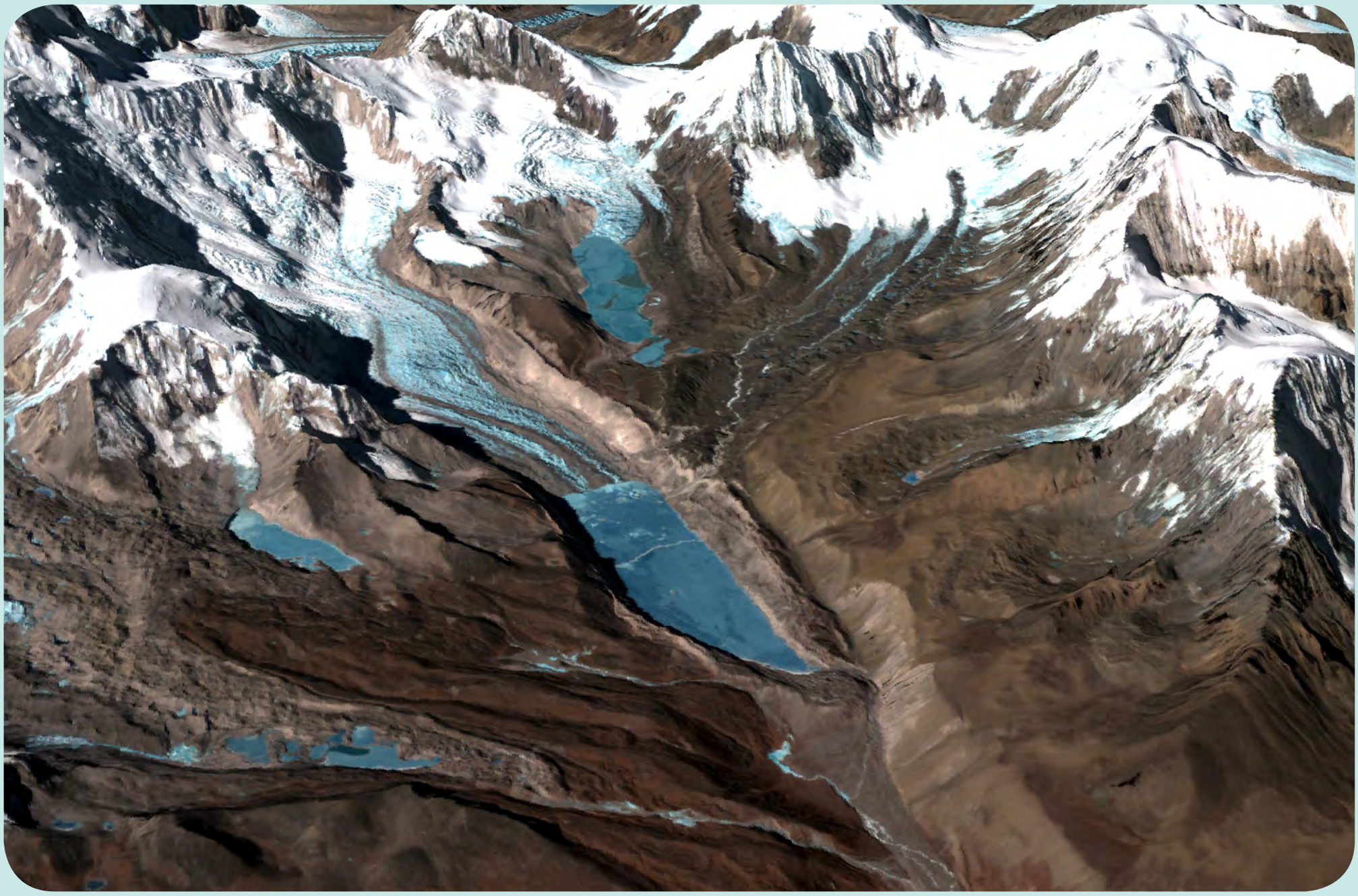
GLACIAL LAKE ATLAS

OF

BRAHMAPUTRA RIVER BASIN

Prepared under: National Hydrology Project



National Remote Sensing Centre
Indian Space Research Organisation
Department of Space, Government of India
Hyderabad - 500 037

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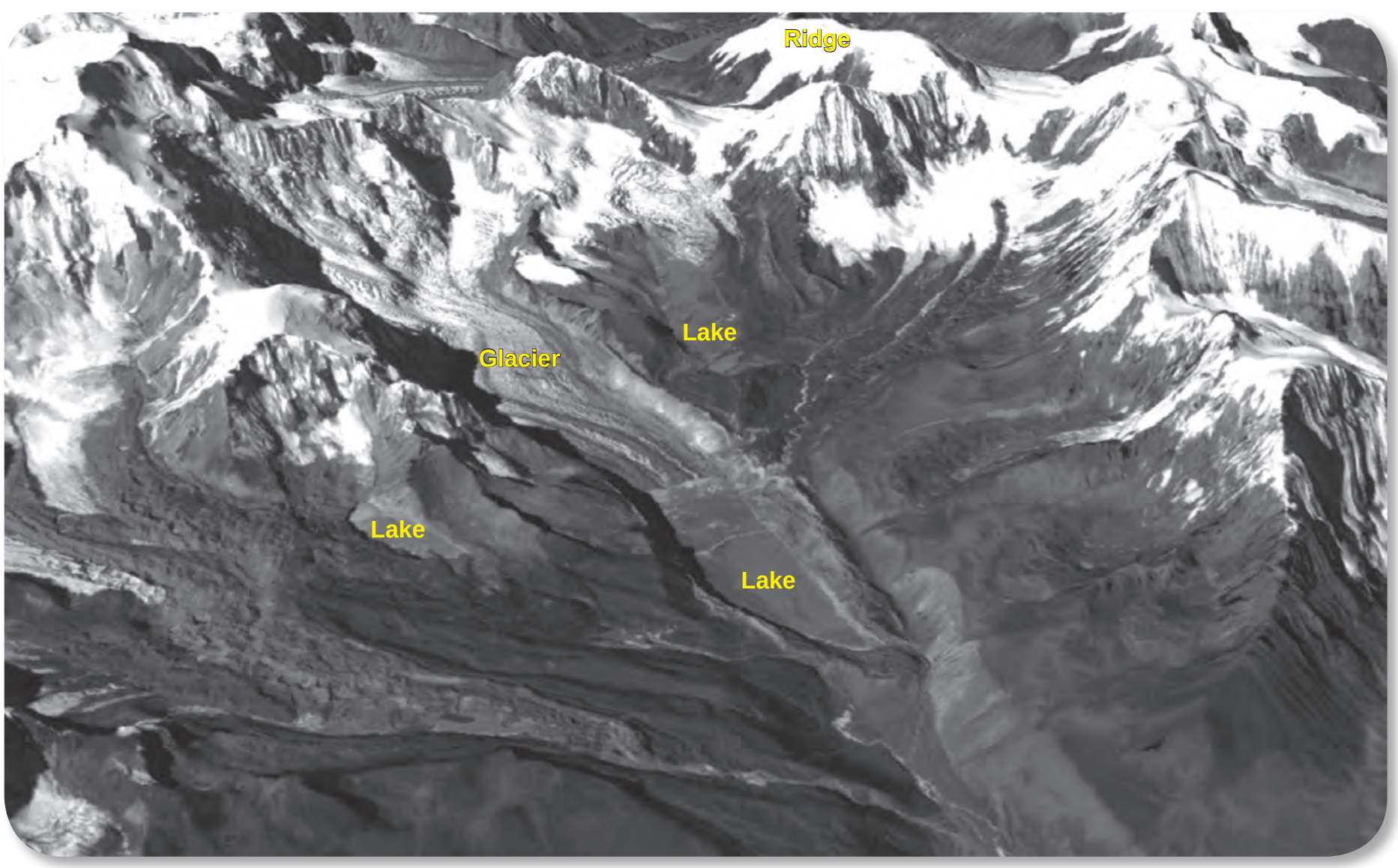

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Photos
Front cover page: South Lhonak and North Lhonak glacial lakes and glaciers as seen in False Colour Composite (FCC) satellite image of RS-2 LISS-IV MX, acquired on 30.12.2016
Back cover page: Gurudongmar glacial lake and glacier, as seen in FCC satellite image of RS-2 LISS-IV MX, acquired on 17.11.2016

Production
NRSC has taken up several activities under the National Hydrology Project (NHP), sponsored by the Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti, Government of India (GOI) with financial aid from the World Bank.

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16	**Abstract:** This atlas provides the details of glacial lakes present in the Brahmaputra River basin including their hydrological, geometrical, geographical, and topographical attributes. The satellite data used and methodology followed in delineating the lakes are also discussed. The information on glacial lake types, their areal extent and elevation variations at basin, subbasin level, and administrative units like India, State, and District are provided. Glacial lake maps and respective satellite images are also presented in corresponding SOI Toposheets (1:250,000 scale) covering Brahmaputra River basin. A total of 18,001 glacial lakes (greater than equal to 0.25 ha) are mapped using Resourcesat-2 LISS-IV satellite images for the entire Brahmaputra River basin, with a total lake water spread area of 92,990.74 ha. All ten different types of glacial lakes are identified and categorised into four major classes, viz., Moraine-dammed lake, Ice-dammed lake, Glacier Erosion lake, and Other Glacial lake. Out of 10 types of glacial lakes, Other Glacial Erosion lakes are found to be the maximum with 11,846 in number occupying a total lake extent of 48,368.91 ha in the basin. **Keywords:** Glacial Lakes, Remote Sensing, RS-2 LISS-IV, Brahmaputra River basin, Lake Type				

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MESSAGE

The National Hydrology Project (NHP) of Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD & GR), Ministry of Jal Shakti, Government of India aims to improve the extent, quality and accessibility of water resources information and strengthen the capacity of targeted water resources management institutions in India. National Remote Sensing Centre (NRSC), one of the premier centers of Indian Space Research Organisation (ISRO), is taking part in this initiative of DoWR, RD & GR as one of the implementing agencies under NHP.

The Himalayas on the northern boundary of the country have a large number of glaciers and glacial lakes. It is important to map the glacial lakes in detail to reduce damage to the downstream areas from Glacial Lake Outburst Floods (GLOF).

Glacial lakes of a size greater than 0.25 hectare have been identified using high resolution satellite data. 'Glacial Lake Atlas of Indus River Basin' and 'Glacial Lake Atlas of Ganga River Basin' were published by NRSC earlier. In continuation, the Glacial Lake Atlas of Brahmaputra River Basin containing a wealth of information about 18,000 glacial lakes has been prepared to assess GLOF risk for the Brahmaputra Basin. The atlas presents details of glacial lakes in a format which would not only be of benefit to the experienced professionals and subject experts, but also arise curiosity and interest among young professionals and general public about this huge store of pristine water for effective and sustainable management.

The atlas will be accessible through the India-WRIS, BHUVAN and NRSC portals. It is a step forward in making available all the water related data and products from different Central and State Organisations on one platform, ensuring ease of access to the end user.

I take this opportunity to congratulate the NRSC and NHP teams for successful completion of this herculean task, and look forward to its logical extension in the form of GLOF risk inundation simulations and risk assessment which would support Disaster Risk Reduction (DRR) from GLOF in the Himalayan region.

