, no change trend are shown in **Table No. 5.2.a, 5.2.b & 5.2.c** respectively.

5.4: Conclusion

Glacial Lakes

- 44 Glacial Lakes exhibited an increasing trend with respect to change in water spread area during the year 2023 which need more attention during the next monitoring cycle for the year 2024.

Water Bodies

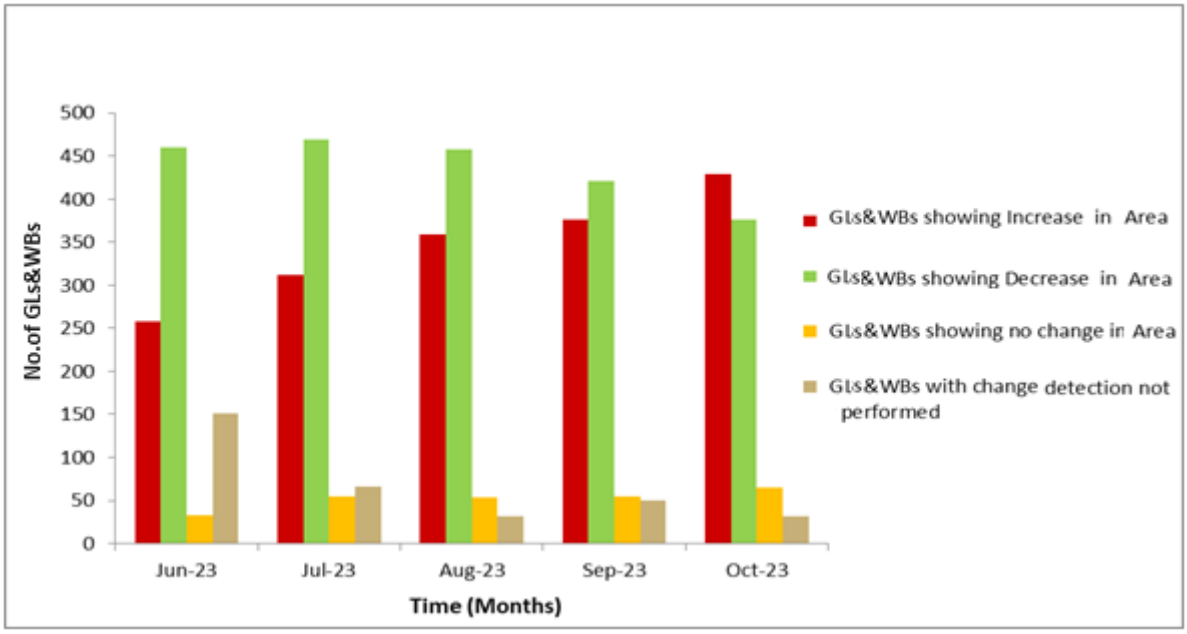
- 33 Water Bodies exhibited an increasing trend with respect to change in water spread area during the year 2023.

6.0 Details of Transboundary Glacial Lakes and Water Bodies analyzed for the year 2023

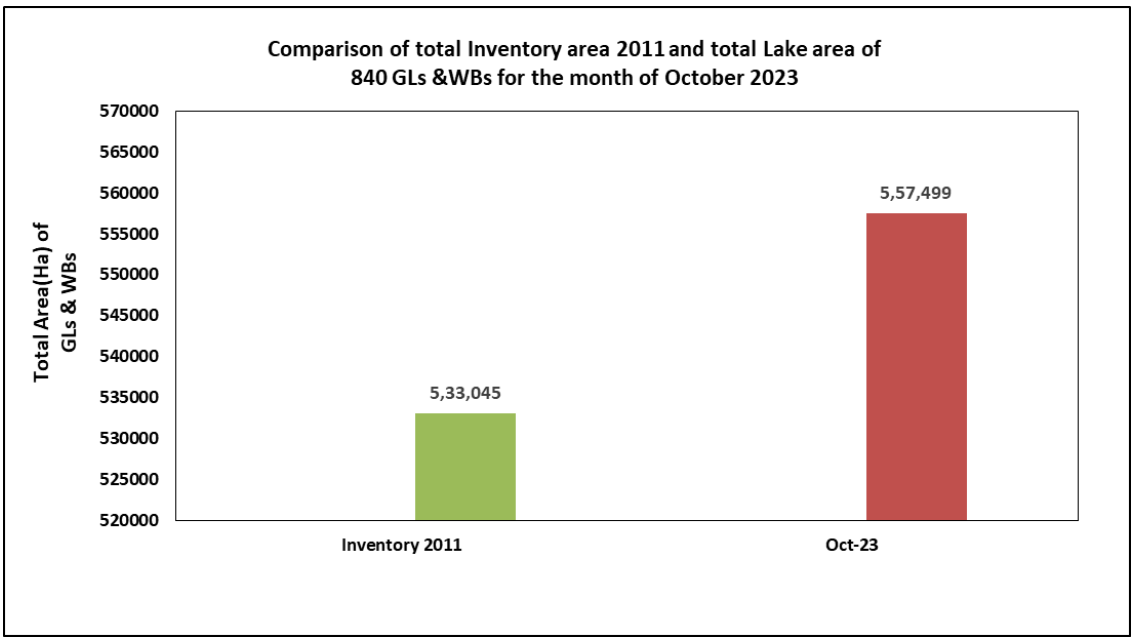
There are a total of 723 Transboundary Glacial Lakes and Water Bodies being monitored by CWC. They are spread across the countries of China, Nepal and Bhutan. The monthly monitoring details of the transboundary Glacial Lakes and Water Bodies Monitored for the year 2023 is furnished in **Table No. 6.1**

7.0 Conclusion

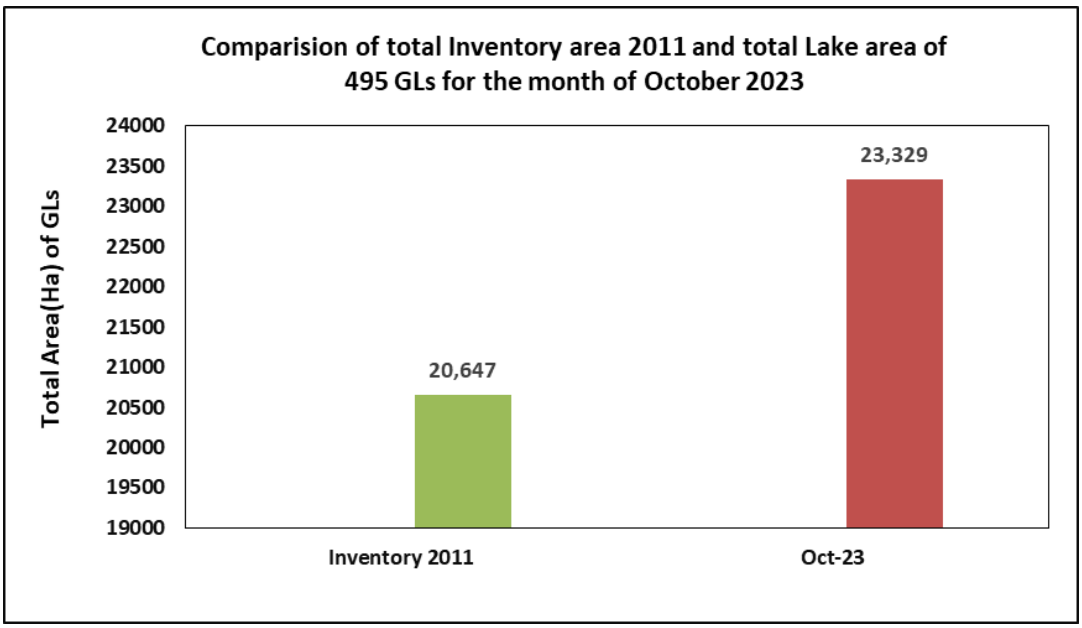
- For the year 2023, it can be interpreted that the number of glacial lakes and water bodies showing an increase in area showed a gradual increase from June to October 2023, whereas the number of Glacial Lakes showing decrease in area gradually decreased. This may be due to melting of the surface of the frozen lake as well as the mother glacier feeding to the glacial lake. This is shown in Figure below.



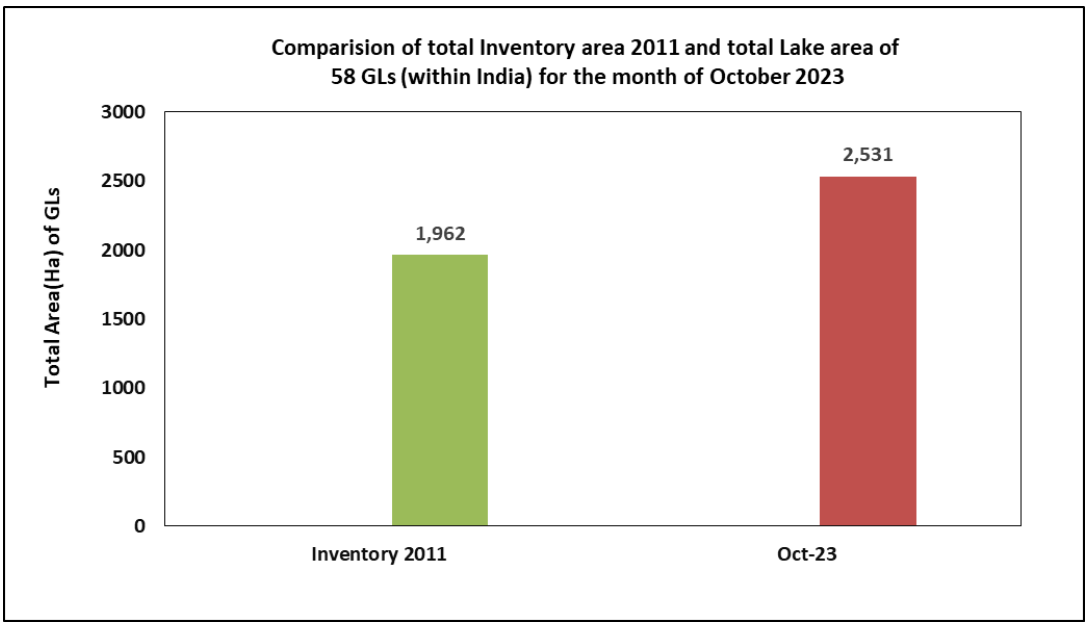
- The total Inventory area of Glacial Lakes and Water Bodies was 533045 Ha during the year 2011 which has increased to 557499 Ha during the year 2023. There is a **4.59%** increase in area. *Out of 902 GL & WB, only 840 lakes were considered for this interpretation. This includes 40 SDC lakes which have no inventory details as well as lakes which were not analysed during the year 2023.* This is shown in Figure below.



- The total Inventory area of Glacial Lakes was 20647 Ha during the year 2011 which has increased to 23329 Ha during the year 2023. There is a **12.99%** increase in area. *Out of 544 GL, only 495 lakes were considered for this interpretation. This includes 40 SDC lakes which have no inventory details as well as lakes which were not analysed during the year 2023.*



- The total Inventory area of Glacial Lakes within India was 1962 Ha during the year 2011 which has increased to 2531 Ha during the year 2023. There is a **29%** increase in area. *Out of 100GL, only 58 lakes were considered for this interpretation. This includes 40 SDC lakes which have no inventory details as well as lakes which were not analysed during the year 2023.*



- Use of a combination of Microwave satellite images in conjunction with multispectral satellite images (MSI) has largely overcome the short-comings due to obscurity from

cloud cover and this has led to almost all-time and all-weather monitoring of all 902 Lakes. This has increased availability of satellite images at shorter frequency interval and will facilitate in reducing the monitoring interval in future.

- The use of Sentinel satellite images has brought the improvement of spatial resolution from 56m to10m leading to enhancement of monitoring accuracy. Sentinel images have also aided in improving temporal resolution.
- Most of GLs & WBs exhibiting 40% or more increase in water spread area, are located in transboundary region.

Table No.5.1: Results of Analysis of Glacial Lakes within India for the year 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_42H_002	NRSC	162I		2763	36° 38' 34.8"	73° 24' 26.64"	Indus	Gilgit	Ladakh	-	13	#	16	16	16	16	16	16	16	No change
2	01_52A_002	NRSC			4537	35° 5' 48.12"	76° 14' 0.6"	Indus	Shyok	Ladakh	-	23	21	18	14	15	20	14	21	18	Decreasing
3	01_52A_003	NRSC			4586	35° 5' 33.36"	76° 15' 7.2"	Indus	Shyok	Ladakh	-	24	15	20	19	17	15	15	20	17	Decreasing
4	01_52A_004	NRSC/ SDC	/Very High Risk		4619	35° 4' 28.2"	76° 17' 33.72"	Indus	Shyok	Ladakh	-	11	#	11	10	10	8	8	11	10	Decreasing
5	01_52B_010	NRSC/ SDC	75I/Mediu m Risk		5122	34° 3' 6.48"	76° 43' 5.16"	Indus	Indus	Ladakh	-	18	#	#	16	16	16	16	16	16	No change
6	01_52B_012	NRSC	129I		5137	34° 0' 19.8"	76° 47' 12.84"	Indus	Indus	Ladakh	-	17	#	13	13	14	16	13	16	14	Increasing
7	01_52C_001	NRSC	11I		4394	33° 56' 44.52"	76° 13' 53.76"	Indus	Shingo (Indus)	Ladakh	-	36	51	50	50	51	51	50	51	51	Increasing
8	01_52C_003	NRSC	7I	JK_187	4512	33° 9' 26.28"	76° 59' 3.48"	Indus	Indus	Ladakh	45	45	57	56	56	57	55	55	57	56	Decreasing
9	01_52E_001	NRSC		JK_188	5116	35° 25' 4.8"	77° 36' 16.56"	Indus	Shyok	Ladakh	51	51	#	#	#	#	#	0	0	#	No Analysis
10	01_52J_0 01	NRSC	8I	JK_197	5311	34° 27' 27.72"	78° 8' 6.36"	Indus	Shyok	Ladakh	97	65	96	#	103	99	97	96	103	99	No change
11	01_52L_006	NRSC	306I		5727	32° 26' 27.24"	78° 55' 29.28"	Indus	Indus	Ladakh	-	12	11	11	11	11	11	11	11	11	No change
12	01_52L_007	NRSC	184I		5498	32° 24' 36.36"	78° 53' 56.4"	Indus	Indus	Ladakh	-	32	#	#	33	33	33	33	33	33	No change
13	173	SDC	Medium Risk		5150	34° 45' 54"	76° 42' 36"	Indus		Ladakh	-	-	#	#	9	10	9	9	10	9	No change
14	180	SDC	Very High Risk		4442	34° 21' 10.8"	76° 4' 37.2"	Indus		Ladakh	-	-	#	12	7	7	11	7	12	9	Decreasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
15	1360	SDC	Very High Risk		4667	35.027	75.725	Indus		Ladakh	-		#	11	10	10	10	10	11	10	Decreasing
16	01_43J_003	NRSC			3954	34° 55' 36.12"	74° 9' 19.44"	Indus	Jhelum	Jammu & Kashmir	-	20	#	16	12	14	17	12	17	15	Increasing
17	01_52C_002	NRSC	46I		4092	33° 52' 10.2"	76° 7' 9.48"	Indus	Chenab	Jammu & Kashmir	-	26	42	43	43	43	41	41	43	42	Decreasing
18	27	SDC	Very High Risk		3775	34° 22' 51.6"	74° 52' 33.6"	Indus		Jammu & Kashmir	-	-	#	12	13	15	19	12	19	15	Increasing
19	98	SDC	High Risk		4103	34° 23' 31.2"	75° 5' 6"	Indus		Jammu & Kashmir	-		#	#	7	3	6	3	7	5	Decreasing
20	182	SDC	Very High Risk		4304	34° 14' 2.4"	75° 19' 30"	Indus		Jammu & Kashmir	-	-	#	7	8	8	8	7	8	8	Increasing
21	931	SDC	Very High Risk		4082	33° 55' 44.4"	75° 23' 20.4"	Indus		Jammu & Kashmir	-	-	#	18	18	16	22	16	22	19	Increasing
22	938	SDC	Very High Risk		3683	33° 57' 10.8"	75° 22' 40.8"	Indus		Jammu & Kashmir	-	-	#	17	19	18	21	17	21	19	Increasing
23	951	SDC	Very High Risk		3762	34° 4' 1.2"	75° 28' 30"	Indus		Jammu & Kashmir	-	-	#	19	18	17	17	17	19	18	Decreasing
24	958	SDC	Very High Risk		4103	34° 8' 16.8"	75° 24' 57.6"	Indus		Jammu & Kashmir	-	-	#	#	8	8	8	8	8	8	No change
25	963	SDC	Medium Risk		3725	34° 8' 20.4"	75° 22' 33.6"	Indus		Jammu & Kashmir	-	-	#	30	31	30	35	30	35	32	Increasing
26	976	SDC	High Risk/15I		4314	34° 11' 6"	75° 22' 19.2"	Indus		Jammu & Kashmir	-	-	#	#	17	17	15	15	17	16	Decreasing
27	993	SDC	Very High Risk		4148	34° 13' 37.2"	75° 13' 19.2"	Indus		Jammu & Kashmir	-	-	#	#	5	5	5	5	5	5	No change
28	1014	SDC	Very High Risk		3989	34° 17' 56.4"	75° 3' 36"	Indus		Jammu & Kashmir	-	-	#	3	3	2	3	2	3	3	Decreasing
29	1032	SDC	Very High Risk		4007	34° 23' 9.6"	75° 3' 50.4"	Indus		Jammu & Kashmir	-	-	#	1	1	1	1	1	1	1	No change
30	1037	SDC	Medium Risk/27I		3603	34° 25' 19.2"	75° 3' 28.8"	Indus		Jammu & Kashmir	-	-	#	36	36	36	41	36	41	37	Increasing
31	01_52H_002	NRSC/ SDC	4I/Very High Risk	HP_3	4101	32° 31' 28.92"	77° 13' 5.88"	Indus	Chenab	Himachal Pradesh	62	62	113	97	88	103	101	88	113	100	No change

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
32	01_52H_003	NRSC			4165	32° 29' 54.6"	77° 32' 37.32"	Indus	Chenab	Himachal Pradesh	-	28	153	158	165	163	154	153	165	159	Increasing
33	01_52H_004	NRSC		HP_5	4155	32° 29' 47.04"	77° 33' 5.76"	Indus	Chenab	Himachal Pradesh	46	46	#	158	165	158	154	154	165	159	No change
34	01_53I_002	NRSC/ SDC	26I/Very High Risk		4273	31° 39' 38.52"	78° 10' 1.92"	Indus	Sutlej	Himachal Pradesh	-	23	#	31	31	29	29	29	31	30	Decreasing
35	1774	SDC	Very High Risk		4593	32° 13' 15.6"	76° 47' 16.8"	Indus		Himachal Pradesh	-	-	#	#	6	7	7	6	7	7	Increasing
36	1805	SDC	Very High Risk/81I		4775	32° 45' 43.2"	77° 11' 42"	Indus		Himachal Pradesh	-	-	#	6	6	5	5	5	6	6	Decreasing
37	1847	SDC	Very High Risk		4570	31° 54' 54"	77° 31' 37.2"	Indus		Himachal Pradesh	-	-	#	19	#	12	12	12	19	14	Decreasing
38	1936	SDC	Very High Risk/321I		4606	32° 15' 21.6"	76° 46' 37.2"	Indus		Himachal Pradesh	-	-	#	#	4	3	2	2	4	3	Decreasing
39	1998	SDC	Very High Risk		3857	32° 19' 12"	76° 54' 28.8"	Indus		Himachal Pradesh	-	-	#	#	1	1	1	1	1	1	No change
40	2031	SDC	Very High Risk		4702	31° 20' 20.4"	78° 15' 10.8"	Indus		Himachal Pradesh	-	-	#	#	15	9	10	9	15	11	Decreasing
41	01_62B_003	NRSC	86I		5288	30° 28' 36.48"	80° 35' 35.16"	Indus	Sutlej	Uttarakhand	-	12	#	11	12	12	13	11	13	12	Increasing
42	02_53N_001	NRSC	250G		4688	30° 54' 7.92"	79° 45' 12.6"	Ganga	Ganga	Uttarakhand	-	21	21	26	25	24	19	19	26	23	Decreasing
43	02_62B_004	NRSC	232G		4918	30° 33' 52.2"	80° 10' 41.16"	Ganga	Sarda	Uttarakhand	-	19	9	24	20	26	16	9	26	19	Increasing
44	02_62B_005	NRSC	580G		4314	30° 26' 44.52"	80° 23' 16.08"	Ganga	Sarda	Uttarakhand	-	12	5	9	10	12	11	5	12	9	Increasing
45	02_62B_007	NRSC			4839	30° 16' 42.96"	80° 7' 49.8"	Ganga	Sarda	Uttarakhand	-	19	#	#	#	#	#	0	0	0	No analysis
46	2108	SDC	Very High Risk/347G		5587	30° 58' 33.6"	79° 27' 32.4"	Ganga		Uttarakhand	-	-	#	17	17	18	18	17	18	18	Increasing
47	2147	SDC	Medium Risk		5688	30° 58' 48"	79° 29' 13.2"	Ganga		Uttarakhand	-	-	#	#	#	#	#	0	0	#	No analysis
48	2207	SDC	Very High Risk		4707	30° 54' 43.2"	78° 57' 28.8"	Ganga		Uttarakhand	-	-	#	12	11	13	6	6	13	11	Decreasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
49	2299	SDC	Very High Risk		4490	30° 11' 2.4"	79° 52' 48"	Ganga		Uttarakhand	-	-	#	#	#	#	#	0	0	#	No Analysis
50	03_77D_002	NRSC		SK_2	5156	28° 1' 33.96"	88° 42' 36"	Brahma-putra	Teesta	Sikkim	105	104	107	118	117	114	107	107	118	113	Decreasing
51	03_77D_004	NRSC/ SDC	/Very High Risk	SK_4	5287	28° 0' 25.56"	88° 42' 46.08"	Brahma-putra	Teesta	Sikkim	106	106	123	74	82	116	131	74	131	105	Increasing
52	03_77D_005	NRSC/ SDC	/Very High Risk	SK_5	5249	28° 0' 32.76"	88° 41' 52.44"	Brahma-putra	Teesta	Sikkim	79	88	88	97	100	104	104	88	104	99	Increasing
53	03_77D_006	NRSC/ SDC	/Very High Risk		5084	28° 0' 51.84"	88° 33' 41.76"	Brahma-putra	Teesta	Sikkim	-	22	22	19	26	27	26	19	27	24	Increasing
54	03_77D_007	NRSC/ SDC	/Very High Risk		5015	28° 0' 26.28"	88° 34' 18.48"	Brahma-putra	Teesta	Sikkim	-	24	23	22	22	20	24	20	24	22	No change
55	03_77D_008	NRSC		SK_8	5039	28° 0' 26.28"	88° 29' 41.64"	Brahma-putra	Teesta	Sikkim	46	46	43	43	47	44	43	43	47	44	No change
56	03_78A_001	NRSC/ SDC	/High Risk	SK_9	5371	27° 59' 30.12"	88° 48' 55.8"	Brahma-putra	Teesta	Sikkim	156	156	260	183	175	181	189	175	260	198	Increasing
57	03_78A_002	NRSC/ SDC	/Very High Risk		4952	27° 58' 56.28"	88° 30' 28.08"	Brahma-putra	Teesta	Sikkim	-	22	36	33	#	37	36	33	37	36	Increasing
58	03_78A_003	NRSC/ SDC	/Very High Risk	SK_11	4977	27° 58' 31.08"	88° 36' 59.04"	Brahma-putra	Teesta	Sikkim	58	58	56	58	36	57	57	36	58	53	No change
59	03_78A_005	NRSC			5201	27° 58' 31.44"	88° 25' 20.64"	Brahma-putra	Teesta	Sikkim	-	11	5	7	1	0	13	0	13	5	Increasing
60	03_78A_006	NRSC			5004	27° 58' 15.6"	88° 25' 45.84"	Brahma-putra	Teesta	Sikkim	-	11	8	11	9	10	14	8	14	10	Increasing
61	03_78A_007	NRSC/ SDC	/Very High Risk		4977	27° 57' 38.88"	88° 38' 57.48"	Brahma-putra	Teesta	Sikkim	-	17	19	16	13	16	19	13	19	17	No change
62	03_78A_008	NRSC			4998	27° 57' 3.24"	88° 21' 15.48"	Brahma-putra	Teesta	Sikkim	-	44	8	17	9	17	18	8	18	14	Increasing
63	03_78A_009	NRSC		SK_16	5044	27° 56' 51.72"	88° 19' 52.68"	Brahma-putra	Teesta	Sikkim	54	55	64	64	61	60	58	58	64	61	Decreasing
64	03_78A_010	NRSC			5078	27° 57' 0.72"	88° 18' 16.92"	Brahma-putra	Teesta	Sikkim	-	36	31	33	27	39	36	27	39	33	Increasing
65	03_78A_012	NRSC			5130	27° 54' 4.32"	88° 46' 54.84"	Brahma-putra	Teesta	Sikkim	-	26	14	25	23	26	28	14	28	23	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
66	03_78A_013	NRSC		SK_19	5470	27° 55' 7.68"	88° 9' 39.6"	Brahma-putra	Teesta	Sikkim	63	67	81	80	81	80	76	76	81	80	Decreasing
67	03_78A_014	NRSC/ SDC	/Very High Risk	SK_20	5234	27° 54' 42.84"	88° 11' 54.96"	Brahma-putra	Teesta	Sikkim	94	123	142	156	155	147	147	142	156	149	Increasing
68	03_78A_015	NRSC/ SDC	/Medium Risk		4970	27° 52' 23.88"	88° 47' 22.2"	Brahma-putra	Teesta	Sikkim	-	12	5	9	6	8	10	5	10	8	Increasing
69	03_78A_016	NRSC			5451	27° 53' 33.72"	88° 12' 47.16"	Brahma-putra	Teesta	Sikkim	-	14	11	11	11	10	11	10	11	11	Decreasing
70	03_78A_017	NRSC			5545	27° 53' 34.8"	88° 11' 31.92"	Brahma-putra	Teesta	Sikkim	-	19	#	30	24	14	29	14	30	24	Decreasing
71	03_78A_019	NRSC/ SDC	/Very High Risk		4809	27° 51' 52.2"	88° 51' 46.44"	Brahma-putra	Teesta	Sikkim	-	15	13	12	14	12	13	12	14	13	No change
72	03_78A_020	NRSC			5219	27° 52' 49.44"	88° 15' 4.68"	Brahma-putra	Teesta	Sikkim	-	14	13	13	13	13	14	13	14	13	Increasing
73	03_78A_021	NRSC		SK_26	5431	27° 49' 28.2"	88° 14' 57.12"	Brahma-putra	Teesta	Sikkim	56	56	77	76	77	76	94	76	94	80	Increasing
74	03_78A_023	NRSC			4547	27° 40' 17.04"	88° 30' 46.44"	Brahma-putra	Teesta	Sikkim	-	33	31	27	29	27	32	27	32	29	Increasing
75	03_78A_026	NRSC			4736	27° 33' 44.28"	88° 7' 24.96"	Brahma-putra	Teesta	Sikkim	-	11	14	12	12	12	10	10	14	12	Decreasing
76	03_78A_027	NRSC/ SDC	/Very High Risk		4888	27° 32' 0.6"	88° 5' 8.52"	Brahma-putra	Teesta	Sikkim	-	33	30	33	36	35	37	30	37	34	Increasing
77	03_78A_031	NRSC			4305	27° 26' 15"	88° 5' 9.6"	Brahma-putra	Teesta	Sikkim	-	14	11	12	12	12	13	11	13	12	Increasing
78	03_78A_035	NRSC			4998	27° 57' 3.24"	88° 21' 15.48"	Brahma-putra	Teesta	Sikkim	-	-	4	7	4	12	12	4	12	8	Increasing
79	227	SDC	Very High Risk		5176	27° 59' 34.8"	88° 32' 49.2"	Brahma-putra		Sikkim	-	-	#	56	70	65	62	56	70	63	Increasing
80	237	SDC	Very Low Risk		5322	27° 59' 34.8"	88° 48' 3.6"	Brahma-putra		Sikkim	-	-	#	7	5	5	8	5	8	6	Increasing
81	256	SDC	High risk		4615	27° 48' 57.6"	88° 39' 25.2"	Brahma-putra		Sikkim	-	-	#	14	11	7	14	7	14	12	Decreasing
82	260	SDC	Medium Risk		5253	27° 53' 38.4"	88° 45' 39.6"	Brahma-putra		Sikkim	-	-	#	42	32	42	42	32	42	40	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
83	292	SDC	Medium Risk		5577	28° 0' 21.6"	88° 39' 18"	Brahma-putra		Sikkim	-	-	#	4	3	3	3	3	4	3	Decreasing
84	293	SDC	Very High Risk		5048	27° 57' 3.6"	88° 42' 18"	Brahma-putra		Sikkim	-	-	#	3	1	1	2	1	3	2	Decreasing
85	295	SDC	Very High Risk		4850	27° 55' 12"	88° 40' 19.2"	Brahma-putra		Sikkim	-	-	#	8	6	6	9	6	9	7	Increasing
86	298	SDC	Very High Risk		4508	27° 52' 22.8"	88° 38' 16.8"	Brahma-putra		Sikkim	-	-	#	#	8	6	6	6	8	7	Decreasing
87	312	SDC	Medium Risk		5137	27° 42' 3.6"	88° 30' 50.4"	Brahma-putra		Sikkim	-	-	#	8	3	9	9	3	9	7	Increasing
88	345	SDC	Medium Risk		5108	27° 51' 50.4"	88° 44' 49.2"	Brahma-putra		Sikkim	-	-	#	18	14	14	18	14	18	16	No change
89	515	SDC	Medium Risk		5063	27° 51' 14.4"	88° 48' 21.6"	Brahma-putra		Sikkim	-	-	#	8	6	7	10	6	10	8	Increasing
90	569	SDC	Medium Risk		5450	28° 0' 7.2"	88° 38' 24"	Brahma-putra		Sikkim	-	-	#	28	36	28	30	28	36	31	No change
91	599	SDC	Very High Risk		4251	27° 41' 42"	88° 42' 57.6"	Brahma-putra		Sikkim	-	-	#	#	10	6	9	6	10	8	Decreasing
92	03_82L_007	NRSC			4163	28° 50' 15"	94° 27' 5.04"	Brahma-putra	Ding	Arunachal Pradesh	-	16	4	16	17	15	17	4	17	14	Decreasing
93	03_83A_003	NRSC			5188	27° 46' 12.72"	92° 25' 56.64"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	24	81	87	82	79	87	79	87	83	Increasing
94	03_83A_004	NRSC			5109	27° 45' 47.16"	92° 25' 29.64"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	17	17	16	16	17	23	16	23	18	Increasing
95	03_83A_005	NRSC			4994	27° 45' 20.52"	92° 24' 2.52"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	13	11	12	11	11	13	11	13	12	Increasing
96	03_83A_007	NRSC			5028	27° 43' 39.36"	92° 26' 12.48"	Brahma-putra	Jia Brali	Arunachal Pradesh	-	14	14	15	9	13	15	9	15	13	no change
97	03_91C_026	NRSC			4305	29° 20' 18.24"	96° 4' 57.72"	Brahma-putra	Dibang	Arunachal Pradesh	-	28	#	29	28	27	27	27	29	28	Decreasing
98	03_91D_075	NRSC			4274	28° 36' 28.8"	96° 19' 14.16"	Brahma-putra	Dibang	Arunachal Pradesh	-	23	#	32	#	26	28	26	32	29	Increasing
99	03_91H_073	NRSC			4481	28° 3' 15.48"	97° 19' 47.64"	Brahma-putra	Lohit	Arunachal Pradesh	-	25	#	33	25	19	27	19	33	26	Decreasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
100	129	SDC	Very High Risk		4895			Brahma-putra		Arunachal Pradesh	-	-	#	9	9	9	11	9	11	10	Increasing