(PANKAJ KUMAR)

आज़ादी का अमृत महोत्सव

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GOVERNMENT OF INDIA

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व
सचिव, अन्तरिक्ष विभाग
Chairman, Space Commission
&
Secretary, Department of Space

MESSAGE

Snow and glaciers play critical role in Earth's energy balance by regulating the solar radiation exchanges. In the Himalaya, the snow and glaciers are sources of freshwater, benefiting millions of people in the Indo-Gangetic plains and Brahmaputra valley. Receding and thinning of glaciers are natural & climate induced processes, resulting in accumulation of water near their snout, forming glacial lakes. The impounding barriers of glacial lakes may become susceptible to breaching, leading to Glacial Lake Outburst Floods (GLOF) that can cause loss of precious lives, and destruction of natural resources and infrastructure. Identification and monitoring of critical glacial lakes are essential pre-requisites towards GLOF disaster risk reduction. Multispectral satellite data are helpful in generating systematic inventory of glacial lakes, and in deciphering its characteristics.

The Glacial Lake Atlas of Brahmaputra River Basin is generated using Indian Remote Sensing Satellite data, by National Remote Sensing Centre (NRSC) / ISRO, as part of the National Hydrology Project (NHP), funded by DoWR, RD&GR, Ministry of Jal Shakti, Govt. of India. The atlas provides information on hydrological, topographical and related attributes of glacial lakes of more than 0.25ha size in the Brahmaputra River Basin. It is an important information towards disaster risk reduction and assessing climate change induced impact.

I appreciate the team from NRSC/ISRO, Hyderabad for bringing out this atlas on Glacial Lakes in Brahmaputra River Basin. I am sure that this atlas will be of immense use for GLOF disaster risk reduction and in climate change related research.

(सोमनाथ एस / **Somanath S**)

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निदेशक / Director

FOREWORD

Himalayas Mountains are abode of snow and large number of glaciers other than Polar Regions of the world. Glacial lakes are common features around the margins of glaciers in high altitude mountainous regions. Glacial lakes are rapidly growing in response to climate change and glacier retreat. Glacial lake outburst floods (GLOF) are sudden pulses of meltwater and sediment from lakes dammed by temporary moraines or glacier ice, resulting in devastating floods in the downstream area, with significant socio-economic impacts. GLOF risk as a natural hazard has become increasingly important in a changing cryosphere with rising exposure to population and infrastructure, retreating glaciers, and growing glacial lake volumes. It is essential to have knowledge on location of glacial lakes, their susceptibility, and the probable consequences of GLOF risk. Remote Sensing satellite data is highly useful in identifying and monitoring of glacial lakes, which by traditional ways is virtually impossible due to their highly rugged topography and inaccessible terrain.

The Brahmaputra River basin atlas is brought out as part of the activity on "Glacial Lake Outburst Flood (GLOF) Risk Assessment of Glacial Lakes in the Himalayan Region of Indian River Basins", taken up under the National Hydrology Project, funded by the Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti, Government of India. Glacial lakes of size greater than 0.25 hectare are mapped using high resolution satellite data from Resourcesat-2 LISS-IV MX. Using this geo-database, atlases on 'Glacial Lake Atlas of Indus River Basin' and 'Glacial Lake Atlas of Ganga River Basin' are already published and in continuation to that the present atlas on 'Glacial Lake Atlas of Brahmaputra River Basin' is prepared. This atlas is first of its kind depicting spatial distribution of glacial lakes of size greater than 0.25 ha in the Brahmaputra River basin covering India and transboundary region. The details of glacial lakes are methodically documented at basin, sub-basin, administrative, and transboundary region level, including lake type, area, and elevation distribution.

The Brahmaputra River basin atlas forms as an authentic and recent reference data, and is useful in monitoring glacial lake dynamics, GLOF risk assessment, and long-term climate change impact analysis.

I congratulate and compliment the study team for their relentless efforts to bring out an exclusive "Glacial Lake Atlas of Brahmaputra River Basin". I sincerely wish that this exhaustive atlas will provide very important & valuable information to Central/State water resources, environmental and disaster organisations, and as well as to professionals and academicians.

(Prakash Chauhan)

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The Brahmaputra River Basin Atlas is brought out under the National Hydrology Project (NHP), which is funded by the Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti, Government of India, and the Project Team acknowledges the initiative with great reverence and sincerity. Project team expresses their gratitude to Sri Pankaj Kumar, Secretary, Ministry of Jal Shakti, under whose stewardship National Hydrology Project is contributing to the national development with specific emphasis on water sector. The project team places on record the ardent support and guidance extended by Dr.S.Somanth, Chairman, Indian Space Research Organisation (ISRO) and Secretary, Department of Space, which immensely helped in successful execution of the project activity. Special mention of thanks to Dr. Anju Gaur, Consultant, World Bank and her regular interaction and opinions with Project Team benefitted hugely in focusing the project activity and its outcomes.

The National Project Monitoring Unit (NPMU) and Technical Assistance and Management Consultancy (TAMC) of the NHP played key role in formulating the NRSC-NHP project activities and their administrative & technical support immensely facilitated smooth execution of the project, and bringing out this exclusive atlas. The project team is very thankful to Sri Rakesh Kashyap, Sr. Jt. Commissioner (SJC-1, NHP) and Sri Kushagra Sharma (former SJC-2, NHP) for their unstinted support and cooperation extended towards project execution.

Abundant direction and encouragement provided by Dr. Prakash Chauhan, Director, National Remote Sensing Centre (NRSC) is profusely appreciated. Profound guidance and ingenious suggestions provided by Dr. V.V. Rao, Deputy Director, Remote Sensing Applications Area (RSAA), NRSC is gracefully acknowledged. The support extended by Dr. Shantanu Bhatawdekar, Director, Earth Observation & Disaster Management (EDPO) is acknowledged.

Project Team gratefully acknowledges the support and cooperation extended by colleagues of Water Resources Group towards internal quality check of glacial lake layer. The support and effort extended by System Reliability and Quality Assurance Area (SRQA) of NRSC is also gratefully acknowledged for carrying out external quality check of glacial lake layer.

Special thanks to the Printing Facility, NRSC for extending the atlas publishing support.

PROJECT TEAM

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Abbreviations

amsl	Above Mean Sea Level
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
AWiFS	Advanced Wide Field Sensor
BCM	Billion Cubic Metre
CWC	Central Water Commission
DEM	Digital Elevation Model
DPR	Detailed Project Report
DoWR, RD&GR	Department of Water Resources, River Development and Ganga Rejuvenation
DSS	Decision Support System
E(c)	Cirque Erosion Lake
E(o)	Other Glacial Erosion Lake
E(v)	Glacier Trough Valley Erosion Lake
ETM+	Enhanced Thematic Mapper Plus
FCC	False Colour Composite
GL	Glacial Lake
GLOF	Glacial Lake Outburst Flood
GOI	Government of India
ha	Hectare
HIS	Hydrological Information System
HKH	Hindu Kush Himalayas
HP	Himachal Pradesh
I(d)	Glacier Ice-dammed Lake
I(s)	Supra-glacial Lake
ICIMOD	International Centre for Integrated Mountain Development
IHR	Indian Himalayan Region
India-WRIS	India - Water Resources Information System
IRS	Indian Remote Sensing Satellite
ISRO	Indian Space Research Organisation
Km^2	Square Kilometre
Landsat	Land Resources Satellite
LISS-III	Linear Imaging Self Scanning Sensor - III
LISS-IV	Linear Imaging Self Scanning Sensor - IV
m	Metre
M(e)	End-moraine Dammed Lake
M(l)	Lateral Moraine Dammed Lake
M(lg)	Lateral Moraine Dammed Lake (with Ice)
M(o)	Other Moraine Dammed Lake
NDGI	Normalized Difference Glacier Index
NDVI	Normalized Difference Vegetation Index
NDWI	Normalized Difference Water Index
NHP	National Hydrology Project
NIR	Near InfraRed
NRSC	National Remote Sensing Centre
NWIC	National Water Informatics Centre
O	Other Glacial Lake
RS	Remote Sensing
RS-2	Resourcesat-2
SK	Sikkim
SOI	Survey of India
TM	Thematic Mapper
UK	Uttarakhand
USGS	United States Geological Survey
WB	Water Body

SUMMARY

National Remote Sensing Centre (NRSC), Indian Space Research Organisation (ISRO), Hyderabad as one of the Implementing Agency under the National Hydrology Project (NHP), is carrying out hydrological studies using satellite data and geospatial techniques. As part of this, detailed glacial lake inventory, prioritization for Glacial Lake Outburst Flood (GLOF) risk, and simulation of GLOF for selected lakes are taken up for entire catchment of Indian Himalayan Rivers covering Indus, Ganga, and Brahmaputra River Basins. Under this activity, an updated inventory of glacial lakes using high resolution satellite data was prepared for the Indus and Ganga River basins and published in December 2020 (NRSC-RSAA-WRG-WRAD-Nov2020-TR-0001702-V1.0) and June 2021 (NRSC-RSAA-WRG-WRAD-Mar2021-TR-0001818-V1.0) respectively, and currently an updated inventory of glacial lakes has been prepared for the Brahmaputra River basin. The present glacial lake atlas is based on the inventoried glacial lakes in part of Brahmaputra River basin from its origin to foothills of Himalayas covering a catchment area of 3,99,833 Km^2.

The study portion of Brahmaputra River basin covers part of India and transboundary region. Brahmaputra River basin has been divided into 12 subbasins on the basis of confluence of major rivers contributing into the system viz., Amo chu, Dibang, Dihang, Jia Bharali, Lhasa Tsangpo, Lohit, Lower Yarlung Tsangpo, Manas, Puna Tsang Chu, Subansiri, Teesta and Upper Yarlung Tsangpo. Elevation in the river basin varies from the minimum 450 m to the maximum 8,352 m above mean sea level (amsl). In India, Brahmaputra River basin extends in two states viz., Arunachal Pradesh and Sikkim.

In the present study, glacial lakes with water spread area ≥ 0.25 ha have been mapped using Resourcesat-2 (RS-2) Linear Imaging Self Scanning Sensor-IV (LISS-IV) satellite data using visual interpretation techniques. Based on its process of lake formation, location, and type of damming material, glacial lakes are identified in all ten different types, majorly grouped into four categories viz., Moraine-dammed, Ice-dammed, Glacier Erosion, and Other glacial lakes.

A total of 18,001 glacial lakes have been mapped in the Brahmaputra River basin using a total of 187 high resolution multispectral RS-2 LISS-IV images, with a total lake water spread area of 92,990.74 ha. Each glacial lake has been given a 12 alpha-numeric unique glacial lake ID, along with several attributes that include hydrological, geometrical, geographical, and topographical characteristics. About 14,499 (80.55%) lakes are with < 5 ha lake area contributing to 21.92% of total lake area. The remaining lakes with > 5 ha in size are 3,502 (19.45%) contributing to 78.08% of total lake area in the basin. There are only 207 glacial lakes in the Brahmaputra River basin having an area of greater than 50 ha. Other Glacial Erosion lake type are found to be the maximum with 11,846 (65.81%) occupying a total lake extent of 48,368.91 ha at 52.01% in the basin. Majority (i.e. 93.34%) of the lakes are situated above the high altitude range of greater than 4,000 m amsl and dominated by Other Glacial Erosion lake type i.e., 65.31%.