Note: *G stands for Ganga, I for Indus and B for Brahmaputra under the rank of vulnerability, "-"indicates Inventory data Not Available, "#" indicates cloud covered, frozen/ dried lakes*

Table No.5.1.a: Results of Glacial Lakes showing increasing trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_52B_012	NRSC	129I		5137	34° 0' 19.8"	76° 47' 12.84"	Indus	Indus	Ladakh	-	17	#	13	13	14	16	13	16	14	Increasing
2	01_52C_001	NRSC	11I		4394	33° 56' 44.52"	76° 13' 53.76"	Indus	Shingo (Indus)	Ladakh	-	36	51	50	50	51	51	50	51	51	Increasing
3	01_43J_003	NRSC			3954	34° 55' 36.12"	74° 9' 19.44"	Indus	Jhelum	Jammu & Kashmir	-	20	#	16	12	14	17	12	17	15	Increasing
4	27	SDC	Very High Risk		3775	34° 22' 51.6"	74° 52' 33.6"	Indus		Jammu & Kashmir	-	-	#	12	13	15	19	12	19	15	Increasing
5	182	SDC	Very High Risk		4304	34° 14' 2.4"	75° 19' 30"	Indus		Jammu & Kashmir	-	-	#	7	8	8	8	7	8	8	Increasing
6	931	SDC	Very High Risk		4082	33° 55' 44.4"	75° 23' 20.4"	Indus		Jammu & Kashmir	-	-	#	18	18	16	22	16	22	19	Increasing
7	938	SDC	Very High Risk		3683	33° 57' 10.8"	75° 22' 40.8"	Indus		Jammu & Kashmir	-	-	#	17	19	18	21	17	21	19	Increasing
8	963	SDC	Medium Risk		3725	34° 8' 20.4"	75° 22' 33.6"	Indus		Jammu & Kashmir	-	-	#	30	31	30	35	30	35	32	Increasing
9	1037	SDC	Medium Risk/27I		3603	34° 25' 19.2"	75° 3' 28.8"	Indus		Jammu & Kashmir	-	-	#	36	36	36	41	36	41	37	Increasing
10	01_52H_003	NRSC			4165	32° 29' 54.6"	77° 32' 37.32"	Indus	Chenab	Himachal Pradesh	-	28	153	158	165	163	154	153	165	159	Increasing
11	1774	SDC	Very High Risk		4593	32° 13' 15.6"	76° 47' 16.8"	Indus		Himachal Pradesh	-	-	#	#	6	7	7	6	7	7	Increasing
12	01_62B_003	NRSC	86I		5288	30° 28' 36.48"	80° 35' 35.16"	Indus	Sutlej	Uttarakhand	-	12	#	11	12	12	13	11	13	12	Increasing
13	02_62B_004	NRSC	232G		4918	30° 33' 52.2"	80° 10' 41.16"	Ganga	Sarda	Uttarakhand	-	19	9	24	20	26	16	9	26	19	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
14	02_62B_005	NRSC	580G		4314	30° 26' 44.52"	80° 23' 16.08"	Ganga	Sarda	Uttarakhand	-	12	5	9	10	12	11	5	12	9	Increasing
15	2108	SDC	Very High Risk/347 G		5587	30° 58' 33.6"	79° 27' 32.4"	Ganga		Uttarakhand	-	-	#	17	17	18	18	17	18	18	Increasing
16	03_77D_004	NRSC/ SDC	/Very High Risk	SK_4	5287	28° 0' 25.56"	88° 42' 46.08"	Brahma-putra	Teesta	Sikkim	106	106	123	74	82	116	131	74	131	105	Increasing
17	03_77D_005	NRSC/ SDC	/Very High Risk	SK_5	5249	28° 0' 32.76"	88° 41' 52.44"	Brahma-putra	Teesta	Sikkim	79	88	88	97	100	104	104	88	104	99	Increasing
18	03_77D_006	NRSC/ SDC	/Very High Risk		5084	28° 0' 51.84"	88° 33' 41.76"	Brahma-putra	Teesta	Sikkim	-	22	22	19	26	27	26	19	27	24	Increasing
19	03_78A_001	NRSC/ SDC	/High Risk	SK_9	5371	27° 59' 30.12"	88° 48' 55.8"	Brahma-putra	Teesta	Sikkim	156	156	260	183	175	181	189	175	260	198	Increasing
20	03_78A_002	NRSC/ SDC	/Very High Risk		4952	27° 58' 56.28"	88° 30' 28.08"	Brahma-putra	Teesta	Sikkim	-	22	36	33	#	37	36	33	37	36	Increasing
21	03_78A_005	NRSC			5201	27° 58' 31.44"	88° 25' 20.64"	Brahma-putra	Teesta	Sikkim	-	11	5	7	1	0	13	0	13	5	Increasing
22	03_78A_006	NRSC			5004	27° 58' 15.6"	88° 25' 45.84"	Brahma-putra	Teesta	Sikkim	-	11	8	11	9	10	14	8	14	10	Increasing
23	03_78A_008	NRSC			4998	27° 57' 3.24"	88° 21' 15.48"	Brahma-putra	Teesta	Sikkim	-	44	8	17	9	17	18	8	18	14	Increasing
24	03_78A_010	NRSC			5078	27° 57' 0.72"	88° 18' 16.92"	Brahma-putra	Teesta	Sikkim	-	36	31	33	27	39	36	27	39	33	Increasing
25	03_78A_012	NRSC			5130	27° 54' 4.32"	88° 46' 54.84"	Brahma-putra	Teesta	Sikkim	-	26	14	25	23	26	28	14	28	23	Increasing
26	03_78A_014	NRSC/ SDC	/Very High Risk	SK_20	5234	27° 54' 42.84"	88° 11' 54.96"	Brahma-putra	Teesta	Sikkim	94	123	142	156	155	147	147	142	156	149	Increasing
27	03_78A_015	NRSC/ SDC	/Medium Risk		4970	27° 52' 23.88"	88° 47' 22.2"	Brahma-putra	Teesta	Sikkim	-	12	5	9	6	8	10	5	10	8	Increasing
28	03_78A_020	NRSC			5219	27° 52' 49.44"	88° 15' 4.68"	Brahma-putra	Teesta	Sikkim	-	14	13	13	13	13	14	13	14	13	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
29	03_78A_021	NRSC		SK_26	5431	27° 49' 28.2"	88° 14' 57.12"	Brahma-putra	Teesta	Sikkim	56	56	77	76	77	76	94	76	94	80	Increasing
30	03_78A_023	NRSC			4547	27° 40' 17.04"	88° 30' 46.44"	Brahma-putra	Teesta	Sikkim	-	33	31	27	29	27	32	27	32	29	Increasing
31	03_78A_027	NRSC/ SDC	/Very High Risk		4888	27° 32' 0.6"	88° 5' 8.52"	Brahma-putra	Teesta	Sikkim	-	33	30	33	36	35	37	30	37	34	Increasing
32	03_78A_031	NRSC			4305	27° 26' 15"	88° 5' 9.6"	Brahma-putra	Teesta	Sikkim	-	14	11	12	12	12	13	11	13	12	Increasing
33	03_78A_035	NRSC			4998	27° 57' 3.24"	88° 21' 15.48"	Brahma-putra	Teesta	Sikkim	-	-	4	7	4	12	12	4	12	8	Increasing
34	227	SDC	Very High Risk		5176	27° 59' 34.8"	88° 32' 49.2"	Brahma-putra		Sikkim	-	-	#	56	70	65	62	56	70	63	Increasing
35	237	SDC	Very Low Risk		5322	27° 59' 34.8"	88° 48' 3.6"	Brahma-putra		Sikkim	-	-	#	7	5	5	8	5	8	6	Increasing
36	260	SDC	Medium Risk		5253	27° 53' 38.4"	88° 45' 39.6"	Brahma-putra		Sikkim	-	-	#	42	32	42	42	32	42	40	Increasing
37	295	SDC	Very High Risk		4850	27° 55' 12"	88° 40' 19.2"	Brahma-putra		Sikkim	-	-	#	8	6	6	9	6	9	7	Increasing
38	312	SDC	Medium Risk		5137	27° 42' 3.6"	88° 30' 50.4"	Brahma-putra		Sikkim	-	-	#	8	3	9	9	3	9	7	Increasing
39	515	SDC	Medium Risk		5063	27° 51' 14.4"	88° 48' 21.6"	Brahma-putra		Sikkim	-	-	#	8	6	7	10	6	10	8	Increasing
40	03_83A_003	NRSC			5188	27° 46' 12.72"	92° 25' 56.64"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	24	81	87	82	79	87	79	87	83	Increasing
41	03_83A_004	NRSC			5109	27° 45' 47.16"	92° 25' 29.64"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	17	17	16	16	17	23	16	23	18	Increasing
42	03_83A_005	NRSC			4994	27° 45' 20.52"	92° 24' 2.52"	Brahma-putra	Dangme Chhu	Arunachal Pradesh	-	13	11	12	11	11	13	11	13	12	Increasing
43	03_91D_075	NRSC			4274	28° 36' 28.8"	96° 19' 14.16"	Brahma-putra	Dibang	Arunachal Pradesh	-	23	#	32	#	26	28	26	32	29	Increasing
44	129	SDC	Very High Risk		4895			Brahma-putra		Arunachal Pradesh	-	-	#	9	9	9	11	9	11	10	Increasing

Table No.5.1.b: Results of Glacial Lakes showing no change trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_42H_002	NRSC	162I		2763	36° 38' 34.8"	73° 24' 26.64"	Indus	Gilgit	Ladakh	-	13	#	16	16	16	16	16	16	16	No change
2	01_52B_010	NRSC/ SDC	75I/Medium Risk		5122	34° 3' 6.48"	76° 43' 5.16"	Indus	Indus	Ladakh	-	18	#	#	16	16	16	16	16	16	No change
3	01_52J_001	NRSC	8I	JK_197	5311	34° 27' 27.72"	78° 8' 6.36"	Indus	Shyok	Ladakh	97	65	96	#	103	99	97	96	103	99	No change
4	01_52L_006	NRSC	306I		5727	32° 26' 27.24"	78° 55' 29.28"	Indus	Indus	Ladakh	-	12	11	11	11	11	11	11	11	11	No change
5	01_52L_007	NRSC	184I		5498	32° 24' 36.36"	78° 53' 56.4"	Indus	Indus	Ladakh	-	32	#	#	33	33	33	33	33	33	No change
6	173	SDC	Medium Risk		5150	34° 45' 54"	76° 42' 36"	Indus		Ladakh	-		#	#	9	10	9	9	10	9	No change
7	958	SDC	Very High Risk		4103	34° 8' 16.8"	75° 24' 57.6"	Indus		Jammu & Kashmir	-	-	#	#	8	8	8	8	8	8	No change
8	993	SDC	Very High Risk		4148	34° 13' 37.2"	75° 13' 19.2"	Indus		Jammu & Kashmir	-	-	#	#	5	5	5	5	5	5	No change
9	1032	SDC	Very High Risk		4007	34° 23' 9.6"	75° 3' 50.4"	Indus		Jammu & Kashmir	-	-	#	1	1	1	1	1	1	1	No change
10	01_52H_002	NRSC/ SDC	4I/Very High Risk	HP_3	4101	32° 31' 28.92"	77° 13' 5.88"	Indus	Chenab	Himachal Pradesh	62	62	113	97	88	103	101	88	113	100	No change
11	01_52H_004	NRSC		HP_5	4155	32° 29' 47.04"	77° 33' 5.76"	Indus	Chenab	Himachal Pradesh	46	46	#	158	165	158	154	154	165	159	No change
12	1998	SDC	Very High Risk		3857	32° 19' 12"	76° 54' 28.8"	Indus		Himachal Pradesh	-	-	#	#	1	1	1	1	1	1	No change
13	03_77D_007	NRSC/ SDC	/Very High Risk		5015	28° 0' 26.28"	88° 34' 18.48"	Brahma -putra	Teesta	Sikkim	-	24	23	22	22	20	24	20	24	22	No change
14	03_77D_008	NRSC		SK_8	5039	28° 0' 26.28"	88° 29' 41.64"	Brahma -putra	Teesta	Sikkim	46	46	43	43	47	44	43	43	47	44	No change
15	03_78A_003	NRSC/ SDC	/Very High Risk	SK_11	4977	27° 58' 31.08"	88° 36' 59.04"	Brahma -putra	Teesta	Sikkim	58	58	56	58	36	57	57	36	58	53	No change
16	03_78A_007	NRSC/ SDC	/Very High Risk		4977	27° 57' 38.88"	88° 38' 57.48"	Brahma -putra	Teesta	Sikkim	-	17	19	16	13	16	19	13	19	17	No change
17	03_78A_019	NRSC/ SDC	/Very High Risk		4809	27° 51' 52.2"	88° 51' 46.44"	Brahma -putra	Teesta	Sikkim	-	15	13	12	14	12	13	12	14	13	No change
18	345	SDC	Medium Risk		5108	27° 51' 50.4"	88° 44' 49.2"	Brahma -putra		Sikkim	-	-	#	18	14	14	18	14	18	16	No change
19	569	SDC	Medium Risk		5450	28° 0' 7.2"	88° 38' 24"	Brahma -putra		Sikkim	-	-	#	28	36	28	30	28	36	31	No change
20	03_83A_007	NRSC			5028	27° 43' 39.36"	92° 26' 12.48"	Brahma -putra	Jia Brali	Arunachal Pradesh	-	14	14	15	9	13	15	9	15	13	No change

Table No.5.1.c: Results of Glacial Lakes showing decreasing trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_52A_002	NRSC			4537	35° 5' 48.12"	76° 14' 0.6"	Indus	Shyok	Ladakh	-	23	21	18	14	15	20	14	21	18	Decreasing
2	01_52A_003	NRSC			4586	35° 5' 33.36"	76° 15' 7.2"	Indus	Shyok	Ladakh	-	24	15	20	19	17	15	15	20	17	Decreasing
3	01_52A_004	NRSC/ SDC	/Very High Risk		4619	35° 4' 28.2"	76° 17' 33.72"	Indus	Shyok	Ladakh	-	11	#	11	10	10	8	8	11	10	Decreasing
4	01_52C_003	NRSC	7I	JK_187	4512	33° 9' 26.28"	76° 59' 3.48"	Indus	Indus	Ladakh	45	45	57	56	56	57	55	55	57	56	Decreasing
5	180	SDC	Very High Risk		4442	34° 21' 10.8"	76° 4' 37.2"	Indus		Ladakh	-	-	#	12	7	7	11	7	12	9	Decreasing
6	1360	SDC	Very High Risk		4667	35.027	75.725	Indus		Ladakh	-		#	11	10	10	10	10	11	10	Decreasing
7	01_52C_002	NRSC	46I		4092	33° 52' 10.2"	76° 7' 9.48"	Indus	Chenab	Jammu & Kashmir	-	26	42	43	43	43	41	41	43	42	Decreasing
8	98	SDC	High Risk		4103	34° 23' 31.2"	75° 5' 6"	Indus		Jammu & Kashmir	-	-	#	#	7	3	6	3	7	5	Decreasing
9	951	SDC	Very High Risk		3762	34° 4' 1.2"	75° 28' 30"	Indus		Jammu & Kashmir	-	-	#	19	18	17	17	17	19	18	Decreasing
10	976	SDC	High Risk/15I		4314	34° 11' 6"	75° 22' 19.2"	Indus		Jammu & Kashmir	-	-	#	#	17	17	15	15	17	16	Decreasing
11	1014	SDC	Very High Risk		3989	34° 17' 56.4"	75° 3' 36"	Indus		Jammu & Kashmir	-	-	#	3	3	2	3	2	3	3	Decreasing
12	01_53I_002	NRSC/ SDC	26I/Very High Risk		4273	31° 39' 38.52"	78° 10' 1.92"	Indus	Sutlej	Himachal Pradesh	-	23	#	31	31	29	29	29	31	30	Decreasing
13	1805	SDC	Very High Risk/81I		4775	32° 45' 43.2"	77° 11' 42"	Indus		Himachal Pradesh	-	-	#	6	6	5	5	5	6	6	Decreasing
14	1847	SDC	Very High Risk		4570	31° 54' 54"	77° 31' 37.2"	Indus		Himachal Pradesh	-	-	#	19	#	12	12	12	19	14	Decreasing
15	1936	SDC	Very High Risk/321I		4606	32° 15' 21.6"	76° 46' 37.2"	Indus		Himachal Pradesh	-	-	#	#	4	3	2	2	4	3	Decreasing
16	2031	SDC	Very High Risk		4702	31° 20' 20.4"	78° 15' 10.8"	Indus		Himachal Pradesh	-	-	#	#	15	9	10	9	15	11	Decreasing
17	02_53N_001	NRSC	250G		4688	30° 54' 7.92"	79° 45' 12.6"	Ganga	Ganga	Uttarakhand	-	21	21	26	25	24	19	19	26	23	Decreasing
18	2207	SDC	Very High Risk		4707	30° 54' 43.2"	78° 57' 28.8"	Ganga		Uttarakhand	-	-	#	12	11	13	6	6	13	11	Decreasing
19	03_77D_002	NRSC		SK_2	5156	28° 1' 33.96"	88° 42' 36"	Brahma-putra	Teesta	Sikkim	105	104	107	118	117	114	107	107	118	113	Decreasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
20	03_78A_009	NRSC		SK_16	5044	27° 56' 51.72"	88° 19' 52.68"	Brahma-putra	Teesta	Sikkim	54	55	64	64	61	60	58	58	64	61	Decreasing
21	03_78A_013	NRSC		SK_19	5470	27° 55' 7.68"	88° 9' 39.6"	Brahma-putra	Teesta	Sikkim	63	67	81	80	81	80	76	76	81	80	Decreasing
22	03_78A_016	NRSC			5451	27° 53' 33.72"	88° 12' 47.16"	Brahma-putra	Teesta	Sikkim	-	14	11	11	11	10	11	10	11	11	Decreasing
23	03_78A_017	NRSC			5545	27° 53' 34.8"	88° 11' 31.92"	Brahma-putra	Teesta	Sikkim	-	19	#	30	24	14	29	14	30	24	Decreasing
24	03_78A_026	NRSC			4736	27° 33' 44.28"	88° 7' 24.96"	Brahma-putra	Teesta	Sikkim	-	11	14	12	12	12	10	10	14	12	Decreasing
25	256	SDC	High risk		4615	27° 48' 57.6"	88° 39' 25.2"	Brahma-putra		Sikkim	-	-	#	14	11	7	14	7	14	12	Decreasing
26	292	SDC	Medium Risk		5577	28° 0' 21.6"	88° 39' 18"	Brahma-putra		Sikkim	-	-	#	4	3	3	3	3	4	3	Decreasing
27	293	SDC	Very High Risk		5048	27° 57' 3.6"	88° 42' 18"	Brahma-putra		Sikkim	-	-	#	3	1	1	2	1	3	2	Decreasing
28	298	SDC	Very High Risk		4508	27° 52' 22.8"	88° 38' 16.8"	Brahma-putra		Sikkim	-	-	#	#	8	6	6	6	8	7	Decreasing
29	599	SDC	Very High Risk		4251	27° 41' 42"	88° 42' 57.6"	Brahma-putra		Sikkim	-	-	#	#	10	6	9	6	10	8	Decreasing
30	03_82L_007	NRSC			4163	28° 50' 15"	94° 27' 5.04"	Brahma-putra	Ding	Arunachal Pradesh	-	16	4	16	17	15	17	4	17	14	Decreasing
31	03_91C_026	NRSC			4305	29° 20' 18.24"	96° 4' 57.72"	Brahma-putra	Dibang	Arunachal Pradesh	-	28	#	29	28	27	27	27	29	28	Decreasing
32	03_91H_073	NRSC			4481	28° 3' 15.48"	97° 19' 47.64"	Brahma-putra	Lohit	Arunachal Pradesh	-	25	#	33	25	19	27	19	33	26	Decreasing

Table No.5.1.d: Results of Glacial Lakes which couldn't be analyzed during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_52E_001	NRSC		JK_188	5116	35° 25' 4.8"	77° 36' 16.56"	Indus	Shyok	Ladakh	51	51	#	#	#	#	#	0	0	#	No Analysis
2	02_62B_007	NRSC			4839	30° 16' 42.96"	80° 7' 49.8"	Ganga	Sarda	Uttarakhand	-	19	#	#	#	#	#	0	0	0	No analysis
3	2147	SDC	Medium Risk		5688	30° 58' 48"	79° 29' 13.2"	Ganga		Uttarakhand	-	-	#	#	#	#	#	0	0	#	No analysis
4	2299	SDC	Very High Risk		4490	30° 11' 2.4"	79° 52' 48"	Ganga		Uttarakhand	-	-	#	#	#	#	#	0	0	#	No analysis

Table No.5.2: Results of Analysis of Water Bodies within India for the year 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_42H_001	NRSC		JK_1	4292	36° 52' 50.16"	73° 42' 4.68"	Indus	Gilgit	Ladakh (POK)	276	276	285	274	270	253	264	253	285	269	Decreasing
2	01_42H_003	NRSC		JK_3	3854	36° 38' 47.4"	73° 38' 50.28"	Indus	Gilgit	Ladakh (POK)	97	124	106	106	107	106	104	104	107	106	No change
3	01_43A_001	NRSC		JK_22	3641	35° 59' 42"	72° 36' 45.36"	Indus	Gilgit	Ladakh (POK)	203	203	201	205	205	202	201	201	205	203	No change
4	01_43A_002	NRSC		JK_23	3790	35° 56' 42.36"	72° 35' 40.92"	Indus	Gilgit	Ladakh (POK)	91	91	98	101	101	99	95	95	101	99	No change
5	01_43E_006	NRSC		JK_30	4186	35° 56' 43.08"	73° 21' 52.56"	Indus	Gilgit	Ladakh (POK)	71	71	66	67	66	64	68	64	68	66	No change
6	01_43E_023	NRSC		JK_47	4155	35° 51' 54"	73° 44' 42.72"	Indus	Gilgit	Ladakh (POK)	82	86	#	79	78	73	86	73	86	79	Increasing
7	01_43M_003	NRSC		JK_120	2663	35° 13' 54.84"	75° 37' 49.44"	Indus	Shigar (Indus)	Ladakh (POK)	208	187	159	215	250	243	238	159	250	221	Increasing
8	01_43N_001	NRSC		JK_128	4142	34° 59' 28.32"	75° 14' 9.96"	Indus	Shingo (Indus)	Ladakh (POK)	127	127	#	127	127	127	127	127	127	127	No change
9	01_52G_001	NRSC		JK_189	5008	33° 59' 57.12"	77° 58' 44.04"	Indus	Shyok	Ladakh	45	45	33	37	37	42	47	33	47	39	Increasing
10	01_52G_003	NRSC		JK_191	4533	33° 18' 38.52"	77° 59' 49.2"	Indus	Indus	Ladakh	1502	1473	1295	#	1371	1367	1324	1295	1371	1339	No change
11	01_52I_003	NRSC		JK_195	5159	35° 24' 37.8"	78° 17' 3.84"	Indus	Shyok	Ladakh	180	180	168	182	181	185	181	168	185	179	Increasing
12	01_52I_004	NRSC		JK_196	5141	35° 23' 27.96"	78° 13' 7.68"	Indus	Shyok	Ladakh	124	124	#	78	95	87	91	78	95	88	Increasing
13	01_52J_002	NRSC		JK_198	5359	34° 13' 59.16"	78° 25' 34.32"	Indus	Shyok	Ladakh	67	67	47	#	68	65	61	47	68	60	Increasing
14	01_52J_005	NRSC		JK_201	5430	34° 11' 9.96"	78° 30' 28.08"	Indus	Shyok	Ladakh	44	44	36	47	40	36	42	36	47	40	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
15	01_52J_006	NRSC		JK_202	5401	34° 10' 23.88"	78° 26' 16.08"	Indus	Shyok	Ladakh	110	110	#	#	109	108	104	104	109	107	No change
16	01_52J_009	NRSC		JK_205	5576	34° 9' 21.6"	78° 33' 11.52"	Indus	Shyok	Ladakh	57	57	#	#	71	62	67	62	71	67	No change
17	01_52K_004	NRSC		JK_212	4293	33° 31' 49.08"	78° 54' 37.8"	Indus	Shyok	Ladakh	5741	5741	6247	5851	5917	5931	5797	5797	6247	5949	Decreasing
18	01_52K_009	NRSC		JK_217	4921	33° 27' 51.48"	78° 36' 39.24"	Indus	Shyok	Ladakh	204	204	210	192	206	202	204	192	210	203	No change
19	01_52K_010	NRSC		JK_218	5313	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	152	152	144	#	157	150	151	144	157	151	No change
20	01_52K_011	NRSC		JK_219	5314	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	153	153	145	#	158	151	152	145	158	152	No change
21	01_52K_012	NRSC		JK_220	5315	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	154	154	146	#	159	152	153	146	159	153	No change
22	01_52K_014	NRSC		JK_222	4535	33° 15' 6.84"	78° 2' 34.44"	Indus	Indus	Ladakh	405	405	435	439	490	433	425	425	490	444	No change
23	01_52K_016	NRSC		JK_224	4675	33° 6' 22.32"	78° 18' 12.96"	Indus	Sutlej	Ladakh	507	507	518	520	520	518	512	512	520	518	No change
24	01_52L_001	NRSC		JK_225	4523	32° 53' 48.12"	78° 18' 48.6"	Indus	Sutlej	Ladakh	14110	14139	13975	13922	13915	13798	13702	13702	13975	13862	No change
25	01_52L_002	NRSC		JK_226	4986	32° 58' 54.84"	78° 35' 43.44"	Indus	Indus	Ladakh	442	442	398	416	442	454	451	398	454	432	Increasing
26	01_52L_003	NRSC		JK_227	4985	32° 55' 14.88"	78° 36' 0.72"	Indus	Indus	Ladakh	648	649	525	477	490	488	486	477	525	493	Decreasing
27	01_42H_005	NRSC		JK_5	2237	36° 14' 56.76"	73° 21' 41.4"	Indus	Gilgit	Jammu & Kashmir	52	73	55	53	53	52	50	50	55	53	Decreasing
28	01_43G_001	NRSC		JK_67	346	33° 12' 47.16"	73° 42' 41.76"	Indus	Jhelum	Jammu & Kashmir (POK)	22154	14989	18289	23887	24107	24416	24435	18289	24435	23027	Increasing
29	01_43J_004	NRSC	5I	JK_82	4078	34° 55' 15.24"	74° 31' 14.88"	Indus	Jhelum	Jammu & Kashmir (POK)	65	59	46	61	74	74	67	46	74	64	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
30	01_43J_007	NRSC	6I	JK_85	3708	34° 49' 45.12"	74° 3' 42.12"	Indus	Jhelum	Jammu & Kashmir (POK)	95	95	98	88	82	89	97	82	98	91	no change
31	01_43J_017	NRSC	3I	JK_95	3580	34° 25' 55.56"	74° 55' 27.12"	Indus	Jhelum	Jammu & Kashmir	164	164	160	155	158	158	158	155	160	158	no change
32	01_43J_020	NRSC		JK_98	1584	34° 14' 59.64"	74° 40' 10.2"	Indus	Jhelum	Jammu & Kashmir	191	191	179	173	164	170	177	164	179	173	no change
33	01_43J_021	NRSC		JK_99	1582	34° 7' 6.24"	74° 51' 39.6"	Indus	Jhelum	Jammu & Kashmir	1238	1238	1121	1063	1220	1051	1074	1051	1220	1106	no change
34	01_43J_022	NRSC		JK_100	1583	34° 7' 11.28"	74° 49' 50.52"	Indus	Jhelum	Jammu & Kashmir	60	60	62	59	54	61	67	54	67	61	Increasing
35	01_43K_010	NRSC		JK_111	3946	33° 31' 8.4"	74° 35' 1.32"	Indus	Jhelum	Jammu & Kashmir	66	66	79	75	65	68	77	65	79	73	no change
36	01_43K_014	NRSC		JK_115	3521	33° 30' 47.16"	74° 46' 6.96"	Indus	Jhelum	Jammu & Kashmir	112	111	125	129	134	137	116	116	137	128	no change
37	01_43N_020	NRSC		JK_147	4112	34° 41' 50.28"	75° 8' 12.84"	Indus	Jhelum	Jammu & Kashmir (POK)	63	61	58	56	62	62	66	56	66	61	Increasing
38	01_43N_022	NRSC		JK_149	4243	34° 39' 59.4"	75° 10' 45.48"	Indus	Jhelum	Jammu & Kashmir (POK)	72	73	73	65	69	69	71	65	73	69	no change
39	01_43N_027	NRSC		JK_154	3683	34° 23' 17.16"	75° 7' 6.6"	Indus	Jhelum	Jammu & Kashmir	48	48	51	41	43	45	47	41	51	45	Decreasing
40	01_43N_030	NRSC		JK_157	3799	34° 8' 21.12"	75° 8' 50.64"	Indus	Jhelum	Jammu & Kashmir	86	86	#	89	84	91	90	84	91	89	no change
41	01_43N_032	NRSC		JK_159	3595	34° 5' 37.32"	75° 29' 52.44"	Indus	Jhelum	Jammu & Kashmir	49	49	48	48	53	55	53	48	55	51	Increasing
42	01_43P_002	NRSC		JK_167	669	32° 41' 48.84"	75° 8' 44.16"	Indus	Ravi	Jammu & Kashmir	52	52	54	51	55	54	54	51	55	54	no change
43	01_52D_001	NRSC		HP_1	780	32° 36' 52.92"	76° 1' 53.76"	Indus	Ravi	Himachal Pradesh	688	725	654	631	523	664	586	523	664	612	Decreasing
44	01_52H_005	NRSC		HP_6	4286	32° 28' 53.76"	77° 36' 52.56"	Indus	Chenab	Himachal Pradesh	45	45	46	49	45	48	50	45	50	48	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
45	01_53A_001	NRSC		HP_9	409	31° 59' 21.84"	76° 3' 14.4"	Indus	Beas	Himachal Pradesh	21867	16946	17259	23732	22794	22707	21814	17259	23732	21661	Increasing
46	01_53A_002	NRSC		HP_10	495	31° 23' 7.8"	76° 32' 6"	Indus	Sutlej	Himachal Pradesh	13679	10256	8184	12843	12957	13029	13145	8184	13145	12032	Increasing
47	01_53E_001	NRSC		HP_12	921	31° 40' 22.8"	77° 4' 44.76"	Indus	Beas	Himachal Pradesh	72	72	76	76	174	97	111	76	174	107	Increasing
48	02_53K_001	NRSC		UK_1	355	29° 34' 10.2"	78° 45' 46.8"	Ganga	Ramganga	Uttarakhand	6790	3880	3945	4336	6303	6441	4965	3945	6441	5198	Increasing
49	02_53K_002	NRSC		UK_2	260	29° 19' 9.84"	78° 55' 13.08"	Ganga	Ramganga	Uttarakhand	1597	1597	744	1116	1174	1182	1263	744	1263	1096	Increasing
50	02_53O_001	NRSC		UK_4	1968	29° 23' 9.24"	79° 27' 35.64"	Ganga	Ramganga	Uttarakhand	46	46	42	38	38	38	40	38	42	39	no change
51	02_53O_005	NRSC		UK_8	239	29° 8' 6.72"	79° 17' 19.68"	Ganga	Ramganga	Uttarakhand	1510	1510	831	1114	1393	1100	1128	831	1393	1113	Increasing
52	02_53P_001	NRSC		UK_9	210	28° 57' 29.88"	79° 50' 32.64"	Ganga	Ganga	Uttarakhand	2054	2054	#	1062	1712	1800	1773	1062	1800	1587	Increasing
53	02_53P_003	NRSC		UK_11	207	28° 54' 3.6"	79° 37' 22.8"	Ganga	Ramganga	Uttarakhand	1078	1078	790	950	946	962	941	790	962	918	Increasing
54	03_77D_003	NRSC		SK_3	5098	28° 0' 47.52"	88° 45' 20.88"	Brahma putra	Teesta	Sikkim	96	84	114	97	119	110	112	97	119	110	no change
55	03_82O_042	NRSC		AP_49	3093	29° 10' 36.48"	95° 36' 56.16"	Brahma putra	Dibang	Arunachal Pradesh	44	44	30	33	34	29	40	29	40	33	Increasing
56	03_82O_061	NRSC		AP_54	3811	29° 0' 40.32"	95° 53' 5.64"	Brahma putra	Dibang	Arunachal Pradesh	54	54	64	56	52	63	49	49	64	57	Decreasing
57	03_82O_062	NRSC		AP_55	3612	29° 0' 18.36"	95° 54' 19.44"	Brahma putra	Dibang	Arunachal Pradesh	52	52	52	49	62	53	56	49	62	54	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
58	03_82O_064	NRSC		AP_57	3689	29° 3' 41.76"	95° 15' 45"	Brahma putra	Dihang	Arunachal Pradesh	44	44	38	43	39	44	47	38	47	42	Increasing
59	03_82P_010	NRSC		AP_67	1676	28° 8' 53.16"	95° 56' 35.88"	Brahma putra	Dibang	Arunachal Pradesh	99	99	94	91	91	95	97	91	97	94	no change
60	03_83A_012	NRSC		AP_77	4287	27° 31' 6.6"	92° 2' 24"	Brahma putra	Dangme Chhu	Arunachal Pradesh	63	63	53	53	56	54	55	53	56	54	no change
61	03_91C_034	NRSC		AP_84	4288	29° 18' 6.48"	96° 4' 55.92"	Brahma putra	Dibang	Arunachal Pradesh	134	134	157	133	124	146	136	124	157	139	Decreasing
62	03_91C_038	NRSC		AP_85	4002	29° 16' 8.4"	96° 9' 24.12"	Brahma putra	Dibang	Arunachal Pradesh	113	113	98	86	91	98	100	86	100	95	no change
63	03_91C_040	NRSC		AP_87	4450	29° 15' 19.08"	96° 14' 40.92"	Brahma putra	Lohit	Arunachal Pradesh	94	94	#	75	85	87	88	75	88	84	Increasing
64	03_91C_042	NRSC		AP_89	4531	29° 14' 38.04"	96° 14' 39.12"	Brahma putra	Dibang	Arunachal Pradesh	50	50	#	50	48	51	49	48	51	50	no change
65	03_91C_044	NRSC		AP_90	4230	29° 13' 23.16"	96° 16' 41.16"	Brahma putra	Lohit	Arunachal Pradesh	63	63	62	65	68	65	67	62	68	65	Increasing
66	03_91C_045	NRSC		AP_91	3493	29° 13' 44.4"	96° 11' 29.4"	Brahma putra	Dibang	Arunachal Pradesh	113	113	#	97	93	107	107	93	107	101	Increasing
67	03_91C_046	NRSC		AP_92	3353	29° 13' 32.52"	96° 9' 36"	Brahma putra	Dibang	Arunachal Pradesh	61	61	52	57	52	51	57	51	57	54	Increasing
68	03_91C_049	NRSC		AP_95	4261	29° 11' 46.32"	96° 12' 10.08"	Brahma putra	Dibang	Arunachal Pradesh	57	80	61	58	58	73	66	58	73	63	Increasing
69	03_91C_064	NRSC		AP_100	3972	29° 4' 45.84"	96° 8' 40.92"	Brahma putra	Dibang	Arunachal Pradesh	89	89	59	68	73	85	86	59	86	74	Increasing
70	03_91C_069	NRSC		AP_101	3245	29° 3' 36"	96° 8' 40.2"	Brahma putra	Dibang	Arunachal Pradesh	78	78	56	#	#	72	84	56	84	71	Increasing
71	03_91D_009	NRSC		AP_108	4037	28° 55' 40.44"	96° 20' 19.68"	Brahma putra	Dibang	Arunachal Pradesh	47	47	55	44	44	46	49	44	55	48	Decreasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
72	03_91D_010	NRSC		AP_109	3323	28° 55' 8.4"	96° 22' 58.8"	Brahma putra	Dibang	Arunachal Pradesh	46	46	54	55	48	47	53	47	55	51	no change
73	03_91D_022	NRSC		AP_118	3143	28° 52' 33.96"	96° 23' 38.76"	Brahma putra	Dibang	Arunachal Pradesh	44	44	#	41	32	41	39	32	41	38	no change
74	03_91D_041	NRSC		AP_135	3526	28° 46' 32.52"	96° 31' 53.4"	Brahma putra	Dibang	Arunachal Pradesh	115	115	128	119	133	121	128	119	133	126	no change
75	03_91D_107	NRSC		AP_163	3769	28° 12' 8.64"	96° 53' 51.72"	Brahma putra	Lohit	Arunachal Pradesh	67	67	67	68	63	63	56	56	68	63	Decreasing
76	03_91H_067	NRSC		AP_185	3791	28° 5' 44.52"	97° 17' 20.4"	Brahma putra	Lohit	Arunachal Pradesh	56	56	40	42	46	40	51	40	51	44	Increasing
77	03_92A_005	NRSC		AP_203	3391	27° 41' 23.64"	96° 51' 38.16"	Brahma putra	Lohit	Arunachal Pradesh	50	50	48	52	50	49	50	48	52	50	no change
78	03_92A_006	NRSC		AP_204	1178	27° 41' 50.28"	96° 27' 7.2"	Brahma putra	Lohit	Arunachal Pradesh	83	83	75	75	75	75	75	75	75	75	no change
79	03_92E_001	NRSC		AP_206	4206	27° 59' 23.28"	97° 22' 8.76"	Brahma putra	Lohit	Arunachal Pradesh	45	45	51	47	40	48	54	40	54	48	no change

Note: *G stands for Ganga, I for Indus and B for Brahmaputra under the rank of vulnerability, "-"indicates Inventory data Not Available, "#" indicates cloud covered, frozen/ dried lakes*

Table No.5.2.a: Results of Waterbodies showing increasing trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_43E_023	NRSC		JK_47	4155	35° 51' 54"	73° 44' 42.72"	Indus	Gilgit	Ladakh (POK)	82	86	#	79	78	73	86	73	86	79	Increasing
2	01_43M_003	NRSC		JK_120	2663	35° 13' 54.84"	75° 37' 49.44"	Indus	Shigar (Indus)	Ladakh (POK)	208	187	159	215	250	243	238	159	250	221	Increasing
3	01_52G_001	NRSC		JK_189	5008	33° 59' 57.12"	77° 58' 44.04"	Indus	Shyok	Ladakh	45	45	33	37	37	42	47	33	47	39	Increasing
4	01_52I_003	NRSC		JK_195	5159	35° 24' 37.8"	78° 17' 3.84"	Indus	Shyok	Ladakh	180	180	168	182	181	185	181	168	185	179	Increasing
5	01_52I_004	NRSC		JK_196	5141	35° 23' 27.96"	78° 13' 7.68"	Indus	Shyok	Ladakh	124	124	#	78	95	87	91	78	95	88	Increasing
6	01_52J_002	NRSC		JK_198	5359	34° 13' 59.16"	78° 25' 34.32"	Indus	Shyok	Ladakh	67	67	47	#	68	65	61	47	68	60	Increasing
7	01_52J_005	NRSC		JK_201	5430	34° 11' 9.96"	78° 30' 28.08"	Indus	Shyok	Ladakh	44	44	36	47	40	36	42	36	47	40	Increasing
8	01_52L_002	NRSC		JK_226	4986	32° 58' 54.84"	78° 35' 43.44"	Indus	Indus	Ladakh	442	442	398	416	442	454	451	398	454	432	Increasing
9	01_43G_001	NRSC		JK_67	346	33° 12' 47.16"	73° 42' 41.76"	Indus	Jhelum	Jammu & Kashmir (POK)	22154	14989	18289	23887	24107	24416	24435	18289	24435	23027	Increasing
10	01_43J_004	NRSC	5I	JK_82	4078	34° 55' 15.24"	74° 31' 14.88"	Indus	Jhelum	Jammu & Kashmir (POK)	65	59	46	61	74	74	67	46	74	64	Increasing
11	01_43J_022	NRSC		JK_100	1583	34° 7' 11.28"	74° 49' 50.52"	Indus	Jhelum	Jammu & Kashmir	60	60	62	59	54	61	67	54	67	61	Increasing
12	01_43N_020	NRSC		JK_147	4112	34° 41' 50.28"	75° 8' 12.84"	Indus	Jhelum	Jammu & Kashmir (POK)	63	61	58	56	62	62	66	56	66	61	Increasing
13	01_43N_032	NRSC		JK_159	3595	34° 5' 37.32"	75° 29' 52.44"	Indus	Jhelum	Jammu & Kashmir	49	49	48	48	53	55	53	48	55	51	Increasing
14	01_52H_005	NRSC		HP_6	4286	32° 28' 53.76"	77° 36' 52.56"	Indus	Chenab	Himachal Pradesh	45	45	46	49	45	48	50	45	50	48	Increasing
15	01_53A_001	NRSC		HP_9	409	31° 59' 21.84"	76° 3' 14.4"	Indus	Beas	Himachal Pradesh	21867	16946	17259	23732	22794	22707	21814	17259	23732	21661	Increasing
16	01_53A_002	NRSC		HP_10	495	31° 23' 7.8"	76° 32' 6"	Indus	Sutlej	Himachal Pradesh	13679	10256	8184	12843	12957	13029	13145	8184	13145	12032	Increasing
17	01_53E_001	NRSC		HP_12	921	31° 40' 22.8"	77° 4' 44.76"	Indus	Beas	Himachal Pradesh	72	72	76	76	174	97	111	76	174	107	Increasing
18	02_53K_001	NRSC		UK_1	355	29° 34' 10.2"	78° 45' 46.8"	Ganga	Ramganga	Uttarakhand	6790	3880	3945	4336	6303	6441	4965	3945	6441	5198	Increasing
19	02_53K_002	NRSC		UK_2	260	29° 19' 9.84"	78° 55' 13.08"	Ganga	Ramganga	Uttarakhand	1597	1597	744	1116	1174	1182	1263	744	1263	1096	Increasing

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
20	02_53O_005	NRSC		UK_8	239	29° 8' 6.72"	79° 17' 19.68"	Ganga	Ramganga	Uttarakhand	1510	1510	831	1114	1393	1100	1128	831	1393	1113	Increasing
21	02_53P_001	NRSC		UK_9	210	28° 57' 29.88"	79° 50' 32.64"	Ganga	Ganga	Uttarakhand	2054	2054	#	1062	1712	1800	1773	1062	1800	1587	Increasing
22	02_53P_003	NRSC		UK_11	207	28° 54' 3.6"	79° 37' 22.8"	Ganga	Ramganga	Uttarakhand	1078	1078	790	950	946	962	941	790	962	918	Increasing
23	03_82O_042	NRSC		AP_49	3093	29° 10' 36.48"	95° 36' 56.16"	Brahm aputra	Dibang	Arunachal Pradesh	44	44	30	33	34	29	40	29	40	33	Increasing
24	03_82O_062	NRSC		AP_55	3612	29° 0' 18.36"	95° 54' 19.44"	Brahm aputra	Dibang	Arunachal Pradesh	52	52	52	49	62	53	56	49	62	54	Increasing
25	03_82O_064	NRSC		AP_57	3689	29° 3' 41.76"	95° 15' 45"	Brahm aputra	Dihang	Arunachal Pradesh	44	44	38	43	39	44	47	38	47	42	Increasing
26	03_91C_040	NRSC		AP_87	4450	29° 15' 19.08"	96° 14' 40.92"	Brahm aputra	Lohit	Arunachal Pradesh	94	94	#	75	85	87	88	75	88	84	Increasing
27	03_91C_044	NRSC		AP_90	4230	29° 13' 23.16"	96° 16' 41.16"	Brahm aputra	Lohit	Arunachal Pradesh	63	63	62	65	68	65	67	62	68	65	Increasing
28	03_91C_045	NRSC		AP_91	3493	29° 13' 44.4"	96° 11' 29.4"	Brahm aputra	Dibang	Arunachal Pradesh	113	113	#	97	93	107	107	93	107	101	Increasing
29	03_91C_046	NRSC		AP_92	3353	29° 13' 32.52"	96° 9' 36"	Brahm aputra	Dibang	Arunachal Pradesh	61	61	52	57	52	51	57	51	57	54	Increasing
30	03_91C_049	NRSC		AP_95	4261	29° 11' 46.32"	96° 12' 10.08"	Brahm aputra	Dibang	Arunachal Pradesh	57	80	61	58	58	73	66	58	73	63	Increasing
31	03_91C_064	NRSC		AP_100	3972	29° 4' 45.84"	96° 8' 40.92"	Brahm aputra	Dibang	Arunachal Pradesh	89	89	59	68	73	85	86	59	86	74	Increasing
32	03_91C_069	NRSC		AP_101	3245	29° 3' 36"	96° 8' 40.2"	Brahm aputra	Dibang	Arunachal Pradesh	78	78	56	#	#	72	84	56	84	71	Increasing
33	03_91H_067	NRSC		AP_185	3791	28° 5' 44.52"	97° 17' 20.4"	Brahm aputra	Lohit	Arunachal Pradesh	56	56	40	42	46	40	51	40	51	44	Increasing

Table No.5.2.b: Results of Waterbodies showing no change trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_42H_003	NRSC		JK_3	3854	36° 38' 47.4"	73° 38' 50.28"	Indus	Gilgit	Ladakh (POK)	97	124	106	106	107	106	104	104	107	106	No change
2	01_43A_001	NRSC		JK_22	3641	35° 59' 42"	72° 36' 45.36"	Indus	Gilgit	Ladakh (POK)	203	203	201	205	205	202	201	201	205	203	No change
3	01_43A_002	NRSC		JK_23	3790	35° 56' 42.36"	72° 35' 40.92"	Indus	Gilgit	Ladakh (POK)	91	91	98	101	101	99	95	95	101	99	No change
4	01_43E_006	NRSC		JK_30	4186	35° 56' 43.08"	73° 21' 52.56"	Indus	Gilgit	Ladakh (POK)	71	71	66	67	66	64	68	64	68	66	No change
5	01_43N_001	NRSC		JK_128	4142	34° 59' 28.32"	75° 14' 9.96"	Indus	Shingo (Indus)	Ladakh (POK)	127	127	#	127	127	127	127	127	127	127	No change
6	01_52G_003	NRSC		JK_191	4533	33° 18' 38.52"	77° 59' 49.2"	Indus	Indus	Ladakh	1502	1473	1295	#	1371	1367	1324	1295	1371	1339	No change
7	01_52J_006	NRSC		JK_202	5401	34° 10' 23.88"	78° 26' 16.08"	Indus	Shyok	Ladakh	110	110	#	#	109	108	104	104	109	107	No change
8	01_52J_009	NRSC		JK_205	5576	34° 9' 21.6"	78° 33' 11.52"	Indus	Shyok	Ladakh	57	57	#	#	71	62	67	62	71	67	No change
9	01_52K_009	NRSC		JK_217	4921	33° 27' 51.48"	78° 36' 39.24"	Indus	Shyok	Ladakh	204	204	210	192	206	202	204	192	210	203	No change
10	01_52K_010	NRSC		JK_218	5313	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	152	152	144	#	157	150	151	144	157	151	No change
11	01_52K_011	NRSC		JK_219	5314	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	153	153	145	#	158	151	152	145	158	152	No change
12	01_52K_012	NRSC		JK_220	5315	33° 27' 17.64"	78° 29' 54.24"	Indus	Shyok	Ladakh	154	154	146	#	159	152	153	146	159	153	No change
13	01_52K_014	NRSC		JK_222	4535	33° 15' 6.84"	78° 2' 34.44"	Indus	Indus	Ladakh	405	405	435	439	490	433	425	425	490	444	No change
14	01_52K_016	NRSC		JK_224	4675	33° 6' 22.32"	78° 18' 12.96"	Indus	Sutlej	Ladakh	507	507	518	520	520	518	512	512	520	518	No change
15	01_52L_001	NRSC		JK_225	4523	32° 53' 48.12"	78° 18' 48.6"	Indus	Sutlej	Ladakh	14110	14139	13975	13922	13915	13798	13702	13702	13975	13862	No change
16	01_43J_007	NRSC	6I	JK_85	3708	34° 49' 45.12"	74° 3' 42.12"	Indus	Jhelum	Jammu & Kashmir (POK)	95	95	98	88	82	89	97	82	98	91	No change
17	01_43J_017	NRSC	3I	JK_95	3580	34° 25' 55.56"	74° 55' 27.12"	Indus	Jhelum	Jammu & Kashmir	164	164	160	155	158	158	158	155	160	158	No change
18	01_43J_020	NRSC		JK_98	1584	34° 14' 59.64"	74° 40' 10.2"	Indus	Jhelum	Jammu & Kashmir	191	191	179	173	164	170	177	164	179	173	No change
19	01_43J_021	NRSC		JK_99	1582	34° 7' 6.24"	74° 51' 39.6"	Indus	Jhelum	Jammu & Kashmir	1238	1238	1121	1063	1220	1051	1074	1051	1220	1106	No change

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
20	01_43K_010	NRSC		JK_111	3946	33° 31' 8.4"	74° 35' 1.32"	Indus	Jhelum	Jammu & Kashmir	66	66	79	75	65	68	77	65	79	73	No change
21	01_43K_014	NRSC		JK_115	3521	33° 30' 47.16"	74° 46' 6.96"	Indus	Jhelum	Jammu & Kashmir	112	111	125	129	134	137	116	116	137	128	No change
22	01_43N_022	NRSC		JK_149	4243	34° 39' 59.4"	75° 10' 45.48"	Indus	Jhelum	Jammu & Kashmir (POK)	72	73	73	65	69	69	71	65	73	69	No change
23	01_43N_030	NRSC		JK_157	3799	34° 8' 21.12"	75° 8' 50.64"	Indus	Jhelum	Jammu & Kashmir	86	86	#	89	84	91	90	84	91	89	No change
24	01_43P_002	NRSC		JK_167	669	32° 41' 48.84"	75° 8' 44.16"	Indus	Ravi	Jammu & Kashmir	52	52	54	51	55	54	54	51	55	54	No change
25	02_53O_001	NRSC		UK_4	1968	29° 23' 9.24"	79° 27' 35.64"	Ganga	Ramganga	Uttarakhand	46	46	42	38	38	38	40	38	42	39	No change
26	03_77D_003	NRSC		SK_3	5098	28° 0' 47.52"	88° 45' 20.88"	Brahmaputra	Teesta	Sikkim	96	84	114	97	119	110	112	97	119	110	No change
27	03_82P_010	NRSC		AP_67	1676	28° 8' 53.16"	95° 56' 35.88"	Brahmaputra	Dibang	Arunachal Pradesh	99	99	94	91	91	95	97	91	97	94	no change
28	03_83A_012	NRSC		AP_77	4287	27° 31' 6.6"	92° 2' 24"	Brahmaputra	Dangme Chhu	Arunachal Pradesh	63	63	53	53	56	54	55	53	56	54	no change
29	03_91C_038	NRSC		AP_85	4002	29° 16' 8.4"	96° 9' 24.12"	Brahmaputra	Dibang	Arunachal Pradesh	113	113	98	86	91	98	100	86	100	95	no change
30	03_91C_042	NRSC		AP_89	4531	29° 14' 38.04"	96° 14' 39.12"	Brahmaputra	Dibang	Arunachal Pradesh	50	50	#	50	48	51	49	48	51	50	no change
31	03_91D_010	NRSC		AP_109	3323	28° 55' 8.4"	96° 22' 58.8"	Brahmaputra	Dibang	Arunachal Pradesh	46	46	54	55	48	47	53	47	55	51	no change
32	03_91D_022	NRSC		AP_118	3143	28° 52' 33.96"	96° 23' 38.76"	Brahmaputra	Dibang	Arunachal Pradesh	44	44	#	41	32	41	39	32	41	38	no change
33	03_91D_041	NRSC		AP_135	3526	28° 46' 32.52"	96° 31' 53.4"	Brahmaputra	Dibang	Arunachal Pradesh	115	115	128	119	133	121	128	119	133	126	no change
34	03_92A_005	NRSC		AP_203	3391	27° 41' 23.64"	96° 51' 38.16"	Brahmaputra	Lohit	Arunachal Pradesh	50	50	48	52	50	49	50	48	52	50	no change
35	03_92A_006	NRSC		AP_204	1178	27° 41' 50.28"	96° 27' 7.2"	Brahmaputra	Lohit	Arunachal Pradesh	83	83	75	75	75	75	75	75	75	75	no change
36	03_92E_001	NRSC		AP_206	4206	27° 59' 23.28"	97° 22' 8.76"	Brahmaputra	Lohit	Arunachal Pradesh	45	45	51	47	40	48	54	40	54	48	no change