Glacial lakes are predominantly distributed in Lower Yarlung Tsangpo subbasin (27.66%) followed by Upper Yarlung Tsangpo subbasin (16.11%), with a total lake extent of 26,371.81 ha and 16,088.67 ha at 28.36% and 17.30% respectively in the entire basin. In terms of very large size lakes i.e. >50 ha Lower Yarlung Tsangpo subbasin has majority i.e. 54 out of 207 large lakes within it. Very large size glacial lakes of one each are present in Amo chu and Dibang subbasins. Other Glacial Erosion lakes, which are dominant lake type in Brahmaputra

River basin distributed in all subbasins, and found maximum in count in Lower Yarlung Tsangpo subbasin. However, two Lateral Moraine Dammed lakes with Ice are present in the entire Brahmaputra River basin and one each is located in Lower Yarlung Tsangpo and Upper Yarlung Tsangpo subbasins. Teesta subbasin consists of higher number of Supra-glacial Lakes in the entire Brahmaputra River basin, whereas UpperYarlung Tsangpo subbasin contains higher number of Other Moraine Dammed lakes.

A total of 2,921 (i.e. 16.23%) glacial lakes lies within Indian region covering 16.95% of the total lake area, whereas remaining 83.77% of lakes are located in transboundary region with a 83.05% of the total lake area.

In Indian region, majority of glacial lakes are of Other Glacial Erosion Lake type (73.60%), followed by Cirque Erosion lakes (11.23%) and Other Moraine Dammed lakes (7.91%). Arunachal Pradesh and Sikkim States share 74.91% and 25.09% of lake count with a total lake area of 79.27% and 20.73% respectively. Majority of lakes in Arunachal Pradesh and Sikkim are predominantly of lake area < 5 ha, but lying in high (4,001 - 5,000 m) and very high altitude range (> 5,000 m) respectively. Lakes in Sikkim are only situated above 3,000 m elevation.

In this atlas, map sheets (plates) are prepared on the basis of the Survey of India (SOI) toposheet index (1: 250,000 scale) which are 65 in number covering the entire Brahmaputra River basin. Out of 65 plates, only 54 plates have glacial lakes and corresponding plates are incorporated in atlas. The map sheets are arranged in such a way that glacial lake map is on the right page and its corresponding satellite image is on the left page. At the end of the atlas, an annexure is provided containing list of glacial lakes of size ≥ 5 ha inventoried in the Brahmaputra River basin with their unique glacial lake ID, latitude, longitude, subbasin, glacial lake type, area (ha), and elevation (m). Glacial Lake ID number of 12 alpha-numeric character has 3 characters bold with dark red colour depicting the corresponding toposheet number of the SOI of 1:250,000 scale.

1. INTRODUCTION

1.1 About Project

The National Hydrology Project (NHP) sponsored by Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti, Government of India (GOI) with financial aid from the World Bank. The objective of the project is to improve the extent and accessibility of water resources information and strengthen institutional capacity to enable improved water resources planning and management across India. The mission is to establish an effective and sound hydrologic database and Hydrological Information System (HIS), together with the development of consistent and scientifically based tools and design aids, to assist in the effective water resources planning and management of the implementing agencies.

NHP is intended for setting up of a system for timely and reliable water resources data acquisition, storage, collation and management. It will also provide tools/systems for informed decision making through Decision Support Systems (DSS) for water resources assessment, flood management, reservoir operations, drought management, etc. NHP also seeks to build capacity of the State and Central sector organisations in water resources management through the use of Information Systems and adoption of State-of-the-art technologies like Remote Sensing. NHP will improve and expand hydrology data and information systems, strengthen water resources operation and planning systems, and enhance institutional capacity for water resources management. NHP will contribute to the GOI Digital India initiative by integrating water resources information across State and Central agencies.

National Remote Sensing Centre (NRSC), as one of the Implementing Agency under NHP, is engaged with generation of geo-spatial products & services pertaining to water resources sector, generation of high resolution Digital Elevation Models (DEM), development of flood early warning systems, decision support system development for irrigation water management, modelling & dissemination of hydrological products to support water resources management and capacity building to NHP stakeholders. The satellite data based geo-spatial products & services, mainly encompassing the following:

- Satellite Data/Geo-Spatial Data Hosting & Services through Bhuvan Web Portal
- Water Resources Information Products & Services (Satellite/Model derived – Bhuvan/India- Water Resources Information System (India-WRIS)/National Water Informatics Centre (NWIC))
- Customized Applications Development (Flood Forecasting, Irrigation Water Management)
- Hydro-conditioned Digital Elevation Model (Satellite & Aerial)
- Capacity Building (Customized Training & Hand Holding)

As part of various NHP technical studies carried out, NRSC has taken up “Glacial Lake Outburst Flood (GLOF) Risk Assessment of Glacial Lakes in the Himalayan Region of Indian River Basins”. In this activity, it was proposed to prepare an updated inventory of glacial lakes, prioritization and selection of critical glacial lakes based on certain characteristics (such as glacial lake, glacier, topography and others), GLOF modelling and flood inundation simulation for selected few lakes using high resolution Digital Elevation Model (DEM) for downstream of the lakes along their river reach, and to assess GLOF risk.

As a result of initial outcome of this activity, an updated inventory of glacial lakes in Indus and Ganga River basins was generated using multispectral (MX) high resolution satellite data of Resourcesat-2 (RS-2) Linear Imaging

Self Scanning Sensor-IV (LISS-IV) for mapping lakes with size ≥ 0.25 ha. The geo-spatial database of glacial lakes has been used to publish "Glacial Lake Atlas of Indus River Basin" (NRSC-RSAA-WRG-WRAD-Nov2020-TR-0001702-V1.0), "Glacial Lake Atlas of Ganga River Basin" (NRSC-RSAA-WRG-WRAD-Mar2021-TR-0001818-V1.0) and presently the atlas of "Glacial Lake Atlas of Brahmaputra River Basin".

1.2 Glacial Lakes

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. Many studies undertaken globally showed that glaciers around the world have been retreating since the industrial revolution, which began around eighteenth century. As the glaciers are thinning and retreating, resulting in associated glacier melt water lakes are expanding in size and new lakes continue to form. The lakes receiving melt water from glaciers are generally known as glacial lakes. A glacial lake is defined as water mass existing in a sufficient amount and extending with a free surface in, under, beside, and/or in front of a glacier and originating from glacier activities and/or retreating processes of a glacier. As glaciers retreat, the formation of glacial lakes takes place behind moraine or ice 'dam'. These damming materials are generally weak and can breach suddenly due to various triggering factors, leading to catastrophic floods. Such outburst floods are known as GLOF.

GLOFs are characterized by extreme peak discharges, with an exceptional erosion/transport potential; therefore, they can turn into flow-type movements (Emmer, 2017). Failure of such lake happens due to many factors which include erosion process, increase in water pressure, merging of an avalanche/rock into lake, nature of the damming materials etc., and this may lead to a GLOF event which could be highly disastrous in nature and create long-term degradation in the valleys, both physically and socio-economically (Mool et al., 2001b). Accordingly, Emmer et al., (2016) showed an annual nonlinear increase in the number of scientific publications focusing on GLOFs recently. Hence, monitoring of glacier associated lakes is very useful in the IHR to identify critical glacial lakes, for which a detailed inventory of glacial lakes and its type is required. According to their position relative to the glacier and damming mechanism, these glacial lakes can be classified into several types (Panda et al., 2014).

Inventorying glacial lakes located in these remote mountain areas with rugged terrain and inclement weather by traditional means is very tedious and difficult, hence Remote Sensing (RS) data plays a greater role in generating information on glacial lakes (Kulkarni, 1991; Berither et al., 2007; Wagnon et al., 2007; Raj, 2010; Cogley et al., 2011; Pratap et al., 2016; Gupta et al., 2019, Guru et al., 2019). Satellites with high spatial, spectral and temporal resolution sensors are useful in deriving lake information with better accuracy and repeatedly.

1.3 Previous Studies

Several studies have been taken up in the past to assess the glacial lake distribution in the Hindu Kush Himalayas (HKH), covering parts of eight countries viz., Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan, and lies within five river basins of Amu Darya, Indus, Ganga, Brahmaputra, and Irrawaddy (Komori, 2007; Gardelle et al., 2011; Wang et al., 2011; Wang et al., 2012; Nie et al., 2013; Raj et al., 2013; Wang et al., 2013; Worni et al., 2013; Che et al., 2014; Bambari et al., 2015; Zhang et al., 2015; Nie et al., 2017; Rounce et al., 2017; Nagai et al., 2017; Gupta et al., 2019; Guru et al., 2019; Shugar et al., 2020). But only few glacial lake inventories are available in public domain, amongst which the first inventory was prepared by the International Centre for Integrated Mountain Development (ICIMOD), Nepal, for the entire HKH region (covering

the entire IHR within it), using satellite data of the Land Observation Satellite (Landsat) Thematic Mapper (TM) of the United States Geological Survey (USGS) and the Indian Remote Sensing satellite (IRS-1D) Linear Imaging and Self-scanning Sensor-III (LISS-III) during 1999-2005, along with topographic maps published between the 1950s and 1982 (Mool et al., 2001a; Mool et al., 2001b; Mool et al., 2003; Bhagat et al., 2004; Roohi et al., 2005; Sah et al., 2005; Wu et al., 2005, Ives et al., 2010). This inventory has been revised in 2018 using Landsat TM and Enhanced Thematic Mapper Plus (ETM+) data of years 2004-07 ± 3 (Maharjan et al., 2018). Both glacial lake inventories prepared by the ICIMOD, have mapped lakes with size > 0.3 ha. Second inventory of glacial lakes and water bodies in the IHR (within India only) was carried out by the NRSC, Hyderabad in collaboration with the Central Water Commission (CWC), New Delhi (NRSC-RS&GISAA-WRG-CWC-Lakes-May2011-TR255). Glacial lakes and water bodies located in all three major basins of Indus, Ganga, and Brahmaputra, of size > 10 ha were mapped using Indian Remote Sensing (IRS) Advanced Wide Field Sensor (AWiFS) data for the year 2009 (Hakeem et al., 2011). Subsequently, monthly monitoring of these lakes (> 50 ha) was carried out using satellite data for the months of June to October during the years 2011 to 2015.

Third latest glacial lake inventory is prepared by the Space Application Centre (SAC), Ahmedabad i.e. "National Wetland Atlas: High Altitude Lakes of India", using IRS-P6 LISS-III, comprising high altitude lake information of the IHR, within Indian administrative region only (Panigrahy et al., 2012). In this atlas, wetlands of size > 2.25 ha were mapped as a polygons and less than that were mapped as a points, using satellite data for the period of 2006-08.