Table No.5.2.c: Results of Waterbodies showing decrease trend in area during 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation (m)	Latitude (N)	Longitude (E)	Basin	River	State/UT	Lake Area 2009 (Ha)	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)	Trend of the lake for the year 2023
1	01_42H_001	NRSC		JK_1	4292	36° 52' 50.16"	73° 42' 4.68"	Indus	Gilgit	Ladakh (POK)	276	276	285	274	270	253	264	253	285	269	Decreasing
2	01_52K_004	NRSC		JK_212	4293	33° 31' 49.08"	78° 54' 37.8"	Indus	Shyok	Ladakh	5741	5741	6247	5851	5917	5931	5797	5797	6247	5949	Decreasing
3	01_52L_003	NRSC		JK_227	4985	32° 55' 14.88"	78° 36' 0.72"	Indus	Indus	Ladakh	648	649	525	477	490	488	486	477	525	493	Decreasing
4	01_42H_005	NRSC		JK_5	2237	36° 14' 56.76"	73° 21' 41.4"	Indus	Gilgit	Jammu & Kashmir	52	73	55	53	53	52	50	50	55	53	Decreasing
5	01_43N_027	NRSC		JK_154	3683	34° 23' 17.16"	75° 7' 6.6"	Indus	Jhelum	Jammu & Kashmir	48	48	51	41	43	45	47	41	51	45	Decreasing
6	01_52D_001	NRSC		HP_1	780	32° 36' 52.92"	76° 1' 53.76"	Indus	Ravi	Himachal Pradesh	688	725	654	631	523	664	586	523	664	612	Decreasing
7	03_82O_061	NRSC		AP_54	3811	29° 0' 40.32"	95° 53' 5.64"	Brahma-putra	Dibang	Arunachal Pradesh	54	54	64	56	52	63	49	49	64	57	Decreasing
8	03_91C_034	NRSC		AP_84	4288	29° 18' 6.48"	96° 4' 55.92"	Brahma-putra	Dibang	Arunachal Pradesh	134	134	157	133	124	146	136	124	157	139	Decreasing
9	03_91D_009	NRSC		AP_108	4037	28° 55' 40.44"	96° 20' 19.68"	Brahma-putra	Dibang	Arunachal Pradesh	47	47	55	44	44	46	49	44	55	48	Decreasing
10	03_91D_107	NRSC		AP_163	3769	28° 12' 8.64"	96° 53' 51.72"	Brahma-putra	Lohit	Arunachal Pradesh	67	67	67	68	63	63	56	56	68	63	Decreasing

Table No.6.1: Results Analysis of Transboundary Glacial Lakes & Water Bodies for the year 2023

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
1	03_77H_011	NRSC		BH_4	4963	GL	28° 13' 48.72"	89° 53' 15"	Brahmap-utra		Bhutan	140	152	154	154	153	151	151	154	153
2	03_77H_017	NRSC			4537	GL	28° 10' 19.2"	89° 50' 54.24"	Brahmap-utra	Puna Tsang Chhu	Bhutan	25	18	20	25	25	25	18	25	23
3	03_77H_021	NRSC			5135	GL	28° 8' 37.68"	89° 50' 25.8"	Brahmap-utra	Puna Tsang Chhu	Bhutan	15	4	15	20	14	13	4	20	13
4	03_77H_024	NRSC			4369	GL	28° 6' 47.52"	89° 54' 33.12"	Brahmap-utra	Puna Tsang Chhu	Bhutan	42	45	40	39	46	45	39	46	43
5	03_77H_025	NRSC			4312	GL	28° 6' 19.44"	89° 53' 53.16"	Brahmap-utra	Puna Tsang Chhu	Bhutan	26	25	18	18	25	24	18	25	22
6	03_77H_029	NRSC			5049	GL	28° 0' 35.64"	89° 53' 0.96"	Brahmap-utra	Puna Tsang Chhu	Bhutan	21	19	19	23	26	21	19	26	22
7	03_77L_030	NRSC		BH_12	5305	GL	28° 16' 43.32"	90° 13' 32.88"	Brahmap-utra	Puna Tsang Chhu	Bhutan	79	#	89	92	92	91	89	92	91
8	03_77L_033	NRSC		BH_13	5176	GL	28° 15' 56.88"	90° 4' 7.68"	Brahmap-utra		Bhutan	177	207	219	225	224	204	204	225	216
9	03_77L_035	NRSC		BH_14	5486	GL	28° 14' 58.92"	90° 11' 13.56"	Brahmap-utra		Bhutan	68	64	68	68	63	61	61	68	65
10	03_77L_037	NRSC		BH_15	5139	GL	28° 14' 15.72"	90° 6' 15.48"	Brahmap-utra		Bhutan	542	581	574	579	588	579	574	588	580
11	03_77L_040	NRSC			4515	GL	28° 9' 14.76"	90° 8' 54.6"	Brahmap-utra	Puna Tsang Chhu	Bhutan	12	#	#	#	#	#	0	0	#

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
12	03_77L_044	NRSC		BH_19	4385	GL	28° 6' 20.88"	90° 14' 49.56"	Brahmap-utra	Puna Tsang Chhu	Bhutan	123	121	130	133	131	131	121	133	129
13	03_77L_047	NRSC			4364	GL	28° 6' 14.4"	90° 13' 49.08"	Brahmap-utra	Puna Tsang Chhu	Bhutan	23	44	40	41	39	47	39	47	42
14	03_77L_049	NRSC			4716	GL	28° 6' 44.28"	90° 1' 35.04"	Brahmap-utra	Puna Tsang Chhu	Bhutan	39	27	33	27	29	36	27	36	30
15	03_77L_051	NRSC		BH_22	4548	GL	28° 5' 31.2"	90° 17' 60"	Brahmap-utra	Puna Tsang Chhu	Bhutan	143	129	138	139	167	163	129	167	147
16	03_77L_054	NRSC			4717	GL	28° 5' 15"	90° 19' 33.24"	Brahmap-utra	Puna Tsang Chhu	Bhutan	17	#	#	5	6	5	5	6	5
17	03_77L_061	NRSC			5038	GL	28° 2' 29.4"	90° 32' 15.72"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	15	16	13	15	13	18	13	18	15
18	03_77L_062	NRSC			5295	GL	28° 2' 50.64"	90° 21' 16.92"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	42	44	42	45	48	47	42	48	45
19	03_77L_063	NRSC			5183	GL	28° 2' 6.36"	90° 37' 29.28"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	30	#	23	26	19	31	19	31	25
20	03_77L_065	NRSC			5025	GL	28° 2' 18.24"	90° 32' 47.76"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	17	11	17	23	16	17	11	23	17
21	03_77L_066	NRSC		BH_34	4896	GL	28° 1' 21.36"	90° 42' 29.88"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	148	156	172	168	155	162	155	172	163

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
22	03_77L_067	NRSC		BH_35	5231	GL	28° 2' 17.88"	90° 21' 50.4"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	78	71	72	82	83	82	71	83	78
23	03_77L_071	NRSC			5228	GL	28° 1' 41.52"	90° 16' 13.44"	Brahmap-utra	Puna Tsang Chhu	Bhutan	21	18	22	24	23	22	18	24	22
24	03_77L_072	NRSC		BH_40	5201	GL	28° 0' 55.8"	90° 22' 26.76"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	91	63	95	95	93	87	63	95	87
25	03_77L_073	NRSC			5166	GL	28° 0' 23.04"	90° 34' 21.36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	12	9	14	12	14	13	9	14	12
26	03_77L_074	NRSC			5324	GL	28° 0' 55.44"	90° 21' 9.36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	18	17	11	15	16	16	11	17	15
27	03_77L_075	NRSC			4718	GL	28° 0' 11.16"	90° 32' 25.8"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	23	19	18	29	20	25	18	29	22
28	03_77L_078	NRSC			5296	GL	28° 0' 44.64"	90° 16' 46.92"	Brahmap-utra	Puna Tsang Chhu	Bhutan	12	13	14	15	14	14	13	15	14
29	03_77L_079	NRSC			5386	GL	28° 0' 21.24"	90° 19' 40.08"	Brahmap-utra	Puna Tsang Chhu	Bhutan	30	31	33	34	33	33	31	34	33
30	03_77L_082	NRSC			5019	GL	28° 0' 11.52"	90° 8' 59.64"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	14	11	12	13	12	14	11	14	12
31	03_78E_001	NRSC			5157	GL	27° 58' 54.12"	89° 53' 47.4"	Brahmap-utra	Puna Tsang Chhu	Bhutan	26	31	32	36	37	36	31	37	34

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
32	03_78E_002	NRSC		BH_57	5110	GL	27° 58' 21"	89° 55' 47.64"	Brahmap-utra	Puna Tsang Chhu	Bhutan	58	18	39	60	65	67	18	67	50
33	03_78E_003	NRSC			5152	GL	27° 58' 26.4"	89° 53' 44.88"	Brahmap-utra	Puna Tsang Chhu	Bhutan	21	16	23	26	27	23	16	27	23
34	03_78E_007	NRSC		BH_60	5008	GL	27° 56' 29.04"	89° 55' 48"	Brahmap-utra	Puna Tsang Chhu	Bhutan	61	62	68	71	68	75	62	75	69
35	03_78E_008	NRSC			5045	GL	27° 56' 27.6"	89° 54' 20.88"	Brahmap-utra	Puna Tsang Chhu	Bhutan	12	13	11	12	12	12	11	13	12
36	03_78E_011	NRSC			4952	GL	27° 55' 48.72"	89° 54' 2.88"	Brahmap-utra	Puna Tsang Chhu	Bhutan	13	18	17	20	18	24	17	24	19
37	03_78E_025	NRSC			4341	GL	27° 50' 20.4"	89° 23' 16.8"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	17	13	17	16	16	17	13	17	16
38	03_78E_027	NRSC			4808	GL	27° 41' 13.92"	89° 24' 29.88"	Brahmap-utra	Puna Tsang Chhu	Bhutan	13	18	15	18	17	18	15	18	17
39	03_78I_001	NRSC			5129	GL	27° 59' 52.44"	90° 35' 33"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	15	6	8	13	11	14	6	14	10
40	03_78I_004	NRSC			5194	GL	27° 59' 28.32"	90° 25' 6.24"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	36	20	26	37	42	40	20	42	33
41	03_78I_005	NRSC			5338	GL	27° 59' 47.04"	90° 17' 17.16"	Brahmap-utra	Puna Tsang Chhu	Bhutan	40	41	43	45	44	42	41	45	43
42	03_78I_006	NRSC			5158	GL	27° 59' 43.08"	90° 15' 38.16"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	16	16	17	18	18	18	16	18	17

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
43	03_78I_008	NRSC			5252	GL	27° 59' 17.88"	90° 22' 48.36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	14	11	11	13	10	13	10	13	12
44	03_78I_009	NRSC			5108	GL	27° 59' 6.36"	90° 26' 13.56"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	20	23	26	26	21	24	21	26	24
45	03_78I_011	NRSC			5239	GL	27° 58' 54.48"	90° 22' 52.32"	Brahmap-utra	Kuri Chhu	Bhutan	19	18	19	20	20	20	18	20	19
46	03_78I_014	NRSC			5087	GL	27° 59' 13.2"	90° 7' 48.72"	Brahmap-utra	Puna Tsang Chhu	Bhutan	21	22	13	14	15	21	13	22	17
47	03_78I_015	NRSC			5116	GL	27° 58' 55.2"	90° 14' 38.76"	Brahmap-utra	Puna Tsang Chhu	Bhutan	16	15	15	15	16	16	15	16	15
48	03_78I_018	NRSC		BH_99	5083	GL	27° 58' 37.92"	90° 13' 56.28"	Brahmap-utra	Puna Tsang Chhu	Bhutan	63	59	66	69	68	68	59	69	66
49	03_78I_019	NRSC			5224	GL	27° 58' 7.68"	90° 24' 42.48"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	18	23	20	22	23	23	20	23	22
50	03_78I_020	NRSC			5331	GL	27° 58' 13.8"	90° 19' 49.8"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	18	20	22	22	21	24	20	24	22
51	03_78I_022	NRSC			5048	GL	27° 56' 32.64"	90° 45' 22.32"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	16	15	17	17	10	16	10	17	15
52	03_78I_023	NRSC		BH_104	5055	GL	27° 56' 22.56"	90° 32' 5.28"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	51	57	52	47	49	62	47	62	53

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
53	03_78I_025	NRSC			5194	GL	27° 57' 7.92"	90° 15' 18.72"	Brahmap-utra	Puna Tsang Chhu	Bhutan	12	12	15	15	15	15	12	15	14
54	03_78I_026	NRSC			5233	GL	27° 56' 26.88"	90° 23' 49.2"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	17	15	18	15	18	18	15	18	17
55	03_78I_028	NRSC			4792	GL	27° 55' 32.88"	90° 33' 17.64"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	24	24	16	30	30	29	16	30	26
56	03_78I_036	NRSC			5028	GL	27° 55' 51.96"	90° 12' 32.76"	Brahmap-utra	Puna Tsang Chhu	Bhutan	11	8	11	12	13	13	8	13	11
57	03_78I_037	NRSC			5159	GL	27° 55' 10.2"	90° 24' 25.92"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	11	16	11	14	7	18	7	18	13
58	03_78I_038	NRSC			5143	GL	27° 55' 28.56"	90° 15' 30.6"	Brahmap-utra	Puna Tsang Chhu	Bhutan	11	9	10	10	10	11	9	11	10
59	03_78I_040	NRSC			5167	GL	27° 55' 13.44"	90° 15' 46.44"	Brahmap-utra	Puna Tsang Chhu	Bhutan	22	22	21	22	22	22	21	22	22
60	03_78I_043	NRSC			5000	GL	27° 53' 44.88"	90° 33' 7.2"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	28	24	19	20	17	24	17	24	21
61	03_78I_046	NRSC			5168	GL	27° 54' 21.96"	90° 16' 32.16"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	20	19	20	21	21	22	19	22	21
62	03_78I_051	NRSC		BH_132	5074	GL	27° 53' 26.16"	90° 17' 24.36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	103	#	125	129	129	113	113	129	124

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
63	03_78I_054	NRSC			5138	GL	27° 52' 59.88"	90° 17' 53.16"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	14	12	16	18	17	15	12	18	16
64	03_78I_057	NRSC			5060	GL	27° 52' 24.24"	90° 18' 11.88"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	33	39	45	48	49	40	39	49	44
65	03_78I_058	NRSC			5041	GL	27° 52' 34.32"	90° 16' 50.52"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	16	26	27	26	26	29	26	29	27
66	03_78I_064	NRSC			4976	GL	27° 51' 41.04"	90° 17' 42.36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	19	19	18	21	20	19	18	21	19
67	03_78I_065	NRSC			4668	GL	27° 49' 18.84"	90° 48' 36"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	13	15	9	12	11	13	9	15	12
68	03_78I_067	NRSC			4918	GL	27° 50' 44.16"	90° 18' 9"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	20	23	23	25	23	23	23	25	23
69	03_78I_072	NRSC			4788	GL	27° 49' 7.32"	90° 23' 39.12"	Brahmap-utra		Bhutan	11	14	9	12	8	14	8	14	11
70	03_78M_013	NRSC			4232	GL	27° 53' 43.08"	91° 14' 54.96"	Brahmap-utra	Puna Tsang Chhu	Bhutan	11	#	#	9	6	9	6	9	8
71	03_77H_019	NRSC			4804	GL	28° 10' 21.36"	89° 41' 3.48"	Brahmap-utra	Puna Tsang Chhu	Bhutan	10	10	3	7	10	10	3	10	8
72	03_77L_068	NRSC		BH_36	4764	WB	28° 0' 12.6"	90° 54' 18.36"	Brahmap-utra	Kuri Chhu	Bhutan	86	74	71	79	76	83	71	83	77

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
73	03_77L_077	NRSC		BH_45	5136	WB	28° 0' 54.36"	90° 12' 37.08"	Brahmap-utra	Puna Tsang Chhu	Bhutan	51	49	54	56	51	57	49	57	53
74	03_78E_028	NRSC		BH_72	2161	WB	27° 38' 21.12"	89° 44' 24.36"	Brahmap-utra	Puna Tsang Chhu	Bhutan	47	26	39	45	42	51	26	51	41
75	03_78E_029	NRSC		BH_73	4250	WB	27° 38' 37.68"	89° 27' 39.96"	Brahmap-utra	Puna Tsang Chhu	Bhutan	45	23	38	45	40	40	23	45	37
76	03_78I_048	NRSC		BH_129	4169	WB	27° 52' 0.84"	90° 48' 58.32"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	52	47	#	#	#	55	47	55	51
77	03_78I_056	NRSC		BH_137	4794	WB	27° 51' 42.48"	90° 35' 27.6"	Brahmap-utra	Manas Chhu &Mangde Chhu	Bhutan	76	67	73	78	74	81	67	81	75
78	03_78I_085	NRSC		BH_166	4764	WB	27° 47' 58.56"	90° 13' 50.16"	Brahmap-utra	Puna Tsang Chhu	Bhutan	70	69	72	78	74	72	69	78	73
79	03_78M_010	NRSC		BH_188	4496	WB	27° 52' 37.92"	91° 38' 1.68"	Brahmap-utra	Dangme Chhu	Bhutan	50	27	38	49	45	42	27	49	40
80	03_78M_019	NRSC		BH_194	4697	WB	27° 50' 49.92"	91° 34' 59.88"	Brahmap-utra	Dangme Chhu	Bhutan	55	57	64	55	55	52	52	64	57
81	03_78M_020	NRSC		BH_195	4157	WB	27° 50' 15.72"	91° 36' 18.36"	Brahmap-utra	Dangme Chhu	Bhutan	65	61	75	66	58	68	58	75	66
82	03_78M_022	NRSC		BH_197	4549	WB	27° 50' 2.04"	91° 33' 12.96"	Brahmap-utra	Dangme Chhu	Bhutan	67	80	67	62	87	69	62	87	73
83	01_52P_004	NRSC			5470	GL	32° 23' 7.08"	79° 40' 43.68"	Indus	Indus	China	14	#	0	0	0	0	0	0	0

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
84	01_53M_001	NRSC	33I		5576	GL	31° 59' 0.96"	79° 57' 30.96"	Indus	Indus	China	11	#	14	12	17	17	12	17	15
85	01_53M_002	NRSC	142I		5468	GL	31° 56' 57.12"	79° 59' 6.72"	Indus	Indus	China	11	4	10	10	10	10	4	10	9
86	01_53M_003	NRSC	110I		5511	GL	31° 56' 16.08"	79° 59' 39.84"	Indus	Indus	China	12	7	1	13	12	13	1	13	9
87	01_62B_002	NRSC	381I		4998	GL	30° 33' 9.72"	80° 24' 6.48"	Indus	Sutlej	China	14	11	17	24	28	25	11	28	21
88	01_62E_007	NRSC	437I		5641	GL	31° 17' 6.36"	81° 1' 53.04"	Indus	Sutlej	China	11	#	17	14	15	15	14	17	15
89	01_62E_016	NRSC	270I		5528	GL	31° 10' 42.6"	81° 9' 6.84"	Indus	Sutlej	China	21	#	20	20	19	19	19	20	20
90	01_62F_007	NRSC			5344	GL	30° 25' 36.48"	81° 52' 13.44"	Indus	Sutlej	China	16	20	21	20	19	21	19	21	20
91	01_62F_009	NRSC	387I		5712	GL	30° 23' 34.8"	81° 57' 48.6"	Indus	Sutlej	China	13	3	4	27	26	26	3	27	17
92	01_62F_010	NRSC	9I	CH_101	5250	GL	30° 23' 11.04"	81° 55' 47.64"	Indus	Sutlej	China	45	69	64	60	56	68	56	69	63
93	01_62J_004	NRSC	446I		5504	GL	30° 22' 33.96"	82° 1' 6.24"	Indus	Sutlej	China	12	9	10	10	9	9	9	10	9
94	02_62B_006	NRSC	495 G		5106	GL	30° 24' 8.28"	80° 47' 4.92"	Ganga	Karnali	China	42	#	42	41	41	38	38	42	41
95	02_62F_009	NRSC	536 G		5586	GL	30° 18' 7.2"	81° 23' 57.12"	Ganga	Karnali	China	11	10	8	9	11	11	8	11	10

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
96	02_62F_011	NRSC	362 G		5524	GL	30° 17' 49.2"	81° 23' 16.8"	Ganga	Karnali	China	27	23	27	26	26	25	23	27	25
97	02_62F_013	NRSC	256 G		5252	GL	30° 15' 56.88"	81° 20' 51"	Ganga	Karnali	China	24	30	45	45	45	49	30	49	43
98	02_62F_014	NRSC	236 G		5481	GL	30° 14' 26.88"	81° 19' 53.4"	Ganga	Karnali	China	12	5	5	3	1	6	1	6	4
99	02_62F_015	NRSC	59G		5359	GL	30° 13' 58.8"	81° 20' 57.48"	Ganga	Karnali	China	37	29	28	31	29	29	28	31	29
100	02_71H_004	NRSC			5239	GL	28° 39' 46.08"	85° 28' 31.8"	Ganga	Arun Kosi	China	19	23	27	27	22	27	22	27	25
101	02_71H_005	NRSC			5010	GL	28° 38' 47.4"	85° 29' 37.68"	Ganga	Arun Kosi	China	27	69	64	68	71	78	64	78	70
102	02_71H_006	NRSC			5167	GL	28° 38' 33.72"	85° 28' 22.8"	Ganga	Arun Kosi	China	38	30	35	33	34	33	30	35	33
103	02_71H_007	NRSC		CH_127	5149	GL	28° 37' 25.68"	85° 30' 33.84"	Ganga	Arun Kosi	China	125	116	115	111	124	120	111	124	117
104	02_71H_008	NRSC		CH_128	5152	GL	28° 37' 1.56"	85° 31' 35.4"	Ganga	Arun Kosi	China	95	103	106	110	100	106	100	110	105
105	02_71H_009	NRSC			5448	GL	28° 34' 50.16"	85° 35' 41.28"	Ganga	Arun Kosi	China	31	22	24	26	24	25	22	26	24
106	02_71H_010	NRSC			5481	GL	28° 34' 32.16"	85° 34' 59.52"	Ganga	Arun Kosi	China	27	22	23	22	21	26	21	26	23
107	02_71H_011	NRSC	775 G		4509	GL	28° 34' 9.48"	85° 27' 24.12"	Ganga	Trishuli	China	19	#	29	22	23	27	22	29	25

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
108	02_71H_012	NRSC		CH_132	5379	GL	28° 33' 49.68"	85° 36' 14.76"	Ganga	Arun Kosi	China	89	#	94	128	128	#	94	128	117
109	02_71H_013	NRSC	172G		4446	GL	28° 34' 0.12"	85° 27' 50.04"	Ganga	Trishuli	China	21	#	13	18	17	16	13	18	16
110	02_71H_014	NRSC			4458	GL	28° 33' 50.4"	85° 28' 3.36"	Ganga	Trishuli	China	12	9	8	10	10	9	8	10	9
111	02_71H_015	NRSC		CH_135	5367	GL	28° 31' 58.8"	85° 36' 30.96"	Ganga	Arun Kosi	China	515	568	532	552	469	551	469	568	534
112	02_71H_016	NRSC			5305	GL	28° 31' 40.8"	85° 38' 14.64"	Ganga	Arun Kosi	China	33	26	26	28	28	27	26	28	27
113	02_71H_017	NRSC		CH_137	5314	GL	28° 29' 43.44"	85° 38' 9.24"	Ganga	Arun Kosi	China	493	479	485	495	481	490	479	495	486
114	02_71H_018	NRSC	123G		4787	GL	28° 30' 31.68"	85° 29' 36.6"	Ganga	Trishuli	China	20	35	25	31	#	32	25	35	31
115	02_71H_019	NRSC	92G		4674	GL	28° 30' 36.36"	85° 26' 44.52"	Ganga	Trishuli	China	16	#	#	16	16	7	7	16	13
116	02_71H_020	NRSC			5354	GL	28° 29' 11.76"	85° 44' 8.88"	Ganga	Arun Kosi	China	29	70	57	74	74	71	57	74	69
117	02_71H_021	NRSC	76G	CH_141	4463	GL	28° 28' 6.6"	85° 31' 7.68"	Ganga	Trishuli	China	48	44	44	44	44	43	43	44	44
118	02_71H_022	NRSC			5735	GL	28° 27' 41.76"	85° 40' 55.92"	Ganga	Arun Kosi	China	17	18	19	19	19	20	18	20	19
119	02_71H_023	NRSC			5595	GL	28° 26' 42.36"	85° 46' 46.92"	Ganga	Arun Kosi	China	41	57	59	56	55	54	54	59	56

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
120	02_71H_024	NRSC	155G		4890	GL	28° 25' 35.76"	85° 33' 44.28"	Ganga	Trishuli	China	22	25	24	22	23	23	22	25	23
121	02_71H_025	NRSC	464G		5303	GL	28° 24' 23.4"	85° 35' 16.08"	Ganga	Trishuli	China	12	14	14	14	17	17	14	17	15
122	02_71H_027	NRSC	2G	CH_147	5242	GL	28° 21' 40.32"	85° 52' 12.36"	Ganga	Sun Kosi	China	501	441	455	459	454	449	441	459	452
123	02_71H_029	NRSC	1G	CH_149	5098	GL	28° 19' 14.16"	85° 50' 21.12"	Ganga	Sun Kosi	China	413	531	536	528	538	538	528	538	534
124	02_71H_030	NRSC	598G		5411	GL	28° 19' 28.56"	85° 54' 24.84"	Ganga	Sun Kosi	China	15	14	13	12	11	14	11	14	13
125	02_71H_031	NRSC	78G		5268	GL	28° 18' 54"	85° 56' 50.28"	Ganga	Sun Kosi	China	20	24	30	27	26	25	24	30	26
126	02_71H_032	NRSC			5116	GL	28° 17' 55.32"	85° 49' 8.4"	Ganga	Sun Kosi	China	22	25	25	28	28	27	25	28	27
127	02_71L_004	NRSC	5G	CH_159	5518	GL	28° 23' 40.92"	86° 22' 45.12"	Ganga	Arun Kosi	China	79	119	132	125	125	125	119	132	125
128	02_71L_005	NRSC	282G		5524	GL	28° 23' 33.72"	86° 24' 52.56"	Ganga	Arun Kosi	China	18	19	17	18	17	18	17	19	18
129	02_71L_006	NRSC	3G	CH_161	5365	GL	28° 22' 26.76"	86° 18' 16.56"	Ganga	Arun Kosi	China	379	398	410	394	395	395	394	410	398
130	02_71L_007	NRSC	572G		5576	GL	28° 22' 54.84"	86° 23' 3.84"	Ganga	Arun Kosi	China	15	13	12	11	13	13	11	13	12
131	02_71L_008	NRSC	457G		5577	GL	28° 22' 31.08"	86° 15' 27"	Ganga	Sun Kosi	China	24	38	39	39	39	39	38	39	39

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
132	02_71L_009	NRSC	520G		5546	GL	28° 20' 53.16"	86° 29' 35.16"	Ganga	Arun Kosi	China	38	32	33	34	33	33	32	34	33
133	02_71L_010	NRSC	185G	CH_165	5387	GL	28° 20' 54.96"	86° 13' 30"	Ganga	Sun Kosi	China	47	65	72	69	64	62	62	72	66
134	02_71L_011	NRSC	61G	CH_166	5439	GL	28° 20' 7.44"	86° 11' 30.12"	Ganga	Sun Kosi	China	64	51	56	54	51	53	51	56	53
135	02_71L_012	NRSC	96G		5570	GL	28° 19' 15.24"	86° 9' 30.96"	Ganga	Sun Kosi	China	25	21	19	16	17	21	16	21	19
136	02_71L_013	NRSC	58G	CH_168	5324	GL	28° 18' 12.24"	86° 9' 27.36"	Ganga	Sun Kosi	China	64	57	59	59	56	57	56	59	58
137	02_71L_014	NRSC	240G		5364	GL	28° 17' 43.08"	86° 9' 28.8"	Ganga	Sun Kosi	China	18	15	16	16	14	16	14	16	15
138	02_71L_015	NRSC	284G		5261	GL	28° 17' 38.76"	86° 7' 52.32"	Ganga	Sun Kosi	China	27	21	19	23	19	23	19	23	21
139	02_71L_016	NRSC	570G		5345	GL	28° 16' 12.36"	86° 11' 12.12"	Ganga	Sun Kosi	China	13	#	#	11	11	12	11	12	11
140	02_71L_017	NRSC	179G		5211	GL	28° 15' 11.16"	86° 6' 10.44"	Ganga	Sun Kosi	China	15	13	13	12	12	14	12	14	13
141	02_71L_018	NRSC	651G		5377	GL	28° 14' 44.88"	86° 19' 17.4"	Ganga	Sun Kosi	China	21	13	17	17	15	14	13	17	15
142	02_71L_019	NRSC	323G		5378	GL	28° 14' 56.04"	86° 9' 21.6"	Ganga	Sun Kosi	China	14	12	13	13	14	12	12	14	13
143	02_71L_020	NRSC	156G		5348	GL	28° 14' 23.28"	86° 21' 55.44"	Ganga	Sun Kosi	China	30	26	29	28	25	25	25	29	27

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
144	02_71L_021	NRSC	438G		5373	GL	28° 14' 33.36"	86° 11' 45.6"	Ganga	Sun Kosi	China	19	15	10	15	16	17	10	17	15
145	02_71L_022	NRSC	715G		5554	GL	28° 12' 26.28"	86° 37' 45.84"	Ganga	Arun Kosi	China	24	24	25	24	24	26	24	26	25
146	02_71L_023	NRSC	39G	CH_178	5106	GL	28° 11' 50.64"	86° 34' 54.12"	Ganga	Arun Kosi	China	116	129	128	118	126	137	118	137	128
147	02_71L_024	NRSC	245G		5263	GL	28° 11' 37.68"	86° 18' 51.12"	Ganga	Sun Kosi	China	23	24	18	24	24	28	18	28	24
148	02_71L_025	NRSC	154G		5357	GL	28° 11' 33.72"	86° 21' 1.8"	Ganga	Sun Kosi	China	16	19	18	19	17	19	17	19	18
149	02_71L_026	NRSC	73G	CH_181	5057	GL	28° 11' 8.52"	86° 31' 54.12"	Ganga	Sun Kosi	China	59	67	67	69	62	64	62	69	66
150	02_71L_027	NRSC	433G		5234	GL	28° 9' 28.8"	86° 32' 7.08"	Ganga	Sun Kosi	China	18	18	18	18	18	18	18	18	18
151	02_71L_028	NRSC	38G	CH_183	5027	GL	28° 8' 8.88"	86° 31' 45.48"	Ganga	Sun Kosi	China	79	99	102	101	101	100	99	102	101
152	02_71L_029	NRSC	747G		5237	GL	28° 6' 52.2"	86° 51' 45.72"	Ganga	Arun Kosi	China	30	52	45	54	54	54	45	54	52
153	02_71L_030	NRSC	242G		5242	GL	28° 4' 22.8"	86° 31' 12.72"	Ganga	Sun Kosi	China	19	19	22	24	23	22	19	24	22
154	02_71L_031	NRSC	52G		4682	GL	28° 4' 48"	86° 3' 56.16"	Ganga	Sun Kosi	China	33	28	29	32	31	30	28	32	30
155	02_71L_032	NRSC	122G	CH_187	5250	GL	28° 2' 40.2"	86° 30' 49.32"	Ganga	Sun Kosi	China	58	55	57	57	57	56	55	57	56

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
156	02_71L_034	NRSC	89G	CH_188	5095	GL	28° 2' 9.6"	86° 29' 46.32"	Ganga	Sun Kosi	China	46	30	42	38	46	67	30	67	45
157	02_71L_033	NRSC	408G		5369	GL	28° 2' 18.96"	86° 42' 34.56"	Ganga	Sun Kosi	Nepal	17	11	15	16	14	14	11	16	14
158	02_71L_035	NRSC	657G		5091	GL	28° 1' 22.8"	86° 43' 14.16"	Ganga	Sun Kosi	Nepal	19	9	14	18	19	19	9	19	16
159	02_71P_001	NRSC			5498	GL	28° 50' 26.88"	87° 30' 28.08"	Ganga	Arun Kosi	China	24	15	8	16	20	24	8	24	17
160	02_71P_017	NRSC			4194	GL	28° 24' 25.56"	87° 45' 54"	Ganga	Arun Kosi	China	17	9	#	#	#	36	9	36	23
161	02_71P_019	NRSC		CH_207	4199	GL	28° 21' 8.64"	87° 52' 30.36"	Ganga	Arun Kosi	China	48	60	67	63	55	41	41	67	57
162	02_71P_020	NRSC			4200	GL	28° 20' 48.84"	87° 53' 6.72"	Ganga	Arun Kosi	China	26	#	148	191	114	71	71	191	131
163	02_71P_022	NRSC	34G	CH_210	5439	GL	28° 13' 45.84"	87° 35' 27.6"	Ganga	Arun Kosi	China	80	75	85	83	83	80	75	85	81
164	02_71P_023	NRSC	124G		5235	GL	28° 14' 8.52"	87° 30' 1.8"	Ganga	Arun Kosi	China	26	17	19	23	23	22	17	23	21
165	02_71P_024	NRSC	576G		5273	GL	28° 13' 41.52"	87° 34' 39.36"	Ganga	Arun Kosi	China	26	22	20	22	22	22	20	22	22
166	02_71P_026	NRSC	322G		5340	GL	28° 12' 23.04"	87° 33' 37.8"	Ganga	Arun Kosi	China	16	13	15	16	16	15	13	16	15
167	02_71P_027	NRSC	82G	CH_215	5389	GL	28° 11' 40.2"	87° 38' 26.52"	Ganga	Arun Kosi	China	49	52	54	53	52	52	52	54	53

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
168	02_71P_028	NRSC		CH_216	4997	GL	28° 12' 21.6"	87° 3' 7.56"	Ganga	Arun Kosi	China	50	42	65	63	61	62	42	65	59
169	02_71P_029	NRSC	43G	CH_217	5045	GL	28° 10' 42.24"	87° 33' 41.4"	Ganga	Arun Kosi	China	80	108	98	87	94	105	87	108	98
170	02_71P_030	NRSC	166G		5329	GL	28° 10' 21.36"	87° 28' 44.76"	Ganga	Arun Kosi	China	18	16	27	25	26	23	16	27	23
171	02_71P_031	NRSC	141G		5395	GL	28° 10' 3.36"	87° 37' 23.16"	Ganga	Arun Kosi	China	22	20	19	21	20	20	19	21	20
172	02_71P_032	NRSC	564G		5190	GL	28° 9' 49.32"	87° 34' 40.8"	Ganga	Arun Kosi	China	22	15	20	19	19	19	15	20	18
173	02_71P_033	NRSC			4888	GL	28° 9' 36.72"	87° 26' 36.6"	Ganga	Arun Kosi	China	31	9	20	16	28	26	9	28	20
174	02_71P_034	NRSC	726G		5259	GL	28° 9' 18"	87° 36' 46.44"	Ganga	Arun Kosi	China	23	18	11	27	26	19	11	27	20
175	02_71P_036	NRSC	54G		5121	GL	28° 8' 51.36"	87° 28' 6.96"	Ganga	Arun Kosi	China	32	36	46	42	39	38	36	46	40
176	02_71P_038	NRSC	586G		5483	GL	28° 8' 33.36"	87° 6' 42.12"	Ganga	Arun Kosi	China	23	27	27	30	20	22	20	30	25
177	02_71P_039	NRSC	396G		5489	GL	28° 8' 32.64"	87° 6' 19.08"	Ganga	Arun Kosi	China	15	18	17	16	17	19	16	19	17
178	02_71P_041	NRSC	768G		5064	GL	28° 6' 56.16"	87° 35' 12.84"	Ganga	Arun Kosi	China	17	17	21	20	20	18	17	21	19
179	02_71P_042	NRSC	654G		5524	GL	28° 7' 46.56"	87° 4' 55.56"	Ganga	Arun Kosi	China	20	19	19	19	19	19	19	19	19
180	02_71P_043	NRSC	18G	CH_231	5206	GL	28° 5' 36.6"	87° 38' 15"	Ganga	Arun Kosi	China	67	80	73	63	84	80	63	84	76

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
181	02_71P_044	NRSC	557G		5555	GL	28° 6' 540"	87° 4' 34.68"	Ganga	Arun Kosi	China	12	9	10	10	12	0	0	12	8
182	02_71P_046	NRSC	317G		4898	GL	28° 4' 9.84"	87° 8' 13.2"	Ganga	Arun Kosi	China	25	25	24	24	18	27	18	27	24
183	02_71P_047	NRSC	81G	CH_235	5614	GL	28° 4' 9.48"	87° 2' 53.88"	Ganga	Arun Kosi	China	80	93	84	95	90	92	84	95	91
184	02_71P_048	NRSC	283G		5094	GL	28° 3' 6.84"	87° 37' 36.48"	Ganga	Arun Kosi	China	17	18	19	19	19	18	18	19	19
185	02_72I_004	NRSC	9G	CH_244	5074	GL	27° 56' 45.96"	86° 26' 47.4"	Ganga	Sun Kosi	China	121	184	187	185	221	218	184	221	199
186	02_72I_008	NRSC	99G		5040	GL	27° 55' 44.4"	86° 26' 0.6"	Ganga	Sun Kosi	China	32	31	33	32	30	33	30	33	32
187	02_72M_001	NRSC	737G		5675	GL	27° 59' 21.48"	87° 52' 5.16"	Ganga	Arun Kosi	China	10	6	6	6	6	7	6	7	6
188	02_72M_003	NRSC	823G		5608	GL	27° 58' 5.88"	87° 53' 3.84"	Ganga	Arun Kosi	China	20	19	18	18	18	18	18	19	18
189	02_72M_004	NRSC	336G		5293	GL	27° 57' 46.44"	87° 48' 42.12"	Ganga	Arun Kosi	China	35	48	50	49	47	50	47	50	49
190	02_72M_005	NRSC	139G	CH_251	5141	GL	27° 56' 57.12"	87° 55' 51.96"	Ganga	Arun Kosi	China	71	80	74	77	81	79	74	81	78
191	02_72M_006	NRSC	349G	CH_252	5188	GL	27° 57' 2.16"	87° 54' 31.68"	Ganga	Arun Kosi	China	65	65	63	62	62	65	62	65	63
192	02_72M_007	NRSC	33G	CH_253	4950	GL	27° 55' 35.04"	87° 46' 11.64"	Ganga	Arun Kosi	China	94	100	106	103	99	100	99	106	102
193	02_77D_005	NRSC	499G		5738	GL	28° 3' 52.92"	88° 32' 38.04"	Ganga	Arun Kosi	China	11	7	6	6	5	7	5	7	6

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
194	02_77D_006	NRSC		CH_261	4894	GL	28° 3' 21.6"	88° 25' 35.4"	Ganga	Arun Kosi	China	80	82	78	106	105	105	78	106	95
195	02_77D_007	NRSC	244G	CH_262	5215	GL	28° 1' 23.88"	88° 21' 16.2"	Ganga	Arun Kosi	China	55	55	53	57	57	56	53	57	56
196	02_77D_008	NRSC	266G	CH_263	5285	GL	28° 1' 6.24"	88° 17' 14.28"	Ganga	Arun Kosi	China	45	47	50	51	51	50	47	51	50
197	02_77D_009	NRSC	71G	CH_264	5296	GL	28° 0' 37.08"	88° 15' 29.52"	Ganga	Arun Kosi	China	58	61	71	69	69	60	60	71	66
198	02_77D_010	NRSC	590G		5127	GL	28° 0' 57.6"	88° 19' 10.92"	Ganga	Arun Kosi	China	34	36	38	38	37	37	36	38	37
199	02_77D_011	NRSC	393G		5305	GL	28° 0' 19.08"	88° 14' 26.88"	Ganga	Arun Kosi	China	39	42	42	45	46	45	42	46	44
200	02_78A_001	NRSC	498G		5201	GL	27° 59' 46.68"	88° 24' 7.2"	Ganga	Arun Kosi	China	16	15	20	11	24	19	11	24	18
201	02_78A_002	NRSC	668G		5397	GL	27° 59' 21.48"	88° 13' 15.96"	Ganga	Arun Kosi	China	17	8	12	15	16	14	8	16	13
202	02_78A_003	NRSC	24G	CH_269	5522	GL	27° 56' 46.68"	88° 4' 30.72"	Ganga	Arun Kosi	China	124	161	161	164	157	161	157	164	161
203	02_78A_004	NRSC	194G	CH_270	5603	GL	27° 55' 58.08"	88° 4' 48"	Ganga	Arun Kosi	China	84	122	122	119	120	118	118	122	120
204	02_78A_005	NRSC		CH_271	5376	GL	27° 55' 41.16"	88° 0' 10.08"	Ganga	Arun Kosi	China	89	111	103	111	112	107	103	112	109
205	02_78A_006	NRSC	676G		5743	GL	27° 55' 39"	88° 1' 11.64"	Ganga	Arun Kosi	China	16	18	18	16	16	17	16	18	17

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
206	03_77H_009	NRSC			5150	GL	28° 14' 54.24"	89° 51' 5.76"	Brahmap-utra		China	15	15	15	15	15	15	15	15	15
207	03_77H_010	NRSC			5518	GL	28° 14' 22.92"	89° 57' 46.08"	Brahmap-utra		China	13	12	12	12	14	13	12	14	13
208	03_77L_038	NRSC			5521	GL	28° 13' 29.64"	90° 15' 26.64"	Brahmap-utra		China	30	12	14	14	14	13	12	14	13
209	03_77L_039	NRSC			5457	GL	28° 12' 19.44"	90° 23' 7.08"	Brahmap-utra	Kuri Chhu	China	38	42	40	34	43	42	34	43	40
210	03_77L_057	NRSC			4897	GL	28° 3' 35.28"	90° 36' 12.24"	Brahmap-utra	Kuri Chhu	China	36	40	46	39	41	48	39	48	43
211	03_77L_058	NRSC			5016	GL	28° 2' 53.88"	90° 35' 49.2"	Brahmap-utra	Kuri Chhu	China	28	33	32	33	33	33	32	33	33
212	03_62J_003	NRSC			5553	GL	30° 48' 40.32"	82° 45' 14.04"	Brahmap-utra		China	11	8	10	10	10	10	8	10	10
213	03_62J_004	NRSC			5556	GL	30° 48' 25.56"	82° 44' 58.92"	Brahmap-utra		China	14	11	15	15	15	15	11	15	14
214	03_62J_009	NRSC			5624	GL	30° 33' 45.72"	82° 55' 14.16"	Brahmap-utra		China	28	17	15	27	26	26	15	27	22
215	03_62J_010	NRSC			5571	GL	30° 33' 3.96"	82° 57' 27"	Brahmap-utra		China	27	20	22	23	24	24	20	24	23
216	03_62J_016	NRSC		CH_288	5303	GL	30° 21' 43.92"	82° 3' 17.28"	Brahmap-utra		China	44	64	54	49	47	51	47	64	53
217	03_62J_020	NRSC			5603	GL	30° 20' 25.8"	82° 8' 26.16"	Brahmap-utra		China	18	6	12	11	11	15	6	15	11

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
218	03_62J_024	NRSC			5548	GL	30° 18' 35.64"	82° 11' 58.92"	Brahmap-utra		China	31	17	18	20	20	19	17	20	19
219	03_62J_025	NRSC			5362	GL	30° 16' 55.92"	82° 10' 2.64"	Brahmap-utra		China	19	19	21	27	21	15	15	27	21
220	03_62J_026	NRSC		CH_298	5078	GL	30° 15' 21.6"	82° 12' 34.2"	Brahmap-utra		China	103	142	134	137	136	136	134	142	137
221	03_62J_027	NRSC			4781	GL	30° 15' 23.76"	82° 35' 21.12"	Brahmap-utra		China	19	20	23	22	22	20	20	23	21
222	03_62J_028	NRSC			5603	GL	30° 13' 18.48"	82° 13' 58.44"	Brahmap-utra		China	37	48	42	43	43	43	42	48	44
223	03_62J_031	NRSC		CH_303	4897	GL	30° 6' 14.04"	82° 16' 10.56"	Brahmap-utra		China	160	287	223	219	217	201	201	287	229
224	03_62J_032	NRSC		CH_304	4857	GL	30° 4' 42.6"	82° 20' 32.28"	Brahmap-utra		China	81	#	95	92	91	89	89	95	92
225	03_62K_005	NRSC			4999	GL	29° 58' 10.2"	82° 29' 39.84"	Brahmap-utra		China	21	22	24	24	23	23	22	24	23
226	03_62K_006	NRSC			5101	GL	29° 57' 47.52"	82° 30' 27"	Brahmap-utra		China	21	#	27	27	26	25	25	27	26
227	03_62K_007	NRSC			4911	GL	29° 56' 22.56"	82° 36' 7.56"	Brahmap-utra		China	25	25	29	29	29	29	25	29	28
228	03_62K_008	NRSC			4968	GL	29° 55' 26.76"	82° 37' 4.44"	Brahmap-utra		China	36	38	37	42	41	41	37	42	40
229	03_62K_009	NRSC		CH_313	5079	GL	29° 50' 25.8"	82° 47' 0.6"	Brahmap-utra		China	250	199	319	317	316	313	199	319	293

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
230	03_62K_010	NRSC			5181	GL	29° 47' 45.96"	82° 51' 10.08"	Brahmap-utra		China	41	58	77	68	66	51	51	77	64
231	03_62K_011	NRSC			5136	GL	29° 45' 46.44"	82° 53' 6.36"	Brahmap-utra		China	33	45	39	47	45	45	39	47	44
232	03_62K_012	NRSC		CH_316	5368	GL	29° 44' 7.8"	82° 58' 26.04"	Brahmap-utra		China	73	#	84	81	80	92	80	92	84
233	03_62K_013	NRSC			5101	GL	29° 41' 17.88"	82° 59' 2.4"	Brahmap-utra		China	37	44	455	47	45	45	44	455	127
234	03_62O_031	NRSC			5381	GL	29° 41' 40.2"	83° 1' 33.96"	Brahmap-utra		China	28	28	29	26	37	37	26	37	31
235	03_62O_035	NRSC			5256	GL	29° 39' 19.44"	83° 6' 21.24"	Brahmap-utra		China	29	32	32	34	33	33	32	34	33
236	03_62O_045	NRSC			5566	GL	29° 13' 17.4"	83° 41' 9.6"	Brahmap-utra		China	11	#	10	10	9	9	9	10	10
237	03_71B_001	NRSC			5692	GL	30° 34' 48"	84° 4' 37.2"	Brahmap-utra		China	27	27	27	27	27	27	27	27	27
238	03_71C_001	NRSC			5543	GL	29° 54' 51.84"	84° 36' 2.88"	Brahmap-utra		China	11	6	8	8	7	9	6	9	8
239	03_71C_002	NRSC			5663	GL	29° 53' 15"	84° 32' 13.2"	Brahmap-utra		China	12	3	9	8	7	10	3	10	7
240	03_71C_003	NRSC		CH_396	5412	GL	29° 51' 59.76"	84° 37' 26.4"	Brahmap-utra		China	47	37	48	50	49	49	37	50	47
241	03_71C_004	NRSC			5575	GL	29° 51' 22.68"	84° 37' 56.28"	Brahmap-utra		China	15	11	14	15	15	14	11	15	14

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
242	03_71C_005	NRSC		CH_398	5551	GL	29° 50' 43.8"	84° 40' 32.16"	Brahmap-utra		China	57	53	48	44	53	52	44	53	50
243	03_71C_006	NRSC			5482	GL	29° 49' 4.8"	84° 41' 27.96"	Brahmap-utra		China	22	5	21	21	21	21	5	21	18
244	03_71D_001	NRSC			5454	GL	28° 55' 44.76"	84° 18' 2.52"	Brahmap-utra		China	21	19	15	18	19	19	15	19	18
245	03_71D_002	NRSC			5574	GL	28° 54' 30.6"	84° 30' 25.56"	Brahmap-utra		China	30	29	36	35	35	33	29	36	34
246	03_71D_003	NRSC			5362	GL	28° 54' 33.84"	84° 20' 51.72"	Brahmap-utra		China	11	11	10	10	10	10	10	11	10
247	03_71P_002	NRSC			5537	GL	28° 48' 13.32"	87° 37' 28.2"	Brahmap-utra		China	13	16	15	17	17	16	15	17	16
248	03_71P_003	NRSC			5360	GL	28° 47' 47.76"	87° 38' 26.52"	Brahmap-utra		China	23	12	28	36	27	26	12	36	26
249	03_71P_004	NRSC			5637	GL	28° 47' 55.68"	87° 36' 12.24"	Brahmap-utra		China	12	1	10	11	11	11	1	11	9
250	03_77H_005	NRSC			5113	GL	28° 16' 48"	89° 59' 37.68"	Brahmap-utra		China	37	21	#	23	35	27	21	35	27
251	03_77H_012	NRSC		CH_483	4723	GL	28° 14' 25.44"	89° 41' 41.28"	Brahmap-utra		China	76	68	71	73	71	69	68	73	70
252	03_77H_013	NRSC		CH_484	4950	GL	28° 12' 32.04"	89° 44' 42.72"	Brahmap-utra		China	48	40	40	42	45	44	40	45	42
253	03_77H_015	NRSC			4801	GL	28° 12' 10.44"	89° 42' 46.8"	Brahmap-utra		China	12	13	13	15	14	13	13	15	14

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
254	03_77H_016	NRSC			4929	GL	28° 11' 10.32"	89° 35' 51"	Brahmap-utra		China	38	33	31	34	33	33	31	34	33
255	03_77H_022	NRSC			4936	GL	28° 8' 58.2"	89° 33' 52.56"	Brahmap-utra		China	19	19	20	20	19	19	19	20	19
256	03_77H_026	NRSC			5233	GL	28° 7' 24.6"	89° 30' 47.52"	Brahmap-utra		China	12	9	9	10	10	10	9	10	10
257	03_77H_027	NRSC			4927	GL	28° 5' 14.28"	89° 28' 50.16"	Brahmap-utra		China	21	22	14	18	22	21	14	22	19
258	03_77H_032	NRSC			5056	GL	28° 1' 33.6"	89° 26' 59.64"	Brahmap-utra		China	11	7	4	7	3	12	3	12	7
259	03_77J_001	NRSC			5354	GL	30° 30' 7.2"	90° 54' 46.08"	Brahmap-utra		China	26	26	24	28	24	26	24	28	26
260	03_77J_002	NRSC			5254	GL	30° 29' 57.12"	90° 56' 52.8"	Brahmap-utra		China	12	11	9	14	7	11	7	14	10
261	03_77J_005	NRSC			5766	GL	30° 4' 29.64"	90° 9' 24.48"	Brahmap-utra		China	12	13	8	11	13	13	8	13	12
262	03_77K_002	NRSC			5154	GL	29° 54' 43.92"	90° 3' 46.8"	Brahmap-utra		China	38	45	37	38	38	36	36	45	39
263	03_77K_003	NRSC			5303	GL	29° 52' 22.08"	90° 0' 28.08"	Brahmap-utra		China	14	16	9	13	15	14	9	16	13
264	03_77L_019	NRSC			5681	GL	28° 22' 45.84"	90° 5' 41.28"	Brahmap-utra		China	13	15	13	13	12	14	12	15	13
265	03_77L_020	NRSC			4682	GL	28° 20' 3.48"	90° 40' 26.4"	Brahmap-utra	Kuri Chhu	China	14	11	7	11	11	11	7	11	10

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
266	03_77L_022	NRSC			4810	GL	28° 18' 14.76"	90° 44' 27.6"	Brahmap-utra	Kuri Chhu	China	12	13	11	11	11	11	11	13	11
267	03_77L_023	NRSC			5489	GL	28° 18' 3.6"	90° 38' 48.84"	Brahmap-utra	Kuri Chhu	China	33	28	26	27	28	29	26	29	28
268	03_77L_025	NRSC			5370	GL	28° 18' 0.72"	90° 36' 29.52"	Brahmap-utra	Kuri Chhu	China	15	16	8	18	17	14	8	18	15
269	03_77L_028	NRSC			4632	GL	28° 16' 15.24"	90° 43' 19.2"	Brahmap-utra	Kuri Chhu	China	12	12	14	14	12	14	12	14	13
270	03_77L_029	NRSC		CH_545	5451	GL	28° 16' 22.8"	90° 35' 24.36"	Brahmap-utra	Kuri Chhu	China	45	44	36	47	49	48	36	49	45
271	03_77L_031	NRSC			4698	GL	28° 14' 52.08"	90° 42' 43.2"	Brahmap-utra	Kuri Chhu	China	21	14	14	16	15	17	14	17	15
272	03_77L_032	NRSC		CH_547	4669	GL	28° 14' 32.64"	90° 43' 38.28"	Brahmap-utra	Kuri Chhu	China	105	74	98	91	87	76	74	98	85
273	03_77L_034	NRSC			5500	GL	28° 14' 31.2"	90° 30' 23.76"	Brahmap-utra	Kuri Chhu	China	21	21	15	19	21	21	15	21	19
274	03_77L_036	NRSC			5810	GL	28° 14' 17.52"	90° 29' 45.96"	Brahmap-utra	Kuri Chhu	China	31	29	21	#	22	24	21	29	24
275	03_77L_041	NRSC		CH_550	5214	GL	28° 7' 24.6"	90° 34' 0.12"	Brahmap-utra	Kuri Chhu	China	56	61	66	66	65	64	61	66	64
276	03_77L_042	NRSC		CH_551	5057	GL	28° 5' 56.4"	90° 44' 23.28"	Brahmap-utra	Kuri Chhu	China	57	69	61	55	72	70	55	72	65
277	03_77L_043	NRSC		CH_552	5200	GL	28° 5' 21.84"	90° 47' 18.6"	Brahmap-utra	Kuri Chhu	China	181	220	236	244	246	242	220	246	238

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
278	03_77L_045	NRSC			5224	GL	28° 5' 7.8"	90° 36' 17.64"	Brahmap-utra	Kuri Chhu	China	32	28	30	28	33	34	28	34	31
279	03_77L_048	NRSC			4792	GL	28° 3' 48.24"	90° 54' 10.08"	Brahmap-utra	Kuri Chhu	China	21	25	26	23	24	23	23	26	24
280	03_77L_053	NRSC			4793	GL	28° 3' 12.96"	90° 54' 8.28"	Brahmap-utra	Kuri Chhu	China	25	#	44	53	50	54	44	54	50
281	03_77L_056	NRSC			4963	GL	28° 2' 46.32"	90° 55' 6.96"	Brahmap-utra	Kuri Chhu	China	16	10	10	17	12	19	10	19	14
282	03_77P_021	NRSC		CH_592	4749	GL	28° 2' 15"	91° 27' 6.48"	Brahmap-utra	Dangme Chhu	China	61	54	59	56	47	53	47	59	54
283	03_78A_004	NRSC			5456	GL	27° 57' 55.44"	88° 53' 37.68"	Brahmap-utra		China	26	13	20	14	16	23	13	23	17
284	03_78A_011	NRSC			5168	GL	27° 53' 60"	88° 55' 45.84"	Brahmap-utra	Amo Chhu	China	14	7	11	13	16	15	7	16	12
285	03_78A_025	NRSC			4888	GL	27° 38' 10.32"	88° 48' 57.96"	Brahmap-utra	Amo Chhu	China	10	#	11	8	7	12	7	12	10
286	03_78A_030	NRSC			4447	GL	27° 25' 12.36"	88° 48' 45"	Brahmap-utra	Amo Chhu	China	17	12	11	14	13	16	11	16	13
287	03_78E_016	NRSC			5004	GL	27° 53' 2.04"	89° 21' 2.52"	Brahmap-utra		China	16	11	13	14	13	18	11	18	14
288	03_78E_017	NRSC		CH_609	5253	GL	27° 52' 35.76"	89° 17' 45.96"	Brahmap-utra		China	65	43	44	43	43	42	42	44	43
289	03_78E_018	NRSC			5164	GL	27° 52' 45.12"	89° 19' 28.2"	Brahmap-utra		China	24	#	18	14	15	18	14	18	16