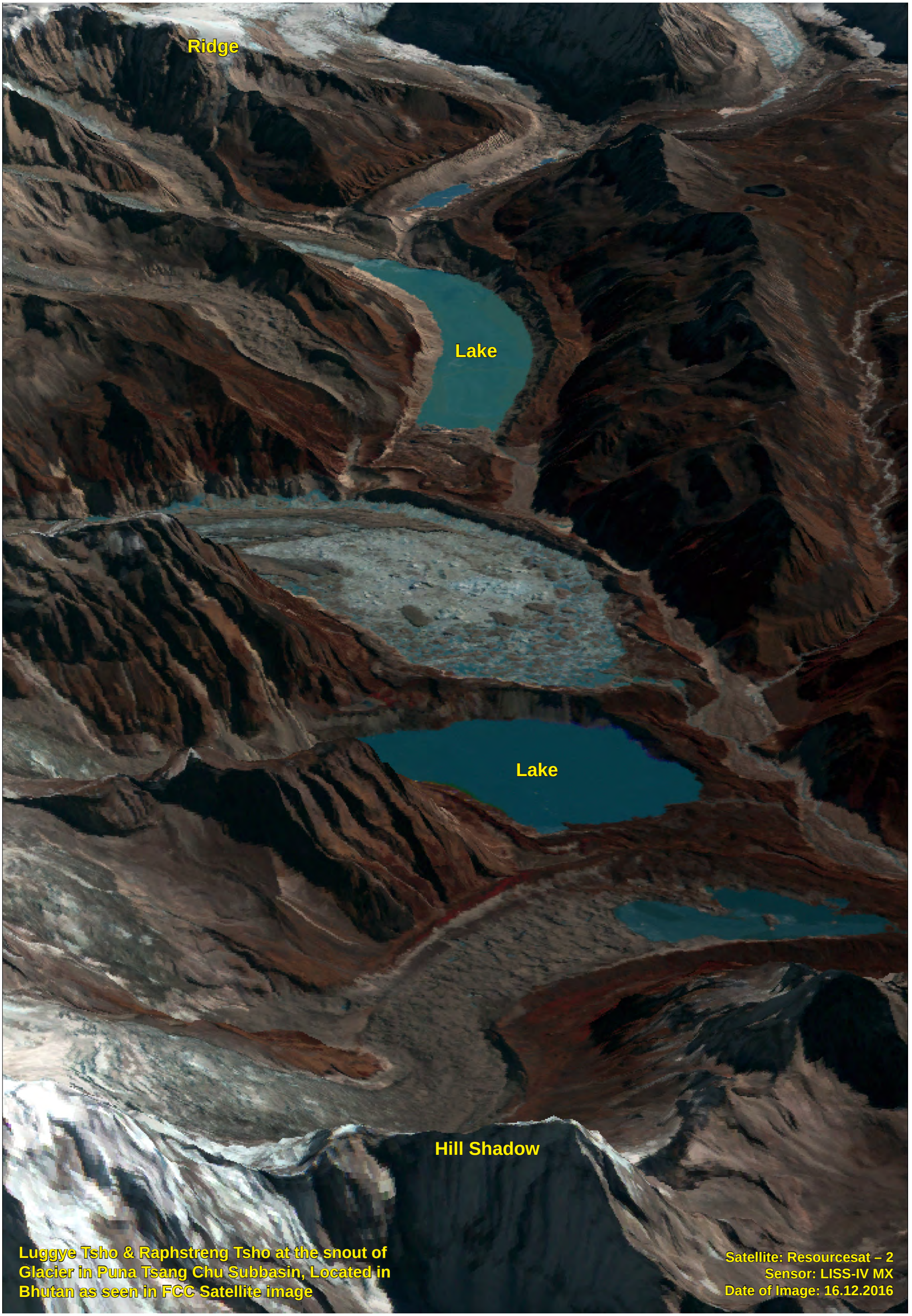
1.4 Highlights of the Atlas

The highlights of the present atlas:

- The present atlas is first of its kind depicting spatial distribution of glacial lakes of size ≥ 0.25 ha in Brahmaputra River basin mapped using high resolution satellite data
- The atlas provides the details of all the glacial lakes in entire catchment of Brahmaputra River basin, both within Indian and transboundary region
- The atlas contain details of area range-wise glacial lakes along with 10 categories of types. Further, the atlas present the distribution of glacial lakes in terms of area vs. type, elevation, area vs. elevation and type vs. elevation, at basin, subbasin, administrative and transboundary regions
- The atlas also provides comprehensive list of all glacial lakes with unique ID considering hydrological, geometrical, geographical, topographical attribute information

The expected utility of the atlas:

- The atlas provides a comprehensive & systematic glacial lake database for Brahmaputra River basin with size ≥ 0.25 ha
- In the context of climate change impact analysis, the atlas can be used as reference data for carrying out change analysis, both with respect to historical and future time periods
- The atlas also provides authentic database for regular or periodic monitoring changes in spatial extent (expansion/shrinkage), and formation of new lakes
- The atlas can also be used in conjunction with glacier information for their retreat and climate impact studies
- The information on glacial lakes like their type, hydrological, topographical, and associated glaciers are useful in identifying the potential critical glacial lakes and consequent GLOF risk
- Central and State Disaster Management Authorities can make use of the atlas for disaster mitigation planning and related programs
- This glacial lake atlas can be used in Detailed Project Report (DPR) preparation for new hydropower/multi purpose projects



Luggye Tsho & Raphstreng Tsho at the snout of Glacier in Puna Tsang Chu Subbasin, Located in Bhutan as seen in FCC Satellite image

Satellite: Resourcesat – 2
Sensor: LISS-IV MX
Date of Image: 16.12.2016

2. STUDY AREA

2.1 Overview

The IHR consists of three major river systems of Indus, Ganga, and Brahmaputra stretches over four countries viz., India, China, Nepal and Bhutan, and on the basis of physiography it has been divided into four mountain regions viz., Eastern Himalayas, Central Himalayas, Western Himalayas, and the Karakoram Mountain range. The Brahmaputra basin spreads over countries of Tibet (China), India, Bhutan and Bangladesh covering drainage area of 5,80,000 Sq.Km. In India it has a share of about 33.52% which is 1,94,413 Sq.Km cutting across the states Arunachal Pradesh, Assam, West Bengal, Meghalaya, Nagaland and Sikkim.

Topographically River Brahmaputra is unique in terms of its diverse environment as it has cold plateau in Tibet, rainy Himalayan region, alluvial lands of Assam and the large deltaic plains of Bangladesh (Figure 1). The Brahmaputra River also known as Yarlung Tsangpo (in Tibet) originates in the glacier mass from the Kailash ranges of Himalayas at an altitude of 5,150 m south of the lake 'Konggyu Tsho'. The higher elevation zones in the basin causes snow fall mostly over the northern region. The river flows through a length of 2,900 Km out of which 916 Km in the Indian Territory and joins finally in the Bay of Bengal. The catchment area receives number of tributaries at its north and south banks especially in Indian region. The catchment receives heavy rainfall with significant spatial variability. The land use/cover of the basin consist extensive forest cover, plantations, crop fields and swampy water lands, the northern part of the basin (outside India) covers mostly snow. There are number of hydraulic structures constructed across the tributaries in terms of weirs, barrages for the purpose of Irrigation and Dams for the hydro power utilization.

The Brahmaputra River basin from its origin to foothills of Himalayas with a catchment area of 3,99,833 Sq.Km is considered in the present study, which extends from latitude 26.70 N to 3.270 N and from longitude 820 E to 97.770 E (Figure 2).

Figure 1: The Brahmaputra river in Tibet (left) and at Bogibeel Bridge in Assam (right)
(Source: Left image – sandrp.in; Right image – economictimes.indiatimes.com)

2.2 Hydrological Divide

The entire Brahmaputra River basin is sub divided into three reaches namely upper, middle and lower. In the upper reach the river is fed by glaciers. In the lower and middle reaches it is joined by number of tributaries. The

principal tributaries of the Brahmaputra River joining from right are the Lohit, the Dibang, the Subansiri, the Jia bharali, the Dhansiri, the Manas, the Torsa, the Sankosh and the Teesta whereas the Burhidihing, the Desang, the Dikhow, the Dhansiri and the Kopili joins it from left. Considering hydrological settings of the above said reaches and the present study reach, Brahmaputra River basin is divided in 12 subbasins viz., Upper Yarlung Tsangpo, Lhasa Tsangpo, Lower Yarlung Tsangpo, Dihang, Dibang, Lohit, Subansiri, Jia Bharali, Manas, Amo Chu, Puna Tsang Chu, and Teesta. Figure 2 shows the location of the study area with Resourcesat-2 (RS-2) Linear Imaging Self Scanner (LISS-IV) satellite images. Table 1 shows the catchment area of each of the above subbasins.

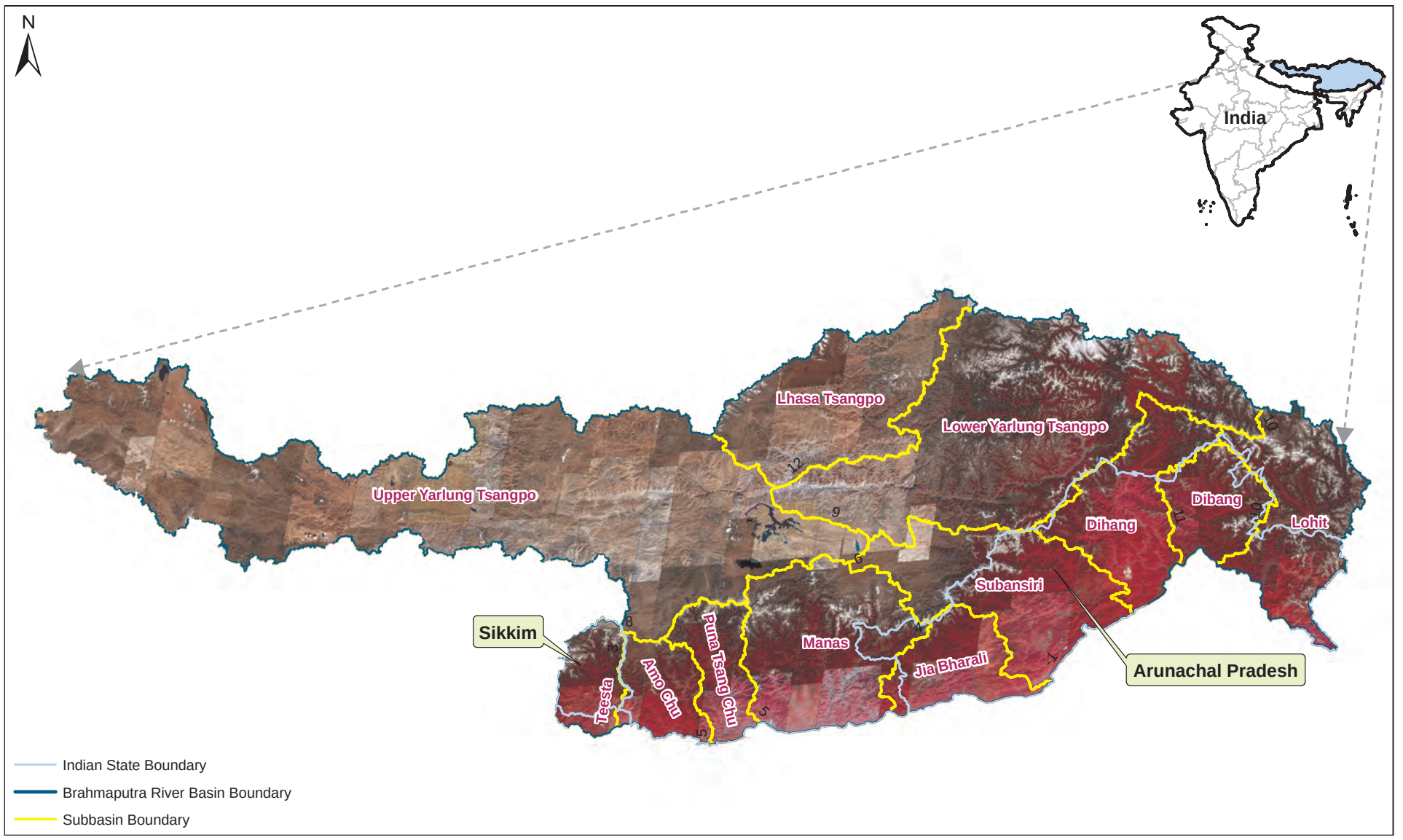


Figure 2: Location of Brahmaputra River basin showing RS-2 LISS-IV images

Table 1: Details of subbasins of Brahmaputra River basin

S. No.	Subbasin	Area (Km²)	Area (%)
1	Amo Chu	9,829	2.46
2	Dibang	12,238	3.06
3	Dihang	22,158	5.54
4	Jia Bharali	13,084	3.27
5	Lhasa Tsangpo	32,896	8.23
6	Lohit	25,799	6.45
7	Lower Yarlung Tsangpo	74,334	18.59
8	Manas	32,166	8.04
9	Puna Tsang Chu	10,204	2.55
10	Subansiri	30,644	7.66
11	Teesta	8,555	2.14
12	Upper Yarlung Tsangpo	1,27,926	31.99
Total		**3,99,833**	**100.00**

2.3 Hydrology

The Upper reach of the River Brahmaputra flows through 1,625 Km from the source of origination point to the Indo-China border through Tibetan plateau and enters India at Kobo, Arunachal Pradesh, Upper reach of the River is mostly fed by snow and glaciers. In the middle reach between India and Bangladesh border it flows through a length of 916 Km where it has numerous riverine islands because of its low gradient. The entire lower reach falls within the Bangladesh flows about a length of 337 Km and drains into Bay of Bengal. The river flows are at low in winter season, gradually increases in summer season (due to melting of snow and glaciers in upper reaches) and reaches peak in monsoon season. The average water resources potential (In India) of the basin is 537.24 BCM out of which utilizable surface water resource is 24 BCM (Brahmaputra Basin Report, 2014).