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
290	03_78E_019	NRSC		CH_611	5022	GL	27° 52' 40.44"	89° 18' 43.2"	Brahmap-utra		China	60	63	54	51	53	58	51	63	56
291	03_78E_023	NRSC		CH_612	5291	GL	27° 51' 17.64"	89° 15' 59.76"	Brahmap-utra		China	38	64	57	62	59	68	57	68	62
292	03_78E_026	NRSC		CH_613	5161	GL	27° 48' 31.32"	89° 13' 37.2"	Brahmap-utra	Amo Chhu	China	36	48	57	60	58	48	48	60	54
293	03_82C_011	NRSC			5242	GL	29° 45' 0.72"	92° 46' 40.8"	Brahmap-utra		China	12	14	15	10	13	15	10	15	13
294	03_82F_001	NRSC			4822	GL	30° 52' 59.16"	93° 49' 51.24"	Brahmap-utra		China	17	15	15	15	15	14	14	15	15
295	03_82F_005	NRSC			4762	GL	30° 32' 6.36"	93° 31' 2.28"	Brahmap-utra		China	17	40	44	36	31	42	31	44	39
296	03_82F_007	NRSC		CH_732	4801	GL	30° 31' 13.8"	93° 26' 41.28"	Brahmap-utra		China	115	114	116	112	116	114	112	116	114
297	03_82F_009	NRSC			4712	GL	30° 29' 36.6"	93° 21' 27.72"	Brahmap-utra		China	20	22	24	22	23	22	22	24	23
298	03_82F_010	NRSC		CH_735	5030	GL	30° 28' 13.08"	93° 31' 59.52"	Brahmap-utra		China	44	17	10	14	17	24	10	24	16
299	03_82F_011	NRSC			4720	GL	30° 26' 26.16"	93° 37' 45.84"	Brahmap-utra		China	12	7	13	13	12	12	7	13	11
300	03_82F_012	NRSC			4454	GL	30° 21' 27.36"	93° 37' 52.68"	Brahmap-utra		China	39	19	20	19	19	19	19	20	19
301	03_82F_013	NRSC			4761	GL	30° 21' 16.92"	93° 31' 40.08"	Brahmap-utra		China	10	10	3	4	10	12	3	12	8
302	03_82F_014	NRSC		CH_739	4691	GL	30° 20' 52.08"	93° 30' 24.12"	Brahmap-utra		China	49	46	44	37	44	43	37	46	43

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
303	03_82F_018	NRSC			4554	GL	30° 17' 15.72"	93° 28' 45.12"	Brahmap-utra		China	17	#	17	10	13	16	10	17	14
304	03_82F_020	NRSC		CH_745	4110	GL	30° 16' 3"	93° 27' 22.68"	Brahmap-utra		China	71	68	66	68	70	70	66	70	68
305	03_82F_021	NRSC			4487	GL	30° 14' 58.56"	93° 36' 49.32"	Brahmap-utra		China	11	9	10	15	12	11	9	15	11
306	03_82F_022	NRSC		CH_747	4200	GL	30° 14' 30.48"	93° 38' 14.28"	Brahmap-utra		China	103	112	111	112	110	109	109	112	111
307	03_82F_023	NRSC			4354	GL	30° 13' 57"	93° 34' 35.76"	Brahmap-utra		China	11	10	10	12	12	12	10	12	11
308	03_82F_024	NRSC			4197	GL	30° 13' 39.36"	93° 38' 11.04"	Brahmap-utra		China	17	19	22	23	20	19	19	23	21
309	03_82F_025	NRSC			4253	GL	30° 12' 29.52"	93° 30' 44.28"	Brahmap-utra		China	11	6	13	11	10	14	6	14	11
310	03_82F_026	NRSC			4607	GL	30° 10' 21"	93° 43' 5.52"	Brahmap-utra		China	13	9	14	10	11	12	9	14	11
311	03_82G_003	NRSC			4936	GL	29° 47' 24.36"	93° 29' 17.88"	Brahmap-utra		China	13	16	13	13	21	25	13	25	18
312	03_82G_004	NRSC			4498	GL	29° 43' 54.12"	93° 29' 52.44"	Brahmap-utra		China	38	30	31	32	30	29	29	32	30
313	03_82G_007	NRSC			4994	GL	29° 39' 28.08"	93° 16' 30"	Brahmap-utra		China	16	#	13	12	13	12	12	13	13
314	03_82J_001	NRSC			4775	GL	30° 49' 51.6"	94° 0' 32.4"	Brahmap-utra		China	31	28	29	28	29	35	28	35	30
315	03_82J_003	NRSC			4161	GL	30° 41' 4.2"	94° 19' 25.32"	Brahmap-utra		China	22	7	32	42	33	32	7	42	29

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
316	03_82J_004	NRSC		CH_834	3957	GL	30° 39' 37.8"	94° 29' 7.8"	Brahmap-utra		China	356	546	508	552	505	557	505	557	534
317	03_82J_005	NRSC		CH_835	4134	GL	30° 37' 34.68"	94° 26' 42"	Brahmap-utra		China	67	81	75	75	75	74	74	81	76
318	03_82J_006	NRSC			3657	GL	30° 32' 8.88"	94° 45' 38.16"	Brahmap-utra		China	41	59	53	54	48	58	48	59	54
319	03_82J_008	NRSC		CH_838	4036	GL	30° 27' 0.72"	94° 36' 14.76"	Brahmap-utra		China	156	209	211	213	240	245	209	245	224
320	03_82J_018	NRSC		CH_848	3913	GL	30° 6' 54.72"	94° 11' 17.16"	Brahmap-utra		China	99	78	78	88	78	93	78	93	83
321	03_82J_019	NRSC		CH_849	3944	GL	30° 5' 49.56"	94° 16' 10.92"	Brahmap-utra		China	45	#	91	88	80	104	80	104	91
322	03_82K_109	NRSC			4356	GL	29° 3' 7.2"	94° 5' 49.2"	Brahmap-utra		China	22	21	21	22	20	24	20	24	22
323	03_82L_004	NRSC			4441	GL	28° 54' 20.16"	94° 0' 14.04"	Brahmap-utra		China	13	13	15	10	12	12	10	15	12
324	03_82L_006	NRSC			4147	GL	28° 52' 48.36"	94° 2' 22.92"	Brahmap-utra		China	13	14	14	13	14	14	13	14	14
325	03_82L_008	NRSC			4342	GL	28° 52' 12.36"	94° 1' 58.8"	Brahmap-utra		China	12	9	12	10	9	11	9	12	10
326	03_82L_009	NRSC		CH_971	3893	GL	28° 51' 14.04"	94° 0' 7.2"	Brahmap-utra		China	54	46	65	65	73	76	46	76	65
327	03_82N_001	NRSC			5055	GL	30° 35' 27.96"	95° 33' 3.24"	Brahmap-utra		China	38	#	33	33	32	34	32	34	33

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
328	03_82N_004	NRSC		CH_975	4290	GL	30° 36' 3.96"	95° 10' 59.16"	Brahmap-utra		China	92	133	142	136	132	145	132	145	138
329	03_82N_008	NRSC			4546	GL	30° 34' 19.2"	95° 15' 15.48"	Brahmap-utra		China	18	26	32	33	27	40	26	40	32
330	03_82N_011	NRSC			4997	GL	30° 31' 23.52"	95° 42' 0"	Brahmap-utra		China	20	14	21	20	15	15	14	21	17
331	03_82N_015	NRSC			5090	GL	30° 32' 44.88"	95° 20' 35.52"	Brahmap-utra		China	10	6	5	4	5	7	4	7	5
332	03_82N_016	NRSC			5017	GL	30° 32' 24.36"	95° 22' 30.36"	Brahmap-utra		China	11	5	6	5	4	7	4	7	5
333	03_82N_018	NRSC			4333	GL	30° 31' 44.4"	95° 6' 23.4"	Brahmap-utra		China	11	#	12	13	4	#	4	13	10
334	03_82N_025	NRSC			4764	GL	30° 22' 51.24"	95° 39' 12.96"	Brahmap-utra		China	27	18	24	23	21	24	18	24	22
335	03_82N_029	NRSC			4492	GL	30° 16' 4.8"	95° 36' 21.6"	Brahmap-utra		China	35	#	38	40	43	36	36	43	39
336	03_82N_030	NRSC		CH_1001	4462	GL	30° 15' 2.88"	95° 36' 13.68"	Brahmap-utra		China	132	131	115	137	130	80	80	137	119
337	03_82N_031	NRSC			4409	GL	30° 14' 17.88"	95° 36' 8.28"	Brahmap-utra		China	17	#	15	16	10	16	10	16	14
338	03_82N_032	NRSC			4384	GL	30° 13' 44.4"	95° 35' 30.84"	Brahmap-utra		China	28	#	#	49	#	17	17	49	33
339	03_82N_033	NRSC		CH_1004	4357	GL	30° 13' 16.68"	95° 35' 0.24"	Brahmap-utra		China	89	73	85	84	88	71	71	88	80

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
340	03_82N_034	NRSC			4181	GL	30° 13' 23.52"	95° 32' 32.64"	Brahmap-utra		China	13	#	13	12	12	18	12	18	14
341	03_82N_035	NRSC			4479	GL	30° 10' 50.16"	95° 51' 20.88"	Brahmap-utra		China	23	#	20	14	11	14	11	20	15
342	03_82N_037	NRSC			4691	GL	30° 0' 30.96"	95° 54' 54.36"	Brahmap-utra		China	13	#	13	10	10	12	10	13	11
343	03_82O_001	NRSC			4348	GL	29° 59' 32.64"	95° 51' 50.4"	Brahmap-utra		China	42	41	41	32	41	42	32	42	39
344	03_82O_002	NRSC			4198	GL	29° 58' 57.36"	95° 54' 12.96"	Brahmap-utra		China	18	19	19	19	19	18	18	19	19
345	03_82O_003	NRSC			4180	GL	29° 54' 16.92"	95° 54' 31.32"	Brahmap-utra		China	15	#	#	#	13	#	13	13	13
346	03_82O_004	NRSC			4148	GL	29° 48' 18.72"	95° 38' 33"	Brahmap-utra		China	18	15	2	3	25	#	2	25	11
347	03_83A_001	NRSC			5018	GL	27° 58' 51.6"	92° 39' 3.96"	Brahmap-utra		China	52	40	44	48	46	47	40	48	45
348	03_91C_002	NRSC			4691	GL	29° 53' 36.96"	96° 22' 40.44"	Brahmap-utra		China	23	#	33	33	34	22	22	34	31
349	03_91C_003	NRSC			4703	GL	29° 52' 59.88"	96° 23' 21.12"	Brahmap-utra		China	24	#	28	26	30	27	26	30	28
350	03_91C_004	NRSC			4137	GL	29° 52' 26.76"	96° 19' 29.28"	Brahmap-utra		China	21	15	17	17	15	19	15	19	17
351	03_91C_005	NRSC		CH_1056	4926	GL	29° 49' 23.16"	96° 21' 2.52"	Brahmap-utra		China	86	#	101	101	103	95	95	103	100

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
352	03_91C_006	NRSC			5057	GL	29° 45' 11.16"	96° 27' 48.96"	Brahmap-utra		China	14	5	4	3	4	4	3	5	4
353	03_91C_007	NRSC			4817	GL	29° 45' 42.48"	96° 22' 26.76"	Brahmap-utra		China	11	#	7	8	9	12	7	12	9
354	03_91C_008	NRSC			4899	GL	29° 42' 21.6"	96° 18' 24.84"	Brahmap-utra		China	23	#	#	#	24	25	24	25	25
355	03_91C_010	NRSC			4712	GL	29° 39' 49.32"	96° 33' 8.64"	Brahmap-utra		China	23	#	22	22	21	21	21	22	22
356	03_91C_012	NRSC			4663	GL	29° 35' 18.6"	96° 40' 18.84"	Brahmap-utra		China	21	18	20	20	19	19	18	20	19
357	03_91C_013	NRSC			4925	GL	29° 33' 38.16"	96° 37' 40.44"	Brahmap-utra		China	12	#	12	14	14	14	12	14	14
358	03_91C_014	NRSC		CH_1065	4033	GL	29° 35' 56.4"	96° 8' 28.68"	Brahmap-utra		China	65	40	65	66	52	48	40	66	54
359	03_91C_015	NRSC			4421	GL	29° 34' 14.88"	96° 22' 26.04"	Brahmap-utra		China	26	21	12	14	23	21	12	23	18
360	03_91C_016	NRSC			4813	GL	29° 32' 36.6"	96° 36' 57.96"	Brahmap-utra		China	13	13	10	13	15	13	10	15	13
361	03_91C_019	NRSC			3858	GL	29° 27' 55.08"	96° 30' 4.32"	Brahmap-utra		China	17	50	53	46	51	55	46	55	51
362	03_91C_021	NRSC			4093	GL	29° 25' 15.96"	96° 37' 30.72"	Brahmap-utra		China	35	32	27	28	26	31	26	32	29
363	03_91C_023	NRSC			4811	GL	29° 23' 8.88"	96° 22' 22.08"	Brahmap-utra	Lohit	China	30	31	31	#	31	#	31	31	31

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
364	03_91C_024	NRSC		CH_1075	3977	GL	29° 17' 53.16"	96° 48' 59.04"	Brahmap-utra		China	262	285	275	292	377	360	275	377	318
365	03_91C_025	NRSC		CH_1076	4022	GL	29° 17' 40.2"	96° 50' 3.84"	Brahmap-utra		China	95	114	113	111	111	100	100	114	110
366	03_91C_033	NRSC		CH_1079	4278	GL	29° 13' 46.92"	96° 48' 4.68"	Brahmap-utra		China	164	147	129	132	146	144	129	147	140
367	03_91C_035	NRSC			4283	GL	29° 13' 20.64"	96° 48' 34.2"	Brahmap-utra		China	24	#	57	55	56	54	54	57	56
368	03_91C_036	NRSC			4298	GL	29° 13' 6.96"	96° 48' 52.2"	Brahmap-utra		China	16	#	#	53	55	55	53	55	54
369	03_91C_043	NRSC			4429	GL	29° 10' 44.04"	96° 51' 12.96"	Brahmap-utra		China	26	10	13	14	13	11	10	14	12
370	03_91C_071	NRSC			4339	GL	29° 2' 31.2"	96° 13' 12"	Brahmap-utra	Dibang	China	35	37	33	33	33	37	33	37	35
371	03_91C_074	NRSC		CH_1102	4258	GL	29° 1' 48"	96° 13' 22.8"	Brahmap-utra	Dibang	China	47	#	39	43	50	54	39	54	47
372	03_91D_070	NRSC			4126	GL	28° 36' 36.36"	96° 43' 19.56"	Brahmap-utra	Lohit	China	12	18	16	13	14	14	13	18	15
373	03_91D_082	NRSC			4550	GL	28° 32' 28.68"	96° 36' 5.04"	Brahmap-utra	Lohit	China	31	#	35	23	27	25	23	35	28
374	03_91D_096	NRSC			3794	GL	28° 25' 56.64"	96° 55' 32.52"	Brahmap-utra	Lohit	China	38	#	#	40	39	#	39	40	40
375	03_91D_098	NRSC			4197	GL	28° 24' 10.44"	96° 50' 11.76"	Brahmap-utra	Lohit	China	13	#	14	6	18	14	6	18	13

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
376	03_91D_099	NRSC			4406	GL	28° 23' 31.2"	96° 51' 28.44"	Brahmap-utra	Lohit	China	30	#	43	30	34	30	30	43	34
377	03_91G_001	NRSC			5147	GL	29° 42' 4.32"	97° 0' 28.8"	Brahmap-utra		China	12	#	5	9	8	11	5	11	8
378	03_91G_003	NRSC			5018	GL	29° 28' 1.2"	97° 22' 29.28"	Brahmap-utra	Lohit	China	15	25	14	16	18	19	14	25	18
379	03_91G_004	NRSC			5262	GL	29° 29' 48.48"	97° 6' 10.8"	Brahmap-utra	Lohit	China	21	26	36	26	26	26	26	36	28
380	03_91G_005	NRSC			5170	GL	29° 24' 7.56"	97° 0' 32.4"	Brahmap-utra	Lohit	China	14	#	#	11	10	10	10	11	10
381	03_91G_006	NRSC			5028	GL	29° 23' 30.48"	97° 1' 8.76"	Brahmap-utra	Lohit	China	27	18	19	15	16	20	15	20	18
382	03_91G_007	NRSC			4785	GL	29° 13' 47.28"	97° 19' 55.92"	Brahmap-utra	Lohit	China	11	12	11	11	9	14	9	14	11
383	03_91G_009	NRSC			4637	GL	29° 12' 2.88"	97° 22' 8.4"	Brahmap-utra	Lohit	China	16	8	#	16	15	16	8	16	14
384	03_91H_001	NRSC			4429	GL	28° 59' 30.84"	97° 32' 54.24"	Brahmap-utra	Lohit	China	13	17	15	12	12	18	12	18	15
385	03_91H_003	NRSC			4439	GL	28° 59' 22.56"	97° 16' 4.08"	Brahmap-utra	Lohit	China	10	10	9	11	10	15	9	15	11
386	03_91H_006	NRSC			4620	GL	28° 57' 28.8"	97° 20' 3.84"	Brahmap-utra	Lohit	China	17	15	14	17	16	17	14	17	16
387	03_91H_007	NRSC			4635	GL	28° 56' 52.08"	97° 19' 11.64"	Brahmap-utra	Lohit	China	27	#	29	24	20	28	20	29	25
388	03_91H_008	NRSC			4755	GL	28° 56' 41.28"	97° 18' 12.6"	Brahmap-utra	Lohit	China	40	#	45	44	40	52	40	52	45

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
389	03_91H_015	NRSC			4553	GL	28° 51' 10.08"	97° 37' 50.88"	Brahmap-utra	Lohit	China	14	#	13	8	9	14	8	14	11
390	03_91H_033	NRSC			4389	GL	28° 33' 21.96"	97° 32' 51.72"	Brahmap-utra	Lohit	China	13	9	10	10	10	12	9	12	10
391	03_91H_034	NRSC			4629	GL	28° 32' 13.2"	97° 37' 15.6"	Brahmap-utra	Lohit	China	13	11	12	13	14	13	11	14	13
392	03_91H_036	NRSC			4457	GL	28° 31' 5.16"	97° 31' 35.76"	Brahmap-utra	Lohit	China	19	19	17	15	18	26	15	26	19
393	01_52L_008	NRSC		CH_1	3873	WB	32° 19' 35.04"	78° 43' 25.68"	Brahmap-utra	Sutlej	China	50	#	#	#	#	#	0	0	#
394	01_52N_001	NRSC		CH_3	4964	WB	34° 9' 32.04"	79° 46' 45.84"	Indus	Indus	China	11564	12320	12209	12339	12339	12329	12209	12339	12307
395	01_52O_001	NRSC		CH_4	4242	WB	33° 45' 0"	79° 14' 24"	Indus	Shyok	China	65825	68950	69953	69450	69481	69226	68950	69953	69412
396	01_52O_002	NRSC		CH_5	5262	WB	33° 58' 49.08"	79° 32' 35.52"	Indus	Indus	China	135	89	99	125	127	106	89	127	109
397	01_52O_003	NRSC		CH_6	4252	WB	33° 33' 43.56"	79° 57' 46.8"	Indus	Indus	China	290	201	208	217	221	202	201	221	210
398	01_52O_005	NRSC		CH_8	4358	WB	33° 23' 25.08"	79° 22' 1.2"	Indus	Indus	China	780	813	816	822	630	809	630	822	778
399	01_61B_003	NRSC		CH_28	5074	WB	34° 14' 5.64"	80° 30' 20.88"	Indus	Indus	China	224	239	227	230	210	#	210	239	227
400	01_61C_001	NRSC		CH_29	4526	WB	33° 57' 12.6"	80° 54' 12.96"	Indus	Indus	China	11154	11779	11721	11754	11788	11783	11721	11788	11765

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
401	01_61C_002	NRSC		CH_30	4494	WB	33° 45' 3.96"	80° 35' 51.72"	Indus	Indus	China	685	883	862	848	811	882	811	883	857
402	01_61C_004	NRSC			4495	WB	33° 45' 16.2"	80° 38' 37.68"			China	21	#	#	#	#	#	0	0	#
403	01_61C_005	NRSC		CH_33	4495	WB	33° 44' 54.96"	80° 38' 29.76"	Indus	Indus	China	139	390	390	392	390	#	390	392	391
404	01_61C_010	NRSC			4495	WB	33° 43' 28.92"	80° 41' 25.08"	Indus	Indus	China	88	155	144	157	161	#	144	161	154
405	01_61C_011	NRSC		CH_39	4494	WB	33° 43' 13.44"	80° 43' 16.68"	Indus	Indus	China	403	502	685	678	663	661	502	685	638
406	01_61C_012	NRSC		CH_40	4282	WB	33° 32' 45.24"	80° 9' 21.6"	Indus	Indus	China	290	303	342	374	302	308	302	374	326
407	01_61C_014	NRSC		CH_42	4279	WB	33° 29' 57.12"	80° 20' 60"	Indus	Indus	China	286	304	289	282	279	274	274	304	286
408	01_61C_015	NRSC		CH_43	4280	WB	33° 29' 16.44"	80° 18' 58.32"	Indus	Indus	China	742	809	842	859	548	797	548	859	771
409	01_61C_016	NRSC		CH_44	4289	WB	33° 25' 58.44"	80° 27' 59.76"	Indus	Indus	China	344	396	378	370	369	377	369	396	378
410	01_61C_018	NRSC		CH_46	4291	WB	33° 22' 1.2"	80° 33' 11.16"	Indus	Indus	China	1779	1968	1572	1932	2008	1765	1572	2008	1849
411	01_61C_021	NRSC		CH_49	4349	WB	33° 6' 16.56"	80° 17' 10.32"	Indus	Indus	China	1155	1179	1210	1092	1099	1100	1092	1210	1136
412	01_61C_022	NRSC		CH_50	4339	WB	33° 5' 51.36"	80° 23' 34.08"	Indus	Indus	China	1420	1697	1618	1583	1591	1601	1583	1697	1618
413	01_61C_023	NRSC		CH_51	4350	WB	33° 5' 57.48"	80° 10' 38.64"	Indus	Indus	China	623	628	642	674	616	644	616	674	641

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
414	01_61C_024	NRSC		CH_52	4323	WB	33° 2' 6.72"	80° 34' 51.96"	Indus	Indus	China	4486	4949	5108	5119	5095	5120	4949	5120	5078
415	01_61D_001	NRSC		CH_53	5593	WB	32° 48' 5.4"	80° 29' 0.96"	Indus	Indus	China	63	33	#	#	#	#	33	33	33
416	01_61D_002	NRSC		CH_54	4313	WB	32° 32' 12.12"	80° 13' 42.96"	Indus	Indus	China	1216	1626	1545	1556	1263	1495	1263	1626	1497
417	01_61D_003	NRSC		CH_55	4453	WB	32° 25' 23.52"	80° 51' 55.08"	Indus	Indus	China	69	46	50	50	41	54	41	54	48
418	01_61D_004	NRSC		CH_56	4991	WB	32° 9' 24.84"	80° 18' 11.88"	Indus	Indus	China	550	522	520	542	568	566	520	568	544
419	01_61F_002	NRSC		CH_59	5279	WB	34° 17' 55.32"	81° 12' 5.4"	Indus	Indus	China	59	42	57	60	58	#	42	60	54
420	01_61F_003	NRSC		CH_60	5256	WB	34° 16' 30.36"	81° 3' 7.56"	Indus	Indus	China	570	550	562	571	550	#	550	571	558
421	01_61F_004	NRSC		CH_61	4814	WB	34° 1' 19.92"	81° 36' 47.88"	Indus	Indus	China	36392	42331	3839	40138	40761	40294	3839	42331	33473
422	01_61G_001	NRSC		CH_62	4973	WB	33° 49' 12.72"	81° 38' 40.56"	Indus	Indus	China	85	#	61	62	56	67	56	67	62
423	01_61G_002	NRSC		CH_63	4663	WB	33° 40' 21.72"	81° 22' 16.32"	Indus	Indus	China	1134	1378	1438	1426	1384	1382	1378	1438	1402
424	01_61G_003	NRSC		CH_64	4864	WB	33° 37' 59.88"	81° 23' 14.64"	Indus	Indus	China	85	71	62	46	42	#	42	71	55
425	01_61H_001	NRSC		CH_66	4619	WB	32° 7' 7.68"	81° 16' 9.84"	Indus	Indus	China	282	317	330	320	311	309	309	330	317
426	01_62A_003	NRSC		CH_69	5142	WB	31° 34' 40.08"	80° 59' 22.2"	Indus	Indus	China	1355	1415	1339	1341	1379	1407	1339	1415	1376

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
427	01_62B_001	NRSC		CH_73	4526	WB	30° 49' 22.8"	80° 44' 34.8"	Indus	Sutlej	China	440	254	231	232	206	267	206	267	238
428	01_62E_002	NRSC		CH_77	5139	WB	31° 36' 58.32"	81° 1' 48"	Indus	Indus	China	161	140	128	158	168	163	128	168	151
429	01_62E_003	NRSC		CH_78	5104	WB	31° 27' 30.24"	81° 5' 26.52"	Indus	Indus	China	136	145	148	158	161	159	145	161	154
430	01_62E_004	NRSC		CH_79	5161	WB	31° 21' 24.48"	81° 8' 59.28"	Indus	Indus	China	233	252	248	246	252	249	246	252	249
431	01_62E_005	NRSC		CH_80	5174	WB	31° 18' 47.88"	81° 31' 1.56"	Indus	Indus	China	189	234	216	209	202	210	202	234	214
432	01_62E_006	NRSC		CH_81	5055	WB	31° 17' 31.2"	81° 14' 40.92"	Indus	Indus	China	524	542	539	537	525	531	525	542	535
433	01_62E_010	NRSC		CH_85	5233	WB	31° 16' 26.76"	81° 35' 41.64"	Indus	Indus	China	156	157	148	147	155	152	147	157	152
434	01_62E_013	NRSC		CH_88	5345	WB	31° 14' 29.4"	81° 41' 9.96"	Indus	Indus	China	166	146	154	159	165	172	146	172	159
435	01_62E_015	NRSC		CH_90	5415	WB	31° 10' 56.28"	81° 11' 40.2"	Indus	Sutlej	China	51	34	48	53	46	52	34	53	47
436	01_62F_001	NRSC		CH_92	4571	WB	30° 41' 19.68"	81° 13' 55.2"	Indus	Sutlej	China	25486	24611	#	24562	24695	24525	24525	24695	24598
437	01_62F_002	NRSC		CH_93	4592	WB	30° 48' 6.48"	81° 33' 54.72"	Indus	Sutlej	China	333	344	#	314	314	295	295	344	317
438	01_62F_003	NRSC		CH_94	4586	WB	30° 41' 5.28"	81° 28' 12.36"	Indus	Sutlej	China	40552	41720	#	41605	41665	41211	41211	41720	41550