2.4 Topography

The study area mainly resides in the middle and eastern Himalayan region, which is also known as one of the main topographic division of the Indian subcontinent. The Himalayas comprises the Himalayan ranges including their numerous snow peaks and each of these peaks is surrounded by snow fields and glaciers. The elevation of the study area ranges between 450 m and 8,352 m amsl, where glaciers and glacial lakes are mostly distributed in the higher altitude region. The mean elevation of the study area is about 4,048 m amsl. Hypsometric curve is a graph which shows the proportion of land area that exists at various elevations by plotting relative area against relative height, as shown in Figure 3 for the study area.

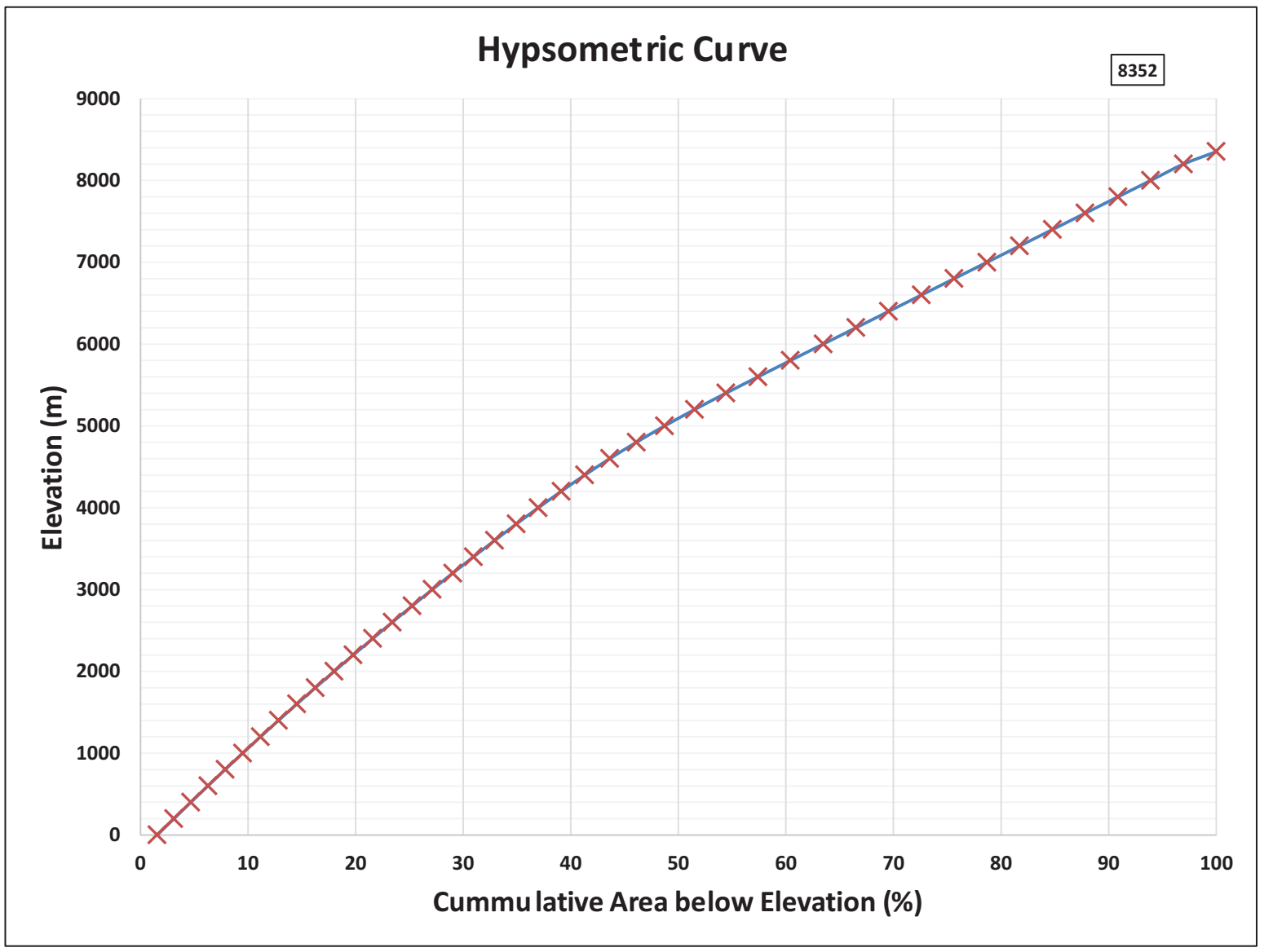


Figure 3: Hypsometric curve of the study area

2.5 Climate

The climate of the Brahmaputra river basin varies from the harsh cold, and dry conditions found in Tibet to the generally hot and humid conditions prevailing in Assam state. Tibetan winters are severely cold, with average temperatures below 0°C, while summers are mild and sunny. The upper river valley lies in the rain shadow of the Himalayas, and precipitation there is relatively light (Lhasa receives about 400 mm annually). Climate over the Brahmaputra River basin is mainly experiences four seasons in a year namely winter, summer, and monsoon and post monsoon. The winter season begins in December and continues to the end of February. From March onwards, the hot weather starts and continues up to the last week of May. The monsoon begins in the last week of May or in early June and the basin receives heavy rainfall spatially distributed over the basin.

3. DATA USED

Earth observation satellites capture the data repeatedly in various spectral ranges and at different spatial and radiometric resolutions. For inventorying glacial lakes, high to medium resolution datasets are proved to be useful by many research studies (Bolch et al., 2010; Mergili et al., 2013; Wang et al., 2013; Zhang et al., 2015; Gupta et al., 2019, Guru et al., 2019). Data captured between September and December were mostly used because the presence of snow or cloud cover during this period is minimum. USGS satellite data of Landsat 5 and 7 (TM and ETM+) has been used widely for mapping glacial lakes due to free accessibility. Whereas, IRS satellite data from sensors of AWiFS, LISS-III and LISS-IV has also been used for such inventory.

In the present study, high resolution Resourcesat-2 LISS-IV satellite images with spatial resolution of 5.8 m covering a swath of 70 × 70 Km have been used for inventorying glacial lakes. Maximum of the images used for inventorying were of 2016-2021 (74%) and remaining images procured were of previous years due to non-availability of cloud-free and snow-free images for the recent years. Majority of images were of September and December months (73%) due to less snow and cloud cover, and rest 27% images of other months. Figure 4 shows the layout of the RS-2 LISS-IV scenes (path-wise) procured for the Brahmaputra River basin along with its details in Table 2. The layout of satellite scenes is divided into paths (shown in separate colours) and rows (row numbers shown in the layout).

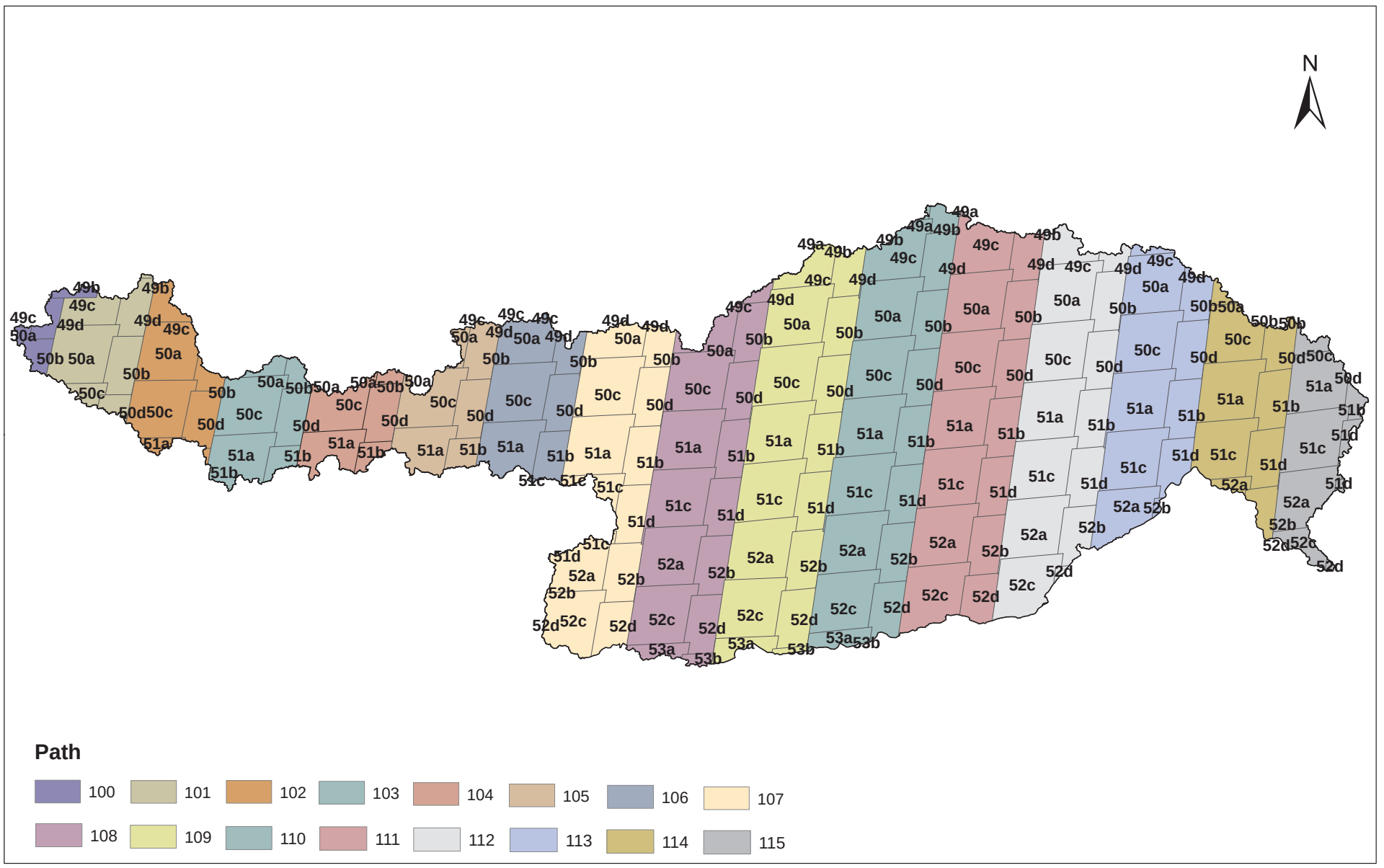


Figure 4: Layout of Resourcesat-2 LISS-IV scenes used in this study

Table 2: Details of satellite scenes used for inventory

	Other Months	Sep - Dec	Total
Prior to 2016	16	33	49
2016-21	34	104	138
Total	**50**	**137**	**187**

Digital Elevation Model (DEM) of Cartosat satellite with 10 m spatial resolution has been used for topographic information and watershed boundary generation. Figure 5 shows elevation range map of the study area i.e. Brahmaputra River basin. Other information like names of lakes and rivers has been gathered from digital toposheets available from University of Texas - Toposheet Library at 1:250,000 scale and Tibet Map Institute at 1:100,000 scale (U.S. Army Map Service 1955; Andre 2017).

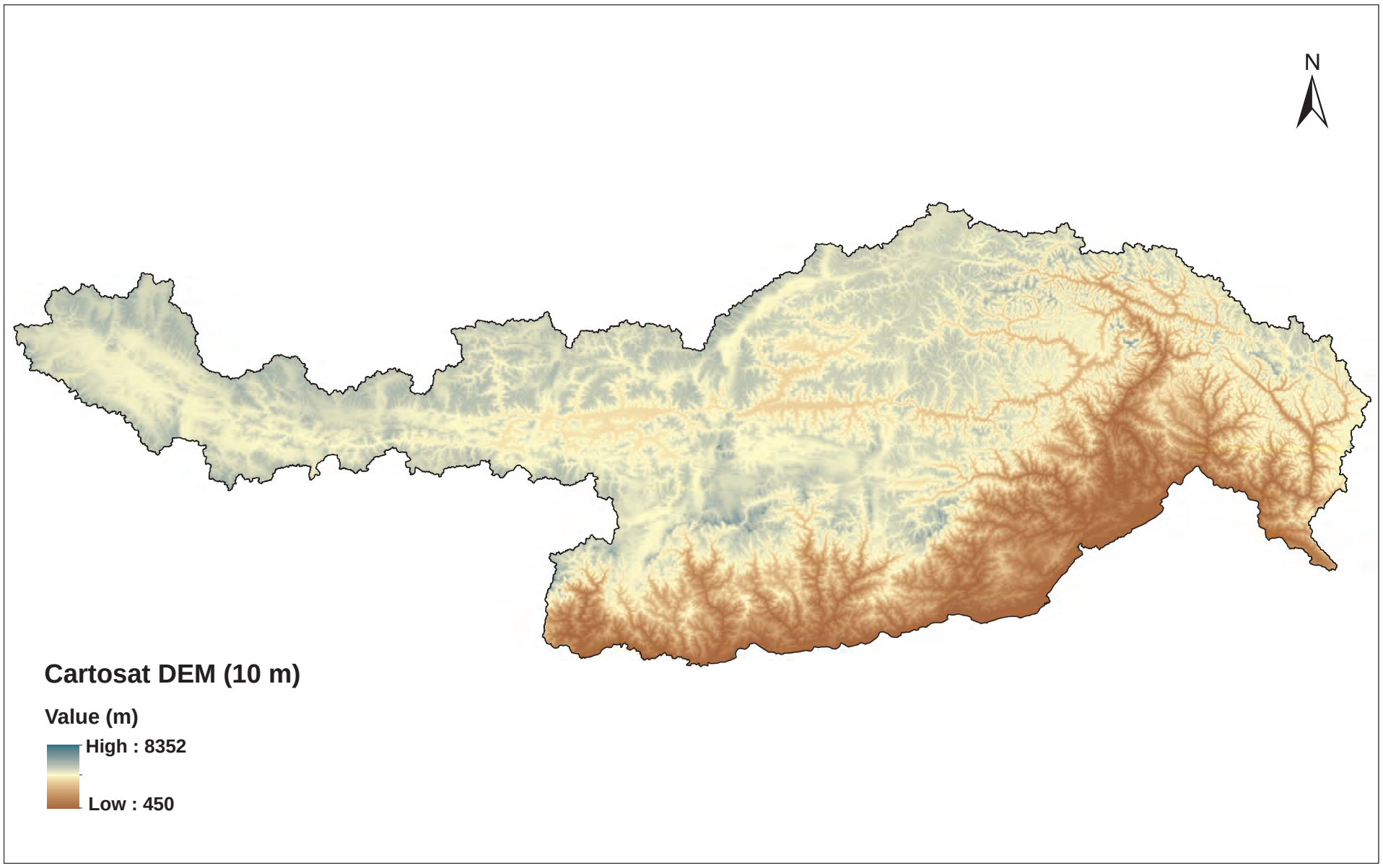


Figure 5: Cartosat DEM of 10 m spatial resolution covering the Brahmaputra River basin

4. METHODOLOGY

4.1 Satellite Data Interpretation

The spectral reflectance curve of water in the visible spectrum starts with a low in Blue region (0.4 to 0.5 μm), reaches peak in Green region (0.5 to 0.6 μm), decreases in Red region (0.6 to 0.7 μm) and probably the most distinctive characteristic is the energy absorption at Near InfraRed (NIR) wavelengths. Identifying and delineating water bodies with remote sensing data are carried out easily in near infrared wavelengths because of this absorption property in IR region. However, various physical conditions of water bodies (water depth, turbidity, chlorophyll content, etc.) manifest spectral changes. As a result of various conditions of lakes, the water in satellite images in False Colour Composite (FCC) ranges in appearance from light to dark blue to black. In the case of frozen lakes, it appears white.

Glacial lake sizes are generally small, having circular, semi-circular, or elongated shapes with very fine texture and are generally associated with glaciers in high altitude areas. Certain types of glacial lakes, like erosion and cirque lakes are not necessarily associated with glaciers. Knowledge of the physical characteristics of the glacial lakes, and their associated features is always essential for the interpretation of the images.

Satellite data interpretation can be done using visual image interpretation keys such as colour, size, tone, texture, pattern, association, shape, shadow, and orientation. A number of remote sensing methods had been developed for glacial lake detection and mapping or development of inventory (Kääb 2000; Mool et al., 2001a; Huggel et al., 2002; Huggel et al., 2006; Ives et al., 2010). Manual or automated lake mapping methods have certain difficulties in identifying the lakes, which are described in the following section. An attempt was made to study the accuracy of mapping of glacial lakes using multiple automated methods along with visual interpretation, the details of which are given in Annexure-1. From this study, it was concluded that visual interpretation method was best accurate method. Hence, in the present study glacial lakes and their different types are identified and mapped using RS-2 LISS-IV multispectral images using visual interpretation method.

Difficulties in Lake Identification:

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 like lakes situated in the shadow portions of mountains, presence of snow cover, cloud cover, and partly frozen lakes, etc. In the presence of snow cover on the glacier tongue or glacier's ablation area where many Supra-glacial lakes may present, both methods have limitations and difficulties.

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. In fact, a mountain shadow covering a lake partly/completely within its vicinity, making it difficult to accurately map the lake boundary.

Many lakes due to inclement terrain condition, can be under shadow of high peaks and will get missed in both ways of mapping. On the contrary, a lake can also present in white colour while it is in frozen form due to cold

weather conditions over the area, then definitely it will not get classified while automatic mapping. Whereas, frozen lakes can be identified and mapped using visual interpretation to some extent.

Challenges in Automatic Mapping:

In the IHR, due to high and inclement terrain surface and due to near vertical acquisition of satellite images, some lakes get covered with shadows of mountains, which create problems in identifying glacial lakes. Also identification of lakes with high turbidity, partial ice covered lakes and the lakes in shadow areas are misclassified by automatic methods. Glacial lake mapping is always a semi-automatic approach because even after applying any of that method, it should always be followed by the post processing i.e. correcting the errors using visual interpretation. Even in all cases, automatic mapping will never give the exact and accurate boundary of the lake, leading to necessary manual corrections.

Reasoning for Visual Interpretation:

Although automatic mapping methods can speed up the detection of glacial lakes, but these methods could not be applied to the entire Himalayan region due to lot of variations in satellite scenes (seasons/years) and problems mentioned above. For example, if lakes are frozen or covered with snow or cloud and lies in a shadow area, they cannot be detected using these automatic methods. In such cases, the manual interpretation method will be helpful to map these lakes. Thus, any mapping of glacial lakes can be automated up to a certain extent only. So, visual image interpretation keys and technique will give accurate results and avoids misclassification. Therefore, in this present study, glacial lakes and its type identification, and its mapping for the entire Brahmaputra River basin (within IHR) has been done manually using visual interpretation. High resolution satellite data available on Bhuvan/Google Earth has been used on need basis in finalizing various features of glacial lake database.

Limitations:

The RS-2 LISS-IV MX data used for glacial lake database preparation sporadically covered with cloud and seasonal/ permanent snow. Also, the Himalayan region being highly varying topography with steep slopes, the satellite data has hill shadows. Thus few glacial lakes would not have been mapped owing to the following constraints:

- Presence of snow or cloud over the glacial lakes
- Glacial lakes under frozen condition
- Glacial lakes under mountain shadow

4.2 Types of Glacial Lake

Various researchers have proposed glacial lakes classification schemes based on dam type, process of lake formation, topographic feature, and geographical position (Hewitt 1982; Liu and Sharma 1988; Clague and Evans 2000; Mool et al., 2001a, 2001b). Lakes located on the glacier surface can be mapped using satellite data, but there are englacial and subglacial lakes that may also exist, but cannot be mapped from aerial/optical satellite images, requires ground based instrument (Yao et al., 2018). Majorly surface glacial lakes are classified in 4 classes and 10 subclasses, i.e. Moraine-dammed lake, Ice-dammed lake, Glacier Erosion lake (also known as Bed-rock lake), and Other Glacial lake. Two character symbol has been used for glacial lake classification, in

which first letter (uppercase) represents lake type and second letter (lowercase) within brackets represents lake subtype, for example, M(e) for End-moraine dammed lake. Details of types of lakes are given in Table 3 and their appearance in satellite images are shown in Figure 6.