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
439	01_62F_004	NRSC		CH_95	5493	WB	30° 25' 50.88"	81° 25' 58.44"	Indus	Sutlej	China	196	202	173	192	191	176	173	202	187
440	01_62J_001	NRSC		CH_102	4784	WB	30° 38' 15.72"	82° 8' 6.36"	Indus	Sutlej	China	5571	5735	5754	5773	5718	5761	5718	5773	5748
441	02_62B_001	NRSC		CH_106	5216	WB	30° 37' 4.8"	80° 37' 49.44"	Ganga	Karnali	China	67	28	28	28	28	28	28	28	28
442	02_71H_001	NRSC		CH_121	4580	WB	28° 53' 32.28"	85° 35' 8.52"	Ganga	Arun Kosi	China	26825	27733	25887	27365	27029	26982	25887	27733	26999
443	02_71H_002	NRSC		CH_122	4650	WB	28° 43' 24.96"	85° 52' 46.56"	Ganga	Arun Kosi	China	2152	2521	2452	2571	2553	2570	2452	2571	2533
444	02_71H_003	NRSC		CH_123	4649	WB	28° 41' 10.32"	85° 57' 15.12"	Ganga	Arun Kosi	China	166	223	217	218	224	227	217	227	222
445	02_71H_028	NRSC	15G	CH_148	5174	WB	28° 19' 49.08"	85° 52' 7.32"	Ganga	Sun Kosi	China	200	197	191	196	192	193	191	197	194
446	02_71H_035	NRSC		CH_155	4366	WB	28° 10' 57"	85° 55' 22.44"	Ganga	Sun Kosi	China	45	42	43	43	43	44	42	44	43
447	02_71L_001	NRSC		CH_156	5106	WB	28° 53' 12.84"	86° 30' 52.2"	Ganga	Arun Kosi	China	83	90	82	103	111	90	82	111	95
448	02_71L_002	NRSC		CH_157	5261	WB	28° 51' 29.16"	86° 31' 12.36"	Ganga	Arun Kosi	China	72	75	83	82	77	79	75	83	79
449	02_71L_003	NRSC		CH_158	5324	WB	28° 49' 55.92"	86° 31' 21"	Ganga	Arun Kosi	China	258	263	283	271	252	280	252	283	270
450	02_71P_015	NRSC		CH_203	4153	WB	28° 34' 35.76"	87° 32' 38.76"	Ganga	Arun Kosi	China	838	1230	932	954	944	948	932	1230	1002

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
451	02_71P_016	NRSC		CH_204	4182	WB	28° 29' 56.76"	87° 27' 7.92"	Ganga	Arun Kosi	China	137	153	164	161	101	122	101	164	140
452	02_71P_018	NRSC		CH_206	4199	WB	28° 21' 27.72"	87° 53' 6.72"	Ganga	Arun Kosi	China	51	#	58	60	55	56	55	60	57
453	02_71P_025	NRSC		CH_213	4807	WB	28° 12' 51.12"	87° 28' 5.88"	Ganga	Arun Kosi	China	104	117	135	143	142	148	117	148	137
454	02_71P_035	NRSC		CH_223	5146	WB	28° 9' 7.2"	87° 9' 27"	Ganga	Arun Kosi	China	107	79	79	84	78	94	78	94	83
455	02_71P_040	NRSC	126G	CH_228	4962	WB	28° 6' 50.04"	87° 39' 19.08"	Ganga	Arun Kosi	China	126	156	154	156	155	151	151	156	154
456	02_77D_001	NRSC		CH_256	4423	WB	28° 24' 16.2"	88° 13' 42.96"	Ganga	Arun Kosi	China	5831	2454	2030	2462	2506	2401	2030	2506	2371
457	02_77D_003	NRSC		CH_258	4364	WB	28° 18' 33.12"	88° 19' 31.08"	Ganga	Arun Kosi	China	119	#	82	91	95	53	53	95	80
458	02_77D_004	NRSC		CH_259	4378	WB	28° 17' 38.04"	88° 7' 15.6"	Ganga	Arun Kosi	China	1875	#	#	647	574	686	574	686	636
459	03_62J_001	NRSC		CH_273	5449	WB	30° 52' 49.8"	82° 51' 33.12"	Brahmap-utra		China	147	138	139	143	145	151	138	151	143
460	03_62J_011	NRSC		CH_283	5181	WB	30° 28' 6.6"	82° 3' 33.12"	Brahmap-utra		China	401	402	388	414	400	411	388	414	403
461	03_62J_012	NRSC		CH_284	4883	WB	30° 25' 53.4"	82° 21' 42.12"	Brahmap-utra		China	165	144	165	169	161	167	144	169	161
462	03_62J_013	NRSC		CH_285	4934	WB	30° 25' 8.04"	82° 18' 7.92"	Brahmap-utra		China	854	943	955	954	930	910	910	955	938
463	03_62J_015	NRSC		CH_287	5207	WB	30° 23' 52.08"	82° 11' 32.28"	Brahmap-utra		China	70	76	81	86	85	85	76	86	83

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
464	03_62K_001	NRSC		CH_305	4834	WB	29° 59' 8.16"	82° 32' 4.56"	Brahmap-utra		China	370	376	394	392	390	387	376	394	388
465	03_62K_002	NRSC		CH_306	4858	WB	29° 58' 48.36"	82° 35' 17.16"	Brahmap-utra		China	45	57	49	49	48	48	48	57	50
466	03_62N_001	NRSC		CH_318	5102	WB	30° 53' 20.04"	83° 34' 48.72"	Brahmap-utra		China	14300	14682	14865	15152	14831	14811	14682	15152	14868
467	03_62N_003	NRSC		CH_320	5208	WB	30° 42' 38.16"	83° 36' 30.96"	Brahmap-utra		China	57	4	#	#	32	6	4	32	14
468	03_62N_004	NRSC		CH_321	5168	WB	30° 40' 5.16"	83° 37' 30.72"	Brahmap-utra		China	878	772	893	904	764	763	763	904	819
469	03_62N_009	NRSC		CH_326	5241	WB	30° 35' 26.88"	83° 31' 7.32"	Brahmap-utra		China	288	295	299	298	220	292	220	299	281
470	03_62N_017	NRSC		CH_334	5454	WB	30° 27' 55.44"	83° 59' 4.2"	Brahmap-utra		China	77	78	78	79	82	82	78	82	80
471	03_62N_021	NRSC		CH_338	5432	WB	30° 25' 50.88"	83° 59' 48.84"	Brahmap-utra		China	197	180	204	204	202	201	180	204	198
472	03_62N_022	NRSC		CH_339	4599	WB	30° 12' 15.12"	83° 14' 31.92"	Brahmap-utra		China	198	202	183	163	162	165	162	202	175
473	03_62O_002	NRSC		CH_347	4587	WB	29° 57' 38.52"	83° 16' 11.64"	Brahmap-utra		China	58	55	38	41	41	53	38	55	46
474	03_62O_024	NRSC		CH_369	4637	WB	29° 51' 26.64"	83° 15' 5.76"	Brahmap-utra		China	721	865	825	894	836	838	825	894	852
475	03_62O_027	NRSC		CH_372	4575	WB	29° 48' 47.16"	83° 39' 15.48"	Brahmap-utra		China	47	#	37	39	39	38	37	39	38
476	03_62O_028	NRSC		CH_373	4577	WB	29° 47' 40.92"	83° 33' 20.88"	Brahmap-utra		China	887	#	360	318	231	230	230	360	285

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
477	03_62O_030	NRSC		CH_375	5013	WB	29° 43' 34.68"	83° 6' 16.56"	Brahmap-utra		China	97	97	107	112	114	101	97	114	106
478	03_62O_032	NRSC		CH_377	5012	WB	29° 41' 21.48"	83° 11' 24.36"	Brahmap-utra		China	49	54	52	59	59	57	52	59	56
479	03_62O_038	NRSC		CH_383	4893	WB	29° 36' 16.92"	83° 22' 38.28"	Brahmap-utra		China	124	128	135	135	133	133	128	135	133
480	03_62O_039	NRSC		CH_384	4555	WB	29° 35' 21.48"	83° 59' 19.68"	Brahmap-utra		China	236	254	236	332	308	307	236	332	287
481	03_62O_040	NRSC		CH_385	4896	WB	29° 34' 56.64"	83° 21' 20.16"	Brahmap-utra		China	107	134	133	127	123	120	120	134	127
482	03_62O_041	NRSC		CH_386	4963	WB	29° 30' 39.6"	83° 26' 39.48"	Brahmap-utra		China	206	219	207	221	211	221	207	221	216
483	03_62O_042	NRSC		CH_387	4964	WB	29° 29' 56.04"	83° 25' 40.44"	Brahmap-utra		China	57	61	60	62	62	60	60	62	61
484	03_62O_043	NRSC		CH_388	5285	WB	29° 28' 13.44"	83° 45' 49.68"	Brahmap-utra		China	86	9	50	69	70	69	9	70	53
485	03_71B_002	NRSC		CH_392	5388	WB	30° 26' 7.8"	84° 3' 33.12"	Brahmap-utra		China	8185	8395	8108	8114	8264	8242	8108	8395	8225
486	03_71C_010	NRSC		CH_403	4561	WB	29° 18' 39.6"	84° 25' 49.44"	Brahmap-utra		China	49	#	30	32	33	18	18	33	28
487	03_71C_011	NRSC		CH_404	4684	WB	29° 13' 52.32"	84° 22' 12"	Brahmap-utra		China	119	169	159	163	172	169	159	172	166
488	03_71G_001	NRSC		CH_410	5163	WB	29° 53' 34.08"	85° 14' 49.56"	Brahmap-utra		China	720	693	768	786	776	760	693	786	757

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
489	03_71G_006	NRSC		CH_415	5065	WB	29° 39' 11.52"	85° 44' 15.72"	Brahmap-utra		China	956	946	1005	1011	961	975	946	1011	980
490	03_71G_007	NRSC		CH_416	5153	WB	29° 39' 14.4"	85° 48' 31.68"	Brahmap-utra		China	191	193	#	201	199	198	193	201	198
491	03_71G_008	NRSC		CH_417	5187	WB	29° 33' 30.96"	85° 52' 50.52"	Brahmap-utra		China	60	50	55	54	55	53	50	55	53
492	03_71G_009	NRSC		CH_418	5032	WB	29° 31' 32.88"	85° 38' 37.32"	Brahmap-utra		China	178	90	91	130	114	120	90	130	109
493	03_71G_010	NRSC		CH_419	4491	WB	29° 20' 49.2"	85° 4' 58.8"	Brahmap-utra		China	304	191	235	217	210	204	191	235	211
494	03_71G_011	NRSC		CH_420	4619	WB	29° 7' 19.56"	85° 23' 54.6"	Brahmap-utra		China	951	1170	1393	1405	1189	1248	1170	1405	1281
495	03_71G_013	NRSC		CH_422	4543	WB	29° 6' 7.56"	85° 5' 49.56"	Brahmap-utra		China	244	282	203	274	212	156	156	282	225
496	03_71G_014	NRSC		CH_423	4606	WB	29° 5' 16.8"	85° 11' 22.56"	Brahmap-utra		China	60	170	177	182	178	179	170	182	177
497	03_71K_002	NRSC		CH_425	4974	WB	29° 48' 4.32"	86° 56' 44.16"	Brahmap-utra		China	2248	2311	2360	2326	2326	2324	2311	2360	2329
498	03_71K_003	NRSC		CH_426	4982	WB	29° 45' 59.04"	86° 55' 21.36"	Brahmap-utra		China	72	79	83	89	92	98	79	98	88
499	03_71K_006	NRSC		CH_429	4847	WB	29° 37' 30.36"	86° 14' 50.28"	Brahmap-utra		China	2096	1979	2210	2148	2195	2140	1979	2210	2134
500	03_71K_007	NRSC		CH_430	4752	WB	29° 34' 46.2"	86° 15' 39.6"	Brahmap-utra		China	99	63	112	112	108	102	63	112	99

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
501	03_71K_009	NRSC		CH_432	4750	WB	29° 33' 26.28"	86° 15' 58.68"	Brahmap-utra		China	230	167	254	265	209	267	167	267	232
502	03_71K_011	NRSC		CH_434	4761	WB	29° 28' 32.88"	86° 13' 50.88"	Brahmap-utra		China	387	93	436	595	405	404	93	595	387
503	03_71O_002	NRSC		CH_438	4909	WB	29° 42' 16.92"	87° 1' 8.4"	Brahmap-utra		China	48	24	24	30	36	31	24	36	29
504	03_71O_006	NRSC		CH_442	4738	WB	29° 33' 21.6"	87° 1' 39"	Brahmap-utra		China	104	107	111	110	118	122	107	122	114
505	03_71O_009	NRSC		CH_445	4302	WB	29° 18' 31.68"	87° 11' 22.2"	Brahmap-utra		China	2123	2149	2147	2181	2179	2174	2147	2181	2166
506	03_71O_010	NRSC		CH_446	4296	WB	29° 12' 14.4"	87° 23' 29.04"	Brahmap-utra		China	813	855	892	864	869	866	855	892	869
507	03_71P_001	NRSC		CH_448	5302	WB	28° 49' 56.64"	87° 33' 36"	Brahmap-utra		China	112	113	128	146	140	137	113	146	133
508	03_77B_001	NRSC		CH_452	5039	WB	30° 10' 5.52"	88° 37' 10.92"	Brahmap-utra		China	52	#	47	45	49	51	45	51	48
509	03_77B_002	NRSC		CH_453	5019	WB	30° 8' 51.72"	88° 37' 36.12"	Brahmap-utra		China	227	164	200	216	215	214	164	216	202
510	03_77C_006	NRSC		CH_460	4514	WB	29° 35' 15"	88° 13' 54.12"	Brahmap-utra		China	102	83	81	85	90	88	81	90	85
511	03_77H_001	NRSC		CH_476	4275	WB	28° 49' 46.92"	89° 51' 6.48"	Brahmap-utra		China	442	192	#	526	433	420	192	526	393
512	03_77H_003	NRSC		CH_478	4714	WB	28° 24' 1.8"	89° 3' 41.04"	Brahmap-utra		China	220	153	263	271	245	234	153	271	233

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
513	03_77H_004	NRSC		CH_479	4428	WB	28° 19' 37.56"	89° 25' 43.68"	Brahmap-utra		China	201	136	139	156	165	158	136	165	151
514	03_77H_007	NRSC		CH_481	4424	WB	28° 16' 25.68"	89° 20' 44.52"	Brahmap-utra		China	866	#	348	382	378	310	310	382	355
515	03_77H_008	NRSC		CH_482	4570	WB	28° 13' 37.92"	89° 38' 17.52"	Brahmap-utra		China	1268	1293	1277	1292	1279	1275	1275	1293	1283
516	03_77H_018	NRSC		CH_488	4699	WB	28° 10' 50.52"	89° 32' 3.84"	Brahmap-utra		China	80	58	69	86	88	89	58	89	78
517	03_77H_020	NRSC		CH_490	4473	WB	28° 8' 59.64"	89° 20' 58.92"	Brahmap-utra		China	4588	5046	#	4718	4559	4560	4559	5046	4721
518	03_77H_023	NRSC		CH_492	5313	WB	28° 8' 14.64"	89° 32' 5.28"	Brahmap-utra		China	47	36	47	48	46	48	36	48	45
519	03_77H_030	NRSC		CH_495	4802	WB	28° 1' 32.16"	89° 25' 37.56"	Brahmap-utra		China	66	58	57	59	62	61	57	62	59
520	03_77J_003	NRSC		CH_499	5039	WB	30° 28' 45.48"	90° 57' 58.32"	Brahmap-utra		China	89	85	82	84	75	89	75	89	83
521	03_77K_009	NRSC		CH_511	3937	WB	29° 28' 1.2"	90° 10' 20.28"	Brahmap-utra		China	70	66	57	58	57	56	56	66	59
522	03_77K_015	NRSC		CH_517	4455	WB	29° 7' 33.6"	90° 20' 9.24"	Brahmap-utra		China	108	111	115	122	115	120	111	122	117
523	03_77K_017	NRSC		CH_519	4448	WB	29° 0' 39.6"	90° 26' 50.28"	Brahmap-utra		China	3853	3681	3746	3715	3745	3757	3681	3757	3729
524	03_77L_001	NRSC		CH_520	4443	WB	28° 57' 20.52"	90° 42' 39.6"	Brahmap-utra		China	55435	56700	56947	55643	55259	55287	55259	56947	55967

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
525	03_77L_003	NRSC		CH_521	4434	WB	28° 56' 57.48"	90° 31' 1.2"	Brahmap-utra		China	4065	#	3817	3817	3743	3699	3699	3817	3769
526	03_77L_006	NRSC		CH_522	4533	WB	28° 53' 40.2"	90° 24' 19.44"	Brahmap-utra		China	44	35	21	23	28	21	21	35	26
527	03_77L_007	NRSC		CH_523	4510	WB	28° 49' 27.12"	90° 50' 0.24"	Brahmap-utra		China	1478	#	1345	1355	1287	1289	1287	1355	1319
528	03_77L_008	NRSC		CH_524	4448	WB	28° 49' 31.8"	90° 41' 11.04"	Brahmap-utra		China	71	1	32	35	#	38	1	38	27
529	03_77L_009	NRSC		CH_525	4515	WB	28° 47' 21.12"	90° 53' 38.76"	Brahmap-utra		China	522	#	559	656	579	565	559	656	590
530	03_77L_010	NRSC		CH_526	4457	WB	28° 48' 40.68"	90° 29' 34.44"	Brahmap-utra		China	47	49	45	47	49	56	45	56	49
531	03_77L_011	NRSC		CH_527	4533	WB	28° 45' 34.92"	90° 50' 49.2"	Brahmap-utra		China	1209	1068	1096	1248	1100	1185	1068	1248	1139
532	03_77L_012	NRSC		CH_528	5014	WB	28° 33' 58.68"	90° 23' 47.04"	Brahmap-utra		China	28771	27193	29829	29523	29289	29502	27193	29829	29067
533	03_77L_013	NRSC		CH_529	5191	WB	28° 26' 56.04"	90° 15' 24.84"	Brahmap-utra		China	319	348	375	340	347	345	340	375	351
534	03_77L_014	NRSC		CH_530	5289	WB	28° 26' 19.32"	90° 10' 24.96"	Brahmap-utra		China	48	36	43	43	43	47	36	47	42
535	03_77L_017	NRSC		CH_533	5340	WB	28° 23' 8.52"	90° 19' 9.12"	Brahmap-utra		China	74	81	80	83	90	88	80	90	84
536	03_77L_027	NRSC		CH_543	4531	WB	28° 16' 25.68"	90° 44' 12.48"	Brahmap-utra	Kuri Chhu	China	163	161	179	173	170	183	161	183	173

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
537	03_77N_004	NRSC		CH_563	3890	WB	30° 0' 32.4"	91° 51' 39.24"	Brahmap-utra		China	1296	1306	1203	1189	1331	1353	1189	1353	1276
538	03_77O_001	NRSC		CH_564	3879	WB	29° 55' 7.68"	91° 5' 22.2"	Brahmap-utra		China	181	49	175	176	180	165	49	180	149
539	03_77O_002	NRSC		CH_565	3806	WB	29° 53' 58.56"	91° 10' 0.12"	Brahmap-utra		China	91	28	51	89	90	89	28	90	69
540	03_77P_004	NRSC		CH_575	4452	WB	28° 48' 36"	91° 8' 42.72"	Brahmap-utra		China	143	220	#	200	194	161	161	220	194
541	03_77P_005	NRSC		CH_576	4619	WB	28° 45' 55.08"	91° 40' 30"	Brahmap-utra		China	112	#	#	113	#	#	113	113	113
542	03_77P_006	NRSC		CH_577	4616	WB	28° 39' 46.44"	91° 40' 46.56"	Brahmap-utra		China	4566	4432	4125	4262	4413	4216	4125	4432	4290
543	03_77P_009	NRSC		CH_580	5086	WB	28° 32' 46.68"	91° 31' 31.8"	Brahmap-utra		China	94	102	112	106	97	107	97	112	105
544	03_77P_012	NRSC		CH_583	4975	WB	28° 31' 43.32"	91° 39' 54.36"	Brahmap-utra		China	91	70	68	45	44	44	44	70	54
545	03_77P_013	NRSC		CH_584	5155	WB	28° 31' 48.36"	91° 33' 42.84"	Brahmap-utra		China	60	37	46	44	49	51	37	51	45
546	03_77P_016	NRSC		CH_587	4749	WB	28° 19' 48.72"	91° 57' 47.88"	Brahmap-utra	Dangme Chhu	China	251	181	161	169	164	156	156	181	166
547	03_77P_017	NRSC		CH_588	4751	WB	28° 17' 49.92"	91° 56' 44.52"	Brahmap-utra	Dangme Chhu	China	2345	2187	2057	2113	2032	2114	2032	2187	2101
548	03_77P_018	NRSC		CH_589	4707	WB	28° 6' 57.6"	91° 56' 34.44"	Brahmap-utra	Dangme Chhu	China	154	112	109	103	106	99	99	112	106
549	03_77P_019	NRSC		CH_590	4637	WB	28° 3' 31.68"	91° 56' 22.92"	Brahmap-utra	Dangme Chhu	China	220	272	241	255	254	247	241	272	254

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
550	03_77P_020	NRSC		CH_591	4649	WB	28° 5' 16.44"	91° 15' 25.92"	Brahmap-utra	Kuri Chhu	China	63	#	58	54	49	62	49	62	56
551	03_77P_023	NRSC		CH_593	4235	WB	28° 1' 55.56"	91° 0' 6.12"	Brahmap-utra	Kuri Chhu	China	45	85	70	74	78	#	70	85	77
552	03_78A_018	NRSC		CH_598	4880	WB	27° 51' 19.44"	88° 56' 41.28"	Brahmap-utra	Amo Chhu	China	67	56	46	42	40	40	40	56	45
553	03_78E_006	NRSC		CH_604	4572	WB	27° 58' 11.64"	89° 22' 41.52"	Brahmap-utra		China	67	55	55	48	60	61	48	61	56
554	03_78E_009	NRSC		CH_605	4580	WB	27° 57' 37.08"	89° 23' 47.04"	Brahmap-utra		China	175	182	154	235	182	186	154	235	188
555	03_78E_010	NRSC		CH_606	4582	WB	27° 57' 48.96"	89° 24' 45.72"	Brahmap-utra		China	49	30	44	42	46	38	30	46	40
556	03_78E_012	NRSC		CH_607	4576	WB	27° 56' 32.64"	89° 23' 16.44"	Brahmap-utra		China	279	283	261	287	285	266	261	287	276
557	03_78M_003	NRSC		CH_614	4459	WB	27° 54' 3.96"	91° 53' 48.84"	Brahmap-utra	Dangme Chhu	China	207	209	204	219	206	216	204	219	211
558	03_78M_016	NRSC		CH_617	4647	WB	27° 50' 30.84"	91° 53' 34.44"	Brahmap-utra	Dangme Chhu	China	142	143	137	140	143	153	137	153	143
559	03_82A_002	NRSC		CH_621	4905	WB	31° 7' 12.36"	92° 49' 59.52"	Brahmap-utra		China	319	390	365	391	376	394	365	394	383
560	03_82A_003	NRSC		CH_622	4896	WB	31° 6' 33.12"	92° 57' 7.2"	Brahmap-utra		China	99	89	90	97	94	96	89	97	93
561	03_82A_004	NRSC		CH_623	5008	WB	31° 6' 0.9"	92° 41' 55.68"	Brahmap-utra		China	46	46	48	55	47	49	46	55	49

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
562	03_82A_007	NRSC		CH_626	4911	WB	31° 2' 10.32"	92° 47' 12.84"	Brahmap-utra		China	85	91	92	106	95	69	69	106	91
563	03_82B_002	NRSC		CH_628	4906	WB	30° 58' 33.24"	92° 56' 28.68"	Brahmap-utra		China	405	457	464	463	390	447	390	464	444
564	03_82B_004	NRSC		CH_630	4893	WB	30° 56' 56.04"	92° 53' 22.56"	Brahmap-utra		China	93	97	88	110	101	89	88	110	97
565	03_82B_005	NRSC		CH_631	4888	WB	30° 56' 4.56"	92° 49' 45.12"	Brahmap-utra		China	195	232	215	234	223	234	215	234	228
566	03_82B_006	NRSC		CH_632	4837	WB	30° 56' 1.68"	92° 46' 27.84"	Brahmap-utra		China	124	118	117	114	116	114	114	118	116
567	03_82B_007	NRSC		CH_633	4964	WB	30° 53' 40.92"	92° 57' 2.52"	Brahmap-utra		China	199	188	219	211	199	210	188	219	205
568	03_82B_008	NRSC		CH_634	4928	WB	30° 53' 45.96"	92° 54' 35.28"	Brahmap-utra		China	254	260	275	287	273	280	260	287	275
569	03_82B_009	NRSC		CH_635	4963	WB	30° 54' 21.96"	92° 49' 1.56"	Brahmap-utra		China	156	176	170	180	180	181	170	181	177
570	03_82B_010	NRSC		CH_636	4990	WB	30° 52' 42.24"	92° 52' 50.16"	Brahmap-utra		China	52	39	55	57	48	51	39	57	50
571	03_82B_014	NRSC		CH_640	4825	WB	30° 29' 36.96"	92° 38' 35.88"	Brahmap-utra		China	157	112	152	183	162	152	112	183	152
572	03_82B_015	NRSC		CH_641	5124	WB	30° 20' 56.4"	92° 44' 7.08"	Brahmap-utra		China	75	82	74	68	82	87	68	87	79
573	03_82B_020	NRSC		CH_646	4986	WB	30° 12' 59.04"	92° 30' 59.76"	Brahmap-utra		China	49	46	46	37	45	48	37	48	44

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
574	03_82B_021	NRSC		CH_647	5041	WB	30° 12' 46.08"	92° 34' 15.96"	Brahmap-utra		China	63	49	54	60	52	59	49	60	55
575	03_82B_028	NRSC		CH_654	4998	WB	30° 2' 58.2"	92° 26' 35.52"	Brahmap-utra		China	48	52	49	47	51	51	47	52	50
576	03_82C_010	NRSC		CH_665	4921	WB	29° 46' 44.04"	92° 23' 17.16"	Brahmap-utra		China	153	148	154	144	150	159	144	159	151
577	03_82C_016	NRSC		CH_671	4679	WB	29° 39' 59.76"	92° 23' 36.6"	Brahmap-utra		China	54	42	43	44	45	49	42	49	45
578	03_82D_003	NRSC		CH_709	4408	WB	28° 53' 37.32"	92° 7' 43.32"	Brahmap-utra		China	50	42	44	37	44	46	37	46	43
579	03_82D_004	NRSC		CH_710	4481	WB	28° 52' 54.84"	92° 9' 54"	Brahmap-utra		China	390	368	370	371	370	368	368	371	369
580	03_82D_010	NRSC		CH_716	5043	WB	28° 11' 29.4"	92° 2' 34.8"	Brahmap-utra	Dangme Chhu	China	76	48	33	33	26	26	26	48	33
581	03_82E_002	NRSC		CH_720	5008	WB	31° 7' 53.4"	93° 10' 36.48"	Brahmap-utra		China	659	692	691	694	670	662	662	694	682
582	03_82E_003	NRSC		CH_721	5027	WB	31° 6' 12.96"	93° 8' 36.6"	Brahmap-utra		China	98	96	94	84	93	94	84	96	92
583	03_82E_004	NRSC		CH_722	5049	WB	31° 3' 52.92"	93° 17' 32.64"	Brahmap-utra		China	57	43	42	44	43	33	33	44	41
584	03_82E_007	NRSC		CH_725	5043	WB	31° 0' 14.4"	93° 5' 16.08"	Brahmap-utra		China	71	68	65	60	61	62	60	68	63
585	03_82F_004	NRSC		CH_729	4508	WB	30° 37' 16.32"	93° 10' 49.8"	Brahmap-utra		China	692	689	680	682	688	718	680	718	691