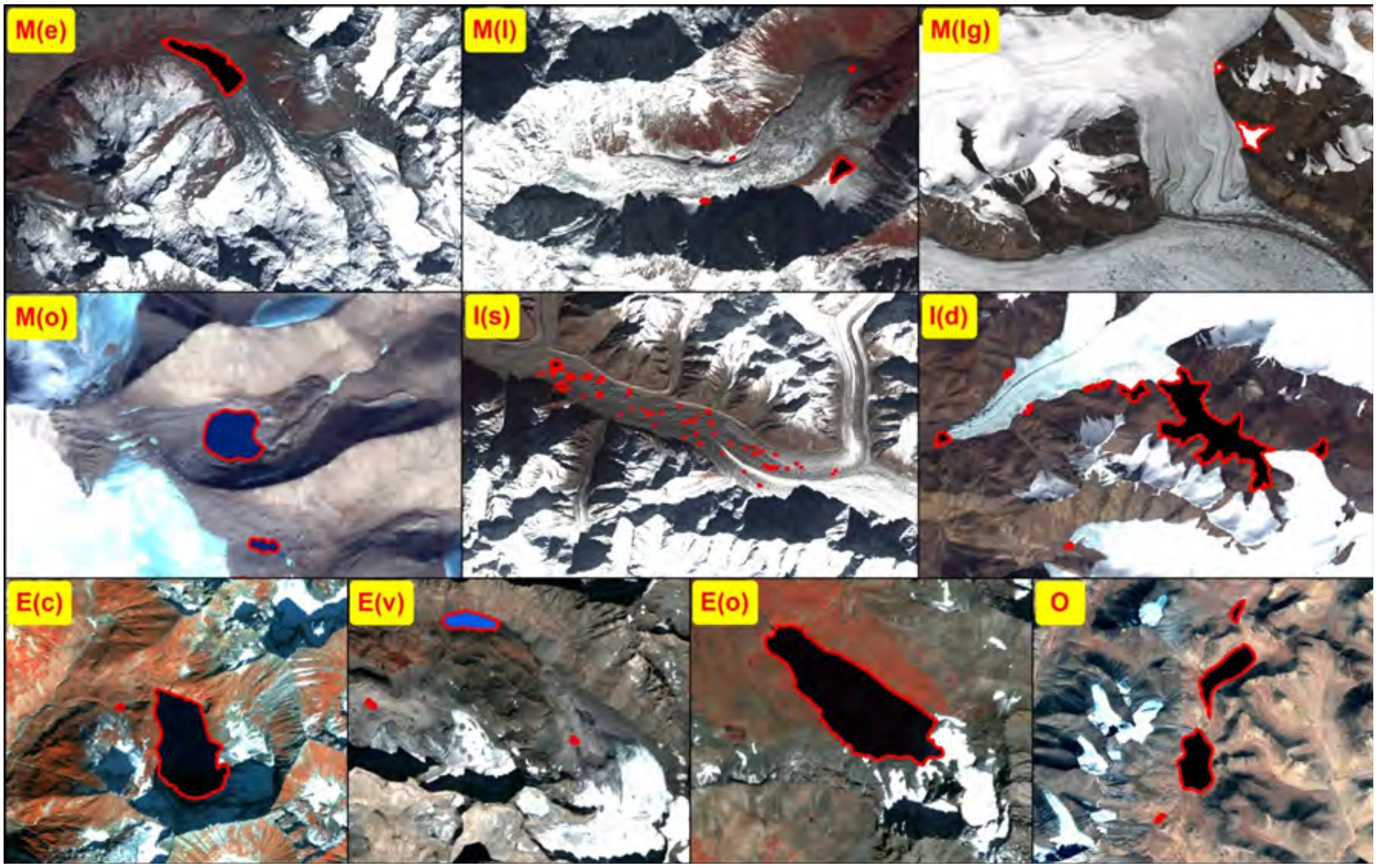


Figure 6: Types of Glacial Lake

Table 3: Glacial lake types and their identification keys

S.No.	Lake Type	Lake Subtype	Code	Identification Keys
1	**Moraine-dammed Lake**	End-moraine Dammed Lake	**M(e)**	Lake dammed by end (terminal) moraines
2		Lateral Moraine Dammed Lake	**M(l)**	Lake dammed by lateral moraine(s) not in contact with glacial ice
3		Lateral Moraine Dammed Lake (with Ice)	**M(lg)**	Lake dammed by lateral moraine(s) in contact with glacial ice
4		Other Moraine Dammed Lake	**M(o)**	Lake dammed by other moraines
5	**Ice-dammed Lake**	Supra-glacial Lake	**I(s)**	Pond or lake on the surface of a glacier
6		Glacier Ice-dammed Lake	**I(d)**	Lake dammed by glacier ice with no lateral moraines
7	**Glacier Erosion Lake**	Cirque Erosion Lake	**E(c)**	A small pond occupying a cirque
8		Glacier Trough Valley Erosion Lake	**E(v)**	Lakes formed in the glacier trough as a result of the glacier erosion process
9		Other Glacial Erosion Lake	**E(o)**	Bodies of water occupying depressions formed by the glacial erosion process
10	**Other Glacial Lake**	Other Glacial Lake	**O**	Lakes formed in a glaciated valley, and fed by glacial melt, but damming material not directly part of the glacial process

4.3 Lake Attribute Information

A total of 22 attributes has been given to all mapped lake features in the geodatabase, which are broadly consisting information grouped in five different categories as shows in Table 4.

Table 4: Details of glacial lake attributes

S.No.	Category	Attribute
1	Hydrological	Basin, subbasin, river, lake name
2	Geometrical	Maximum length, mean width, surface area
3	Geographical	Latitude, longitude, region, state, district, toposheet 250k, toposheet 50k
4	Topographical	Elevation, aspect
5	Lake Information	Feature types, glacial lake type, lake ID
6	Data Source Information	Source of database, source of elevation, date of pass

Typically, lake ID is given in 12 alpha-numeric character format like "0378A0115656", where first two digits '03' refers to Basin code which is Brahmaputra (01-Indus and 02-Ganga), next five characters '78A01' refers to the 1:250,000 (78A) and 1:50,000 (78A01) scale SOI Toposheet number, and the last five digits refers to the sequential number of each lake sorted from top left to bottom right. A typical example of the glacial lake database generated is given below in Table 5 along with fields and format.

Table 5: Typical example of glacial lake attribute database

S.No.	Database Fields	Type	Format / Unit	Lake Attribute
1	ID No	String	Text	0378A0115656
2	Toposheet 250K	String	Text	78A
3	Toposheet 50K	String	Text	78A01
4	Latitude*	Float	Decimal Degree	27.913
5	Longitude*	Float	Decimal Degree	88.195
6	Basin	String	Text	Brahmaputra
7	Subbasin	String	Text	Teesta
8	River	String	Text	Teesta River
9	Type (GL/WB)	String	Text	Glacial Lake
10	Name	String	Text	South Lhonak
11	Glacial Lake Type	String	Text	M(e): End-moraine Dammed Lake
12	Surface Area	Float	ha	128.13
13	Length	Float	Km	2.45
14	Mean Width	Float	Km	0.66
15	Elevation	Integer	m (amsl)	5,194
16	Aspect	String	Text	NE
17	Source of Database	String	Text	RS-2 LISS-IV
18	Date of Pass	Date	DDMMYYYY	30122016
19	Source of Elevation	String	Text	Cartosat DEM
20	Region	String	Text	India
21	State	String	Text	Sikkim
22	District	String	Text	North Sikkim

* Latitude, longitude, and elevation has been taken at the centroid of the lake

5. RESULTS

The mapped glacial lakes are analyzed for their distribution in terms of area, type, and elevation, at basin, subbasin, administrative and transboundary level. Area of mapped glacial lakes is ranging from a minimum of 0.25 ha to a maximum of 2,658.49 ha. Details of glacial lakes of size ≥ 5 ha inventoried for the Brahmaputra River basin is given in Annexure-II. The results are discussed in subsequent sections:

5.1 Brahmaputra Basin Level Statistics

Area range-wise Distribution

A total of 18,001 glacial lakes (≥ 0.25 ha) were identified and mapped using RS-2 LISS-IV images for the entire Brahmaputra River basin, with a total lake water spread area of 92,990.74 ha. Table 6 and Figure 7 shows the area range-wise distribution of glacial lakes for the entire basin. About 14,499 (80.55%) lakes are with < 5 ha lake area contributing to 21.92% of total lake area. The remaining lakes with > 5 ha in size are 3,502 (19.45%) contributing to 78.08% of total lake area in the basin. Details of lakes > 50 ha is given in Annexure-III.

Table 6: Area range-wise distribution of Glacial Lakes (GL) in Brahmaputra River basin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	3,627	1,294.83	1.39
2	0.5 - 1	3,856	2,771.84	2.98
3	1 - 5	7,016	16,315.71	17.55
4	5 - 10	1,749	12,348.79	13.28
5	10 - 50	1,546	30,040.25	32.31
6	> 50	207	30,219.32	32.50
Total		**18,001**	**92,990.74**	**100.00**

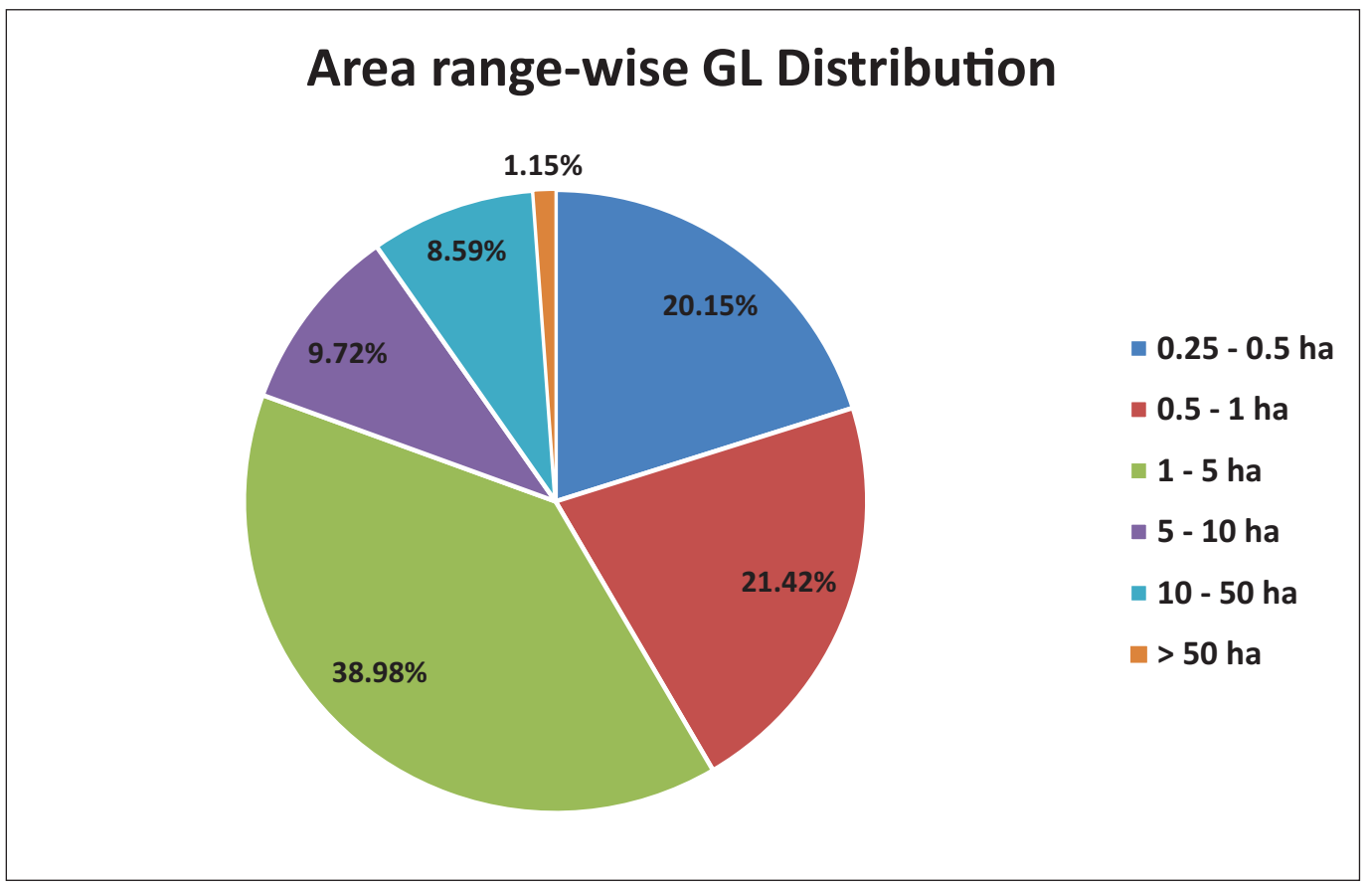


Figure 7: Area range-wise distribution of GL in Brahmaputra River basin

Type-wise Distribution

Distribution of different types of glacial lakes in the entire Brahmaputra River basin is given in Table 7 and Figure 8. Out of 10 types of lakes described above, all types of lakes are present in the basin. Out of 10 types of glacial lakes, Other Glacial Erosion lakes are found to be the maximum with 11,846 (65.81%) occupying a total lake extent of 48,368.91 ha at 52.01% in the basin. Two other types of lake, namely, Other Moraine Dammed and Other Glacial lakes are 3,019 (16.77%) and 1,481 (8.23%), extend over an area of 9,457.52 ha (10.17%) and 12,049.76 ha (12.96%) respectively.