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
586	03_82F_008	NRSC		CH_733	4828	WB	30° 32' 5.64"	93° 3' 29.16"	Brahmap-utra		China	83	83	86	96	84	82	82	96	86
587	03_82F_016	NRSC		CH_741	4632	WB	30° 19' 7.68"	93° 20' 32.64"	Brahmap-utra		China	49	46	42	40	44	48	40	48	44
588	03_82F_030	NRSC		CH_755	3485	WB	30° 1' 13.8"	93° 58' 5.16"	Brahmap-utra		China	2675	2671	2666	2658	2667	2710	2658	2710	2674
589	03_82G_009	NRSC		CH_770	4580	WB	29° 37' 46.2"	93° 33' 41.4"	Brahmap-utra		China	51	43	42	42	41	43	41	43	42
590	03_82G_017	NRSC		CH_778	4437	WB	29° 32' 32.28"	93° 49' 49.44"	Brahmap-utra		China	53	48	49	48	45	53	45	53	49
591	03_82G_019	NRSC		CH_780	4460	WB	29° 30' 9"	93° 56' 12.12"	Brahmap-utra		China	59	54	56	52	48	58	48	58	54
592	03_82G_023	NRSC		CH_784	4377	WB	29° 30' 45"	93° 37' 11.64"	Brahmap-utra		China	84	82	91	78	75	58	58	91	77
593	03_82G_024	NRSC		CH_785	4647	WB	29° 32' 25.8"	93° 20' 42"	Brahmap-utra		China	95	90	94	96	90	94	90	96	93
594	03_82G_035	NRSC		CH_796	4386	WB	29° 28' 35.4"	93° 37' 53.04"	Brahmap-utra		China	81	82	89	91	80	76	76	91	84
595	03_82G_045	NRSC		CH_806	4523	WB	29° 24' 19.44"	93° 42' 28.44"	Brahmap-utra		China	71	70	68	71	68	77	68	77	71
596	03_82G_048	NRSC		CH_809	4663	WB	29° 25' 15.6"	93° 17' 27.6"	Brahmap-utra		China	55	39	47	42	43	42	39	47	43
597	03_82G_050	NRSC		CH_811	4734	WB	29° 22' 57.36"	93° 38' 25.08"	Brahmap-utra		China	44	39	37	37	38	39	37	39	38

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
598	03_82G_051	NRSC		CH_812	4735	WB	29° 22' 10.92"	93° 41' 38.04"	Brahmap-utra		China	49	45	41	44	45	46	41	46	44
599	03_82G_055	NRSC		CH_816	4619	WB	29° 19' 55.92"	93° 43' 17.04"	Brahmap-utra		China	62	52	42	45	49	49	42	52	47
600	03_82G_060	NRSC		CH_821	4577	WB	29° 17' 13.92"	93° 44' 10.68"	Brahmap-utra		China	59	60	48	52	57	61	48	61	56
601	03_82G_062	NRSC		CH_823	4925	WB	29° 14' 25.08"	93° 16' 33.6"	Brahmap-utra		China	58	52	53	49	50	53	49	53	51
602	03_82G_065	NRSC		CH_826	4148	WB	29° 2' 16.8"	93° 50' 8.52"	Brahmap-utra		China	47	46	39	#	71	68	39	71	56
603	03_82J_014	NRSC		CH_844	3703	WB	30° 10' 24.6"	94° 20' 44.52"	Brahmap-utra		China	183	72	171	180	194	198	72	198	163
604	03_82J_017	NRSC		CH_847	3829	WB	30° 7' 33.24"	94° 5' 24"	Brahmap-utra		China	282	283	269	250	278	284	250	284	273
605	03_82J_020	NRSC		CH_850	3852	WB	30° 3' 1080"	94° 14' 53.52"	Brahmap-utra		China	439	301	284	432	#	433	284	433	363
606	03_82J_023	NRSC		CH_853	4315	WB	30° 2' 45.96"	94° 9' 24.84"	Brahmap-utra		China	105	97	110	113	108	113	97	113	108
607	03_82J_024	NRSC		CH_854	4362	WB	30° 0' 46.44"	94° 28' 17.76"	Brahmap-utra		China	67	58	70	70	#	68	58	70	67
608	03_82J_025	NRSC		CH_855	4038	WB	30° 0' 17.64"	94° 23' 1.68"	Brahmap-utra		China	59	59	57	57	56	78	56	78	61
609	03_82K_002	NRSC		CH_858	3998	WB	29° 59' 14.64"	94° 26' 7.44"	Brahmap-utra		China	75	80	74	71	61	77	61	80	73
610	03_82K_006	NRSC		CH_862	4523	WB	29° 56' 25.8"	94° 35' 18.24"	Brahmap-utra		China	52	44	46	46	40	47	40	47	45

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
611	03_82K_007	NRSC		CH_863	4294	WB	29° 57' 31.68"	94° 17' 30.48"	Brahmap-utra		China	130	124	128	131	122	140	122	140	129
612	03_82K_009	NRSC		CH_865	4168	WB	29° 56' 48.84"	94° 21' 28.44"	Brahmap-utra		China	116	94	105	106	97	115	94	115	103
613	03_82K_017	NRSC		CH_873	4397	WB	29° 55' 0.48"	94° 16' 46.56"	Brahmap-utra		China	151	163	174	184	170	181	163	184	174
614	03_82K_018	NRSC		CH_874	4168	WB	29° 53' 25.44"	94° 34' 12"	Brahmap-utra		China	165	160	177	168	160	165	160	177	166
615	03_82K_020	NRSC		CH_876	4364	WB	29° 53' 47.76"	94° 27' 41.4"	Brahmap-utra		China	77	74	77	77	70	88	70	88	77
616	03_82K_036	NRSC		CH_892	4251	WB	29° 49' 46.56"	94° 37' 55.2"	Brahmap-utra		China	69	56	59	60	62	62	56	62	60
617	03_82K_037	NRSC		CH_893	4147	WB	29° 49' 40.08"	94° 27' 43.2"	Brahmap-utra		China	55	44	54	56	54	55	44	56	53
618	03_82K_039	NRSC		CH_895	4128	WB	29° 48' 45.72"	94° 25' 57"	Brahmap-utra		China	224	192	176	194	196	188	176	196	189
619	03_82K_040	NRSC		CH_896	4329	WB	29° 48' 28.44"	94° 30' 1.8"	Brahmap-utra		China	66	62	57	59	54	54	54	62	57
620	03_82K_042	NRSC		CH_898	4364	WB	29° 46' 44.76"	94° 36' 2.88"	Brahmap-utra		China	205	191	177	183	178	184	177	191	183
621	03_82K_045	NRSC		CH_901	4572	WB	29° 49' 0.12"	94° 7' 58.8"	Brahmap-utra		China	49	46	47	41	32	41	32	47	41
622	03_82K_049	NRSC		CH_905	4180	WB	29° 46' 31.8"	94° 34' 20.64"	Brahmap-utra		China	50	32	41	42	41	45	32	45	40

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
623	03_82K_060	NRSC		CH_916	4316	WB	29° 32' 43.44"	94° 57' 53.64"	Brahmap-utra		China	93	82	88	99	80	78	78	99	85
624	03_82K_068	NRSC		CH_924	4320	WB	29° 32' 40.92"	94° 4' 48"	Brahmap-utra		China	52	45	49	50	44	49	44	50	47
625	03_82K_074	NRSC		CH_930	4553	WB	29° 31' 33.96"	94° 3' 26.28"	Brahmap-utra		China	88	77	79	79	77	82	77	82	79
626	03_82K_075	NRSC		CH_931	4511	WB	29° 31' 3.36"	94° 7' 14.88"	Brahmap-utra		China	118	112	107	109	117	116	107	117	112
627	03_82K_077	NRSC		CH_933	4590	WB	29° 30' 16.2"	94° 7' 58.44"	Brahmap-utra		China	100	96	99	95	100	105	95	105	99
628	03_82K_080	NRSC		CH_936	4530	WB	29° 28' 21.72"	94° 14' 10.68"	Brahmap-utra		China	47	39	46	55	49	49	39	55	48
629	03_82K_103	NRSC		CH_959	3964	WB	29° 17' 42.36"	94° 12' 6.12"	Brahmap-utra		China	50	40	40	40	40	40	40	40	40
630	03_82N_019	NRSC		CH_990	4877	WB	30° 28' 24.6"	95° 34' 30.36"	Brahmap-utra		China	55	48	47	51	46	58	46	58	50
631	03_82O_016	NRSC		CH_1023	4374	WB	29° 22' 19.56"	95° 52' 18.48"	Brahmap-utra	Dihang	China	91	94	90	84	98	98	84	98	93
632	03_82O_029	NRSC		CH_1032	3345	WB	29° 18' 17.64"	95° 38' 20.4"	Brahmap-utra	Dihang	China	68	72	60	54	72	59	54	72	63
633	03_82O_044	NRSC		CH_1037	3552	WB	29° 10' 46.92"	95° 29' 6.72"	Brahmap-utra	Dihang	China	92	85	83	83	88	87	83	88	85
634	03_82O_047	NRSC		CH_1039	3574	WB	29° 9' 46.08"	95° 29' 27.6"	Brahmap-utra	Dihang	China	44	46	38	37	55	51	37	55	45

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
635	03_82O_054	NRSC		CH_1046	3311	WB	29° 7' 41.88"	95° 26' 17.88"	Brahmap-utra	Dibang	China	51	47	47	45	49	53	45	53	48
636	03_91C_029	NRSC		CH_1078	4229	WB	29° 14' 15.72"	96° 49' 25.32"	Brahmap-utra		China	216	227	220	212	213	211	211	227	217
637	03_91C_052	NRSC		CH_1085	4591	WB	29° 10' 28.2"	96° 19' 32.16"	Brahmap-utra	Lohit	China	64	#	#	34	31	45	31	45	37
638	03_91C_059	NRSC		CH_1089	4303	WB	29° 5' 30.12"	96° 12' 39.24"	Brahmap-utra	Dibang	China	98	#	83	75	89	104	75	104	88
639	03_91C_070	NRSC		CH_1098	4252	WB	29° 2' 37.32"	96° 11' 36.6"	Brahmap-utra	Dibang	China	57	44	54	45	52	57	44	57	50
640	03_91C_078	NRSC		CH_1106	3694	WB	29° 0' 30.24"	96° 13' 4.44"	Brahmap-utra	Dibang	China	48	33	45	38	38	47	33	47	40
641	03_91D_080	NRSC		CH_1135	4295	WB	28° 32' 29.76"	96° 37' 3.36"	Brahmap-utra	Lohit	China	45	33	35	35	44	41	33	44	38
642	03_91D_081	NRSC		CH_1136	3356	WB	28° 30' 58.32"	96° 41' 54.24"	Brahmap-utra	Lohit	China	304	319	322	316	311	320	311	322	318
643	03_91H_005	NRSC		CH_1170	4123	WB	28° 58' 40.08"	97° 12' 50.76"	Brahmap-utra	Lohit	China	58	68	59	67	63	66	59	68	65
644	03_91H_010	NRSC		CH_1175	4433	WB	28° 56' 23.28"	97° 15' 41.04"	Brahmap-utra	Lohit	China	79	102	97	89	86	95	86	102	94
645	03_91H_011	NRSC		CH_1176	4494	WB	28° 56' 43.44"	97° 5' 53.16"	Brahmap-utra	Lohit	China	50	53	52	59	57	56	52	59	55
646	03_91H_017	NRSC		CH_1182	4590	WB	28° 52' 37.2"	97° 21' 19.44"	Brahmap-utra	Lohit	China	46	29	45	40	37	45	29	45	39

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
647	03_91H_025	NRSC		CH_1190	3741	WB	28° 46' 58.8"	97° 9' 6.84"	Brahmap-utra	Lohit	China	85	22	122	79	83	82	22	122	78
648	03_91H_029	NRSC		CH_1194	3325	WB	28° 45' 44.28"	97° 3' 24.12"	Brahmap-utra	Lohit	China	50	36	38	42	39	41	36	42	39
649	03_91H_040	NRSC		CH_1205	4324	WB	28° 24' 44.28"	97° 27' 52.56"	Brahmap-utra	Lohit	China	51	60	54	49	50	56	49	60	54
650	02_71P_054	NRSC		CH_242	4859		28° 12' 36"	87° 5' 60"	Ganga	Arun Kosi	China	-	93	104	107	102	89	89	107	99
651	02_62J_002	NRSC			5021	GL	30° 8' 56.04"	82° 9' 42.12"	Ganga	Karnali	Nepal	16	17	13	14	17	17	13	17	16
652	02_62K_006	NRSC	70G		5053	GL	29° 49' 18.48"	82° 42' 41.4"	Ganga	Karnali	Nepal	18	#	20	20	20	20	20	20	20
653	02_62O_002	NRSC	410G		5495	GL	29° 12' 3.24"	83° 41' 2.76"	Ganga	Kali Gandak	Nepal	25	20	22	23	22	22	20	23	22
654	02_72I_001	NRSC	198G		5333	GL	27° 59' 55.32"	86° 50' 8.16"	Ganga	Sun Kosi	Nepal	12	13	13	13	12	12	12	13	13
655	02_72I_009	NRSC			5292	GL	27° 55' 2.64"	86° 27' 59.04"	Ganga	Sun Kosi	Nepal	11	29	12	17	#	17	12	29	19
656	02_72M_008	NRSC	376G		4722	GL	27° 52' 48.72"	87° 48' 17.28"	Ganga	Tamor Kosi	Nepal	43	37	31	30	33	34	30	37	33
657	02_72M_012	NRSC	69G		4932	GL	27° 48' 57.6"	87° 44' 56.04"	Ganga	Tamor Kosi	Nepal	18	17	14	12	15	17	12	17	15
658	02_62F_006	NRSC			5444	GL	30° 20' 46.68"	81° 51' 38.88"	Ganga	Karnali	Nepal	17	15	14	13	15	15	15	14	
659	02_62F_007	NRSC			5179	GL	30° 20' 18.96"	81° 54' 39.96"	Ganga	Karnali	Nepal	25	22	23	29	28	26	22	29	26

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
660	02_62F_008	NRSC			5620	GL	30° 19' 24.24"	81° 49' 56.28"	Ganga	Karnali	Nepal	15	6	5	8	11	10	5	11	8
661	02_62F_010	NRSC			5502	GL	30° 18' 25.56"	81° 51' 55.44"	Ganga	Karnali	Nepal	11	9	8	9	8	10	8	10	9
662	02_62F_016	NRSC	591G		5359	GL	30° 13' 0.48"	81° 48' 5.04"	Ganga	Karnali	Nepal	29	15	11	14	12	16	11	16	14
663	02_62G_002	NRSC	599G		4822	GL	29° 55' 17.76"	81° 1' 50.52"	Ganga	Karnali	Nepal	16	15	18	18	18	17	15	18	17
664	02_62G_003	NRSC	589G		3603	GL	29° 53' 50.64"	81° 34' 43.68"	Ganga	Karnali	Nepal	17	35	35	34	34	33	33	35	34
665	02_62J_001	NRSC			5182	GL	30° 11' 46.68"	82° 7' 55.2"	Ganga	Karnali	Nepal	11	7	9	9	7	5	5	9	7
666	02_62K_001	NRSC	329G		4404	GL	29° 59' 35.88"	82° 11' 49.2"	Ganga	Karnali	Nepal	26	27	24	19	23	27	19	27	24
667	02_62K_003	NRSC	546G		4571	GL	29° 55' 50.16"	82° 12' 22.68"	Ganga	Karnali	Nepal	43	46	43	45	45	44	43	46	45
668	02_62K_011	NRSC	612G		4673	GL	29° 14' 57.12"	82° 33' 49.68"	Ganga	Bheri	Nepal	26	15	27	28	27	30	15	30	25
669	02_62O_004	NRSC	299G		5529	GL	29° 7' 19.2"	83° 44' 18.6"	Ganga	Kali Gandak	Nepal	11	8	22	21	21	16	8	22	18
670	02_62O_005	NRSC	609G		5450	GL	29° 2' 46.32"	83° 40' 27.48"	Ganga	Kali Gandak	Nepal	15	11	13	12	11	11	11	13	12
671	02_62P_001	NRSC	258G		4472	GL	28° 47' 17.52"	83° 19' 51.24"	Ganga	Bheri	Nepal	52	43	45	45	44	41	41	45	44

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
672	02_62P_003	NRSC	4G	NP_36	4937	GL	28° 41' 31.92"	83° 51' 9"	Ganga	Trishuli	Nepal	315	333	333	371	362	350	333	371	350
673	02_71D_001	NRSC			4111	GL	28° 39' 46.44"	84° 28' 17.76"	Ganga	Trishuli	Nepal	20	25	26	24	18	25	18	26	24
674	02_71D_002	NRSC			4063	GL	28° 39' 24.48"	84° 27' 28.8"	Ganga	Trishuli	Nepal	10	4	3	5	6	9	3	9	5
675	02_71D_003	NRSC	67G		3668	GL	28° 35' 46.68"	84° 37' 39.72"	Ganga	Trishuli	Nepal	32	26	20	27	26	25	20	27	25
676	02_71D_004	NRSC	16G	NP_45	4064	GL	28° 29' 19.68"	84° 29' 8.52"	Ganga	Trishuli	Nepal	74	97	98	99	101	97	97	101	98
677	02_71H_034	NRSC	320G		4745	GL	28° 17' 32.28"	85° 10' 12.72"	Ganga	Trishuli	Nepal	21	12	20	21	21	20	12	21	19
678	02_71H_036	NRSC	195G		5024	GL	28° 9' 50.76"	85° 37' 49.08"	Ganga	Trishuli	Nepal	15	8	13	13	13	13	8	13	12
679	02_71L_033	NRSC	408G		5369	GL	28° 2' 18.96"	86° 42' 34.56"	Ganga	Sun Kosi	Nepal	17	11	15	16	14	14	16	14	12
680	02_71L_035	NRSC	657G		5091	GL	28° 1' 22.8"	86° 43' 14.16"	Ganga	Sun Kosi	Nepal	19	9	14	18	19	19	19	16	18
681	02_72I_002	NRSC	645G	NP_58	4854	GL	27° 58' 30.72"	86° 40' 52.32"	Ganga	Sun Kosi	Nepal	68	38	42	55	56	55	38	56	49
682	02_72I_003	NRSC	319G	NP_59	4762	GL	27° 57' 3.6"	86° 41' 22.92"	Ganga	Sun Kosi	Nepal	45	39	43	43	43	42	39	43	42
683	02_72I_005	NRSC	483G		4715	GL	27° 56' 35.88"	86° 42' 40.68"	Ganga	Sun Kosi	Nepal	19	#	#	25	23	27	23	27	25
684	02_72I_006	NRSC			4741	GL	27° 56' 32.28"	86° 41' 55.32"	Ganga	Sun Kosi	Nepal	16	16	19	19	18	19	16	19	18

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
685	02_72I_007	NRSC	785G	NP_62	4540	GL	27° 55' 25.32"	86° 47' 11.76"	Ganga	Sun Kosi	Nepal	48	27	42	60	57	55	27	60	48
686	02_72I_010	NRSC	263G		5125	GL	27° 54' 57.96"	86° 28' 39"	Ganga	Sun Kosi	Nepal	14	15	14	15	14	14	14	15	14
687	02_72I_011	NRSC	1G	NP_64	5034	GL	27° 53' 58.2"	86° 55' 15.96"	Ganga	Sun Kosi	Nepal	107	171	181	171	175	171	171	181	174
688	02_72I_012	NRSC	113G		4409	GL	27° 52' 27.84"	86° 35' 10.68"	Ganga	Sun Kosi	Nepal	40	40	41	35	40	39	35	41	39
689	02_72I_013	NRSC	694G		5497	GL	27° 51' 24.84"	86° 56' 13.56"	Ganga	Sun Kosi	Nepal	18	17	17	19	18	19	17	19	18
690	02_72I_014	NRSC	6G	NP_67	4574	GL	27° 51' 41.04"	86° 28' 35.04"	Ganga	Sun Kosi	Nepal	134	167	#	168	#	165	165	168	167
691	02_72I_015	NRSC	814G		5416	GL	27° 51' 0"	86° 55' 42.96"	Ganga	Sun Kosi	Nepal	36	44	48	49	42	45	42	49	46
692	02_72I_016	NRSC	739G		5231	GL	27° 50' 18.6"	86° 56' 7.8"	Ganga	Sun Kosi	Nepal	30	30	21	17	30	29	17	30	25
693	02_72I_017	NRSC	49G		5018	GL	27° 50' 45.96"	86° 27' 49.32"	Ganga	Sun Kosi	Nepal	14	6	10	12	15	11	6	15	11
694	02_72I_018	NRSC	776G		5370	GL	27° 49' 57.72"	86° 55' 1.92"	Ganga	Sun Kosi	Nepal	31	34	26	25	22	34	22	34	28
695	02_72I_019	NRSC	757G		5510	GL	27° 48' 20.16"	86° 58' 24.96"	Ganga	Sun Kosi	Nepal	17	17	15	14	14	16	14	17	15
696	02_72I_020	NRSC	763G		5436	GL	27° 47' 56.04"	86° 57' 56.52"	Ganga	Sun Kosi	Nepal	29	19	19	20	16	18	16	20	18

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
697	02_72I_021	NRSC	764G		5276	GL	27° 47' 38.04"	86° 54' 38.52"	Ganga	Sun Kosi	Nepal	18	18	17	18	16	19	16	19	18
698	02_72I_022	NRSC	287G		5344	GL	27° 47' 33"	86° 50' 21.12"	Ganga	Sun Kosi	Nepal	16	27	27	24	27	32	24	32	27
699	02_72I_023	NRSC	227G	NP_76	5232	GL	27° 46' 59.16"	86° 57' 24.84"	Ganga	Sun Kosi	Nepal	81	84	87	89	86	86	84	89	86
700	02_72I_024	NRSC	358G		5165	GL	27° 47' 23.28"	86° 37' 11.64"	Ganga	Sun Kosi	Nepal	35	28	22	37	34	41	22	41	32
701	02_72I_025	NRSC	66G	NP_78	4884	GL	27° 46' 44.4"	86° 36' 48.96"	Ganga	Sun Kosi	Nepal	108	144	#	148	145	142	142	148	145
702	02_72I_026	NRSC	112G		5188	GL	27° 46' 39.72"	86° 38' 31.92"	Ganga	Sun Kosi	Nepal	30	33	10	29	24	32	10	33	26
703	02_72I_027	NRSC	41G	NP_80	4977	GL	27° 45' 17.28"	86° 57' 28.8"	Ganga	Sun Kosi	Nepal	82	84	60	87	#	86	60	87	79
704	02_72I_028	NRSC	146G		4408	GL	27° 44' 33.36"	86° 50' 39.48"	Ganga	Sun Kosi	Nepal	21	25	#	25	#	25	25	25	25
705	02_72I_030	NRSC	480G		4624	GL	27° 42' 41.04"	86° 35' 56.76"	Ganga	Sun Kosi	Nepal	11	1	4	2	0	13	0	13	4
706	02_72I_031	NRSC	14G		4777	GL	27° 41' 15"	86° 51' 29.52"	Ganga	Sun Kosi	Nepal	32	27	30	32	30	31	27	32	30
707	02_72M_009	NRSC	51G	NP_86	4932	GL	27° 52' 13.08"	87° 52' 3.36"	Ganga	Tamor Kosi	Nepal	65	66	65	68	66	67	65	68	66
708	02_72M_011	NRSC	86G		4865	GL	27° 50' 39.48"	87° 4' 50.88"	Ganga	Arun Kosi	Nepal	38	#	#	42	#	40	40	42	41

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
709	02_72M_013	NRSC	518G		5233	GL	27° 49' 44.76"	87° 5' 41.64"	Ganga	Arun Kosi	Nepal	12	12	9	10	9	12	9	12	10
710	02_72M_014	NRSC	47G		5217	GL	27° 47' 44.16"	87° 58' 27.48"	Ganga	Tamor Kosi	Nepal	21	23	23	23	23	23	23	23	23
711	02_72M_015	NRSC	115G		4969	GL	27° 47' 34.08"	87° 56' 1.32"	Ganga	Tamor Kosi	Nepal	13	13	10	10	10	13	10	13	11
712	02_72M_016	NRSC	7G	NP_92	4572	GL	27° 47' 54.6"	87° 5' 33.36"	Ganga	Arun Kosi	Nepal	161	235	226	222	223	217	217	235	225
713	02_78A_007	NRSC	429G		5618	GL	27° 50' 11.4"	88° 4' 39.36"	Ganga	Tamor Kosi	Nepal	16	16	15	15	15	15	15	16	15
714	02_78A_008	NRSC	199G		5032	GL	27° 32' 44.88"	88° 2' 57.84"	Ganga	Tamor Kosi	Nepal	28	24	24	24	24	26	24	26	24
715	02_62F_019	NRSC	144G	NP_12	5039	WB	30° 7' 46.56"	81° 46' 44.76"	Ganga	Karnali	Nepal	58	70	63	64	59	69	59	70	65
716	02_62J_003	NRSC	254G	NP_19	4854	WB	30° 4' 40.8"	82° 7' 35.04"	Ganga	Karnali	Nepal	49	93	61	63	62	61	61	93	68
717	02_62K_010	NRSC		NP_28	2975	WB	29° 31' 50.16"	82° 5' 29.04"	Ganga	Karnali	Nepal	1051	1042	1038	1062	939	1073	939	1073	1031
718	02_62K_012	NRSC		NP_30	3653	WB	29° 11' 47.76"	82° 56' 54.6"	Ganga	Bheri	Nepal	469	#	482	482	510	465	465	510	485
719	02_62P_004	NRSC		NP_37	807	WB	28° 13' 1.2"	83° 56' 43.8"	Ganga	Trishuli	Nepal	406	407	362	366	366	350	350	407	370
720	02_63M_002	NRSC		NP_41	112	WB	27° 37' 15.96"	83° 6' 6.12"	Ganga	Rapti	Nepal	153	#	91	73	83	90	73	91	84

Sl. No.	Lake ID	Agency	Rank of Vulnerability	UID	Elevation	Lake type	Latitude(N)	Longitude(E)	Basin	River	Country	Inventory 2011 (Ha)	June 2023 (Ha)	July 2023 (Ha)	August 2023 (Ha)	September 2023(Ha)	October 2023 (Ha)	Minimum Area 2023(Ha)	Maximum Area 2023 (Ha)	Average Area 2023 (Ha)
721	02_71D_007	NRSC		NP_48	700	WB	28° 10' 31.8"	84° 5' 57.84"	Ganga	Trishuli	Nepal	300	265	284	288	284	318	265	318	288
722	02_71D_008	NRSC		NP_49	639	WB	28° 9' 13.68"	84° 6' 43.56"	Ganga	Trishuli	Nepal	98	85	91	88	85	101	85	101	90
723	02_72E_001	NRSC		NP_57	1554	WB	27° 36' 6.48"	85° 9' 25.2"	Ganga	Bagmati	Nepal	158	#	94	130	135	135	94	135	124

Note: *G stands for Ganga, I for Indus and B for Brahmaputra under the rank of vulnerability, # indicates frozen/ dried lakes*

8. References

1. NRSC, June 2011. *Final Report of "Inventory and Monitoring of Glacial Lakes / Water Bodies in the Himalayan Region of Indian River Basins"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

2. NRSC, April 2012. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins during 2011"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

3. NRSC, March 2013. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins during 2012"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

4. NRSC, December 2013. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins during 2013"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

5. NRSC, December 2014. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins during 2014"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

6. NRSC, December 2015. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins during 2015"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.

7. CWC, February 2017. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2016"*, Technical Report Published by Climate Change & IAD Directorate, CWC, New Delhi.

8. CWC, March 2018. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2017"*, Technical Report Published by Morphology & Climate Change Directorate, CWC, New Delhi.

9. CWC, January 2019. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2018"*, Technical Report Published by Morphology & Climate Change Directorate, CWC, New Delhi.

10. CWC, February 2020. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2019"*, Technical Report Published by Morphology & Climate Change Directorate, CWC, New Delhi.

11. CWC, December 2020. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2020"*, Technical Report Published by Morphology & Climate Change Directorate, CWC, New Delhi.

12. CWC, December 2021. *Report on "Monitoring of Glacial Lakes/Water Bodies in the Himalayan Region of Indian River Basins for 2021"*, Technical Report Published by Morphology & Climate Change Directorate, CWC, New Delhi.

13. Gorelick, N. a. (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sensing of Environment. doi: 10.1016/j.rse.2017.06.031

14. NRSC, March 2023. *Final Report of "Glacial Lake Atlas of Indian Himalayan River Basins"*, Technical Report Published by National Remote Sensing Centre, Hyderabad.