Table 7: Type-wise distribution of GL in Brahmaputra River basin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	391	10,620.51	11.42
2	M(l)	Lateral Moraine Dammed Lake	38	259.67	0.28
3	M(lg)	Lateral Moraine Dammed Lake with Ice	2	0.93	0.00
4	M(o)	Other Moraine Dammed Lake	3,019	9,457.52	10.17
5	I(s)	Supra-glacial Lake	272	263.13	0.28
6	I(d)	Glacier Ice-dammed Lake	2	2.50	0.00
7	E(c)	Cirque Erosion Lake	943	8,521.90	9.16
8	E(v)	Glacier Trough Valley Erosion Lake	7	3,445.91	3.71
9	E(o)	Other Glacial Erosion Lake	11,846	48,368.91	52.01
10	O	Other Glacial Lake	1,481	12,049.76	12.96
Total			**18,001**	**92,990.74**	**100.00**

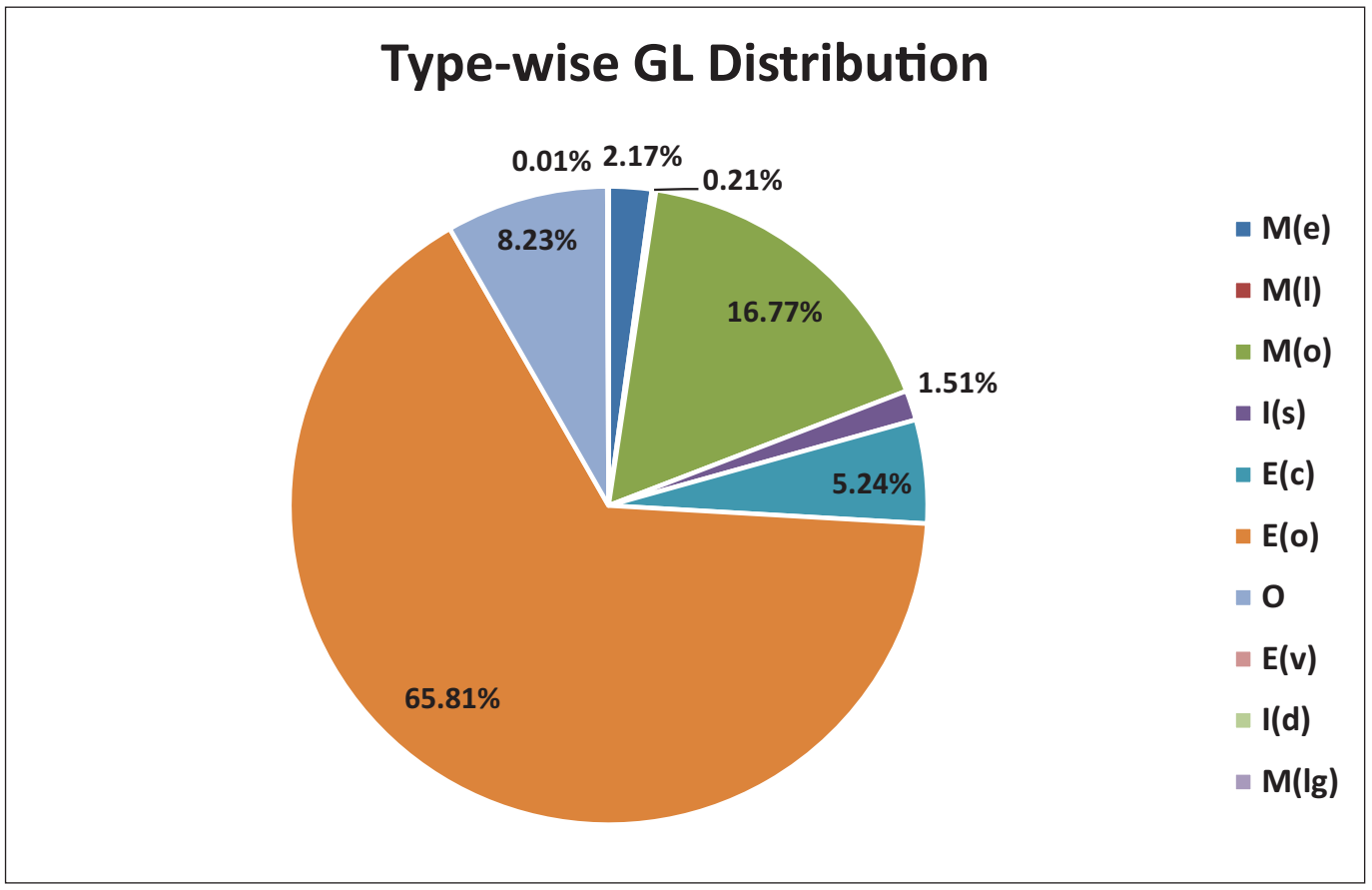


Figure 8: Type-wise distribution of GL in Brahmaputra River basin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 8 and Figure 9. The lakes with < 5 ha in size (80.55%) are dominant with Other Glacial Erosion lake type (67.58%) followed by Other Moraine Dammed (18.02%) and Other Glacial lake (8.66%). The lakes with > 5 ha (19.45%) are dominated by Other Glacial Erosion lakes (58.45%) followed by Cirque Erosion lake (14.85%) and Other Moraine Dammed lake (11.62%). All types of Moraine-dammed glacial lakes, which constitute about 18.99% are predominantly with < 5 ha in water spread.

Table 8: Area range-wise vs. Type-wise distribution of GL in Brahmaputra River basin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	6	6	1	718	153	0	13	0	2,324	406	3,627
2	0.5 - 1	12	6	1	743	75	1	46	0	2,636	336	3,856
3	1 - 5	93	17	0	1,151	38	1	364	0	4,839	513	7,016
4	5 - 10	78	3	0	236	4	0	250	0	1,092	86	1,749
5	10 - 50	152	5	0	156	2	0	262	0	868	101	1,546
6	> 50	50	1	0	15	0	0	8	7	87	39	207
Total		**391**	**38**	**2**	**3,019**	**272**	**2**	**943**	**7**	**11,846**	**1,481**	**18,001**

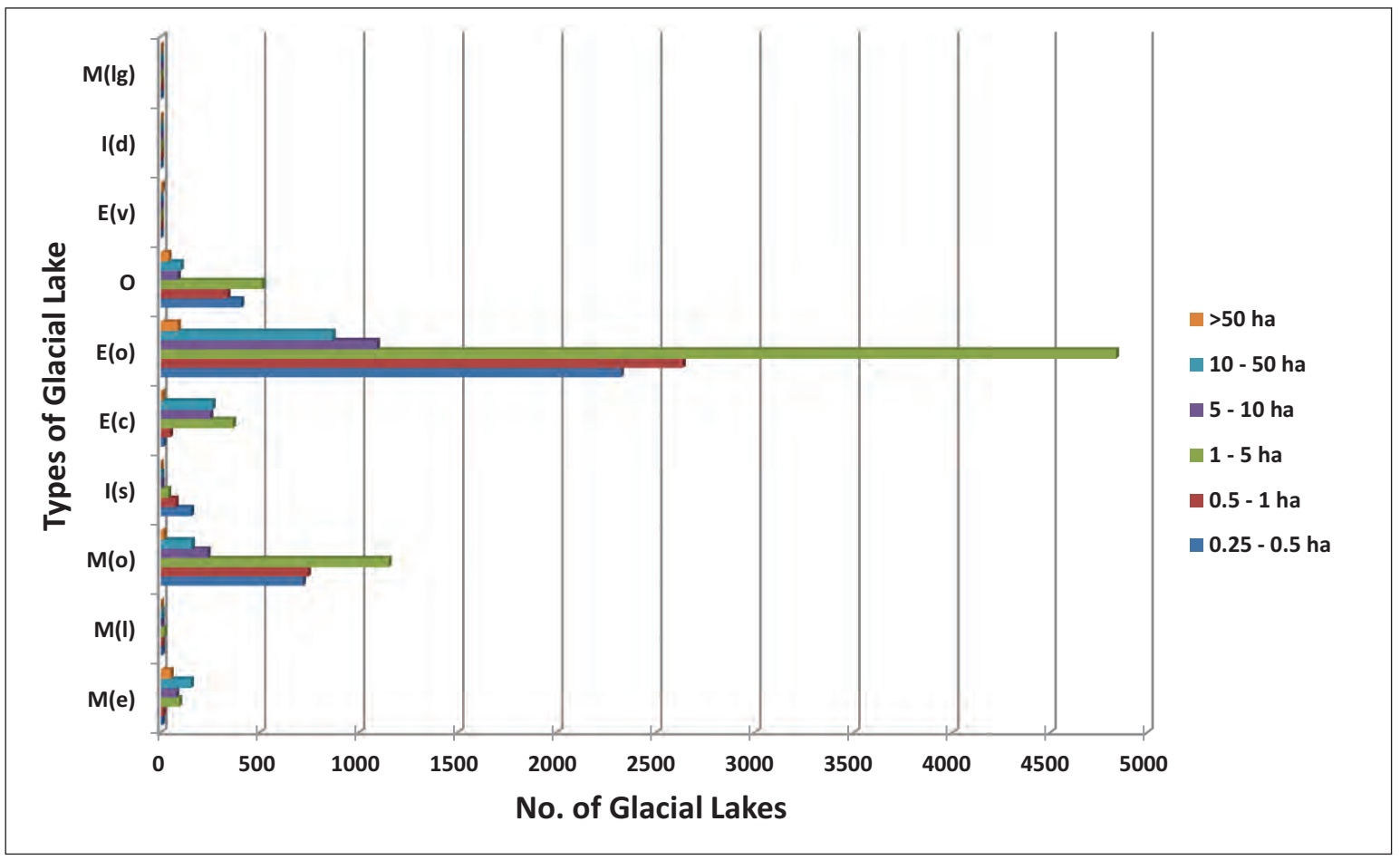


Figure 9: Area range-wise vs. Type-wise distribution of GL in Brahmaputra River basin

Elevation range-wise Distribution

Elevation ranges over the entire study area has been classified into four different categories viz., low altitude (up to 3,000 m), medium altitude (3,001 - 4,000 m), high altitude (4,001 - 5,000 m), and very high altitude (> 5,000 m). Table 9 and Figure 10 shows the distribution of the glacial lakes in the Brahmaputra basin as per elevation range-wise. Majority of glacial lakes are situated above 4,000 m elevation i.e. 16,802 (93.34%) with total lake area of 81,290.89 ha (87.41%) and remaining 6.66% glacial lakes are below 4,000 m elevation.

Table 9: Elevation range-wise distribution of GL in Brahmaputra River basin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	11	152.21	0.16
2	3,001 - 4,000	1,188	11,547.28	12.42
3	4,001 - 5,000	9,670	52,525.25	56.48
4	> 5,000	7,132	28,765.99	30.93
Total		**18,001**	**92,990.74**	**100.00**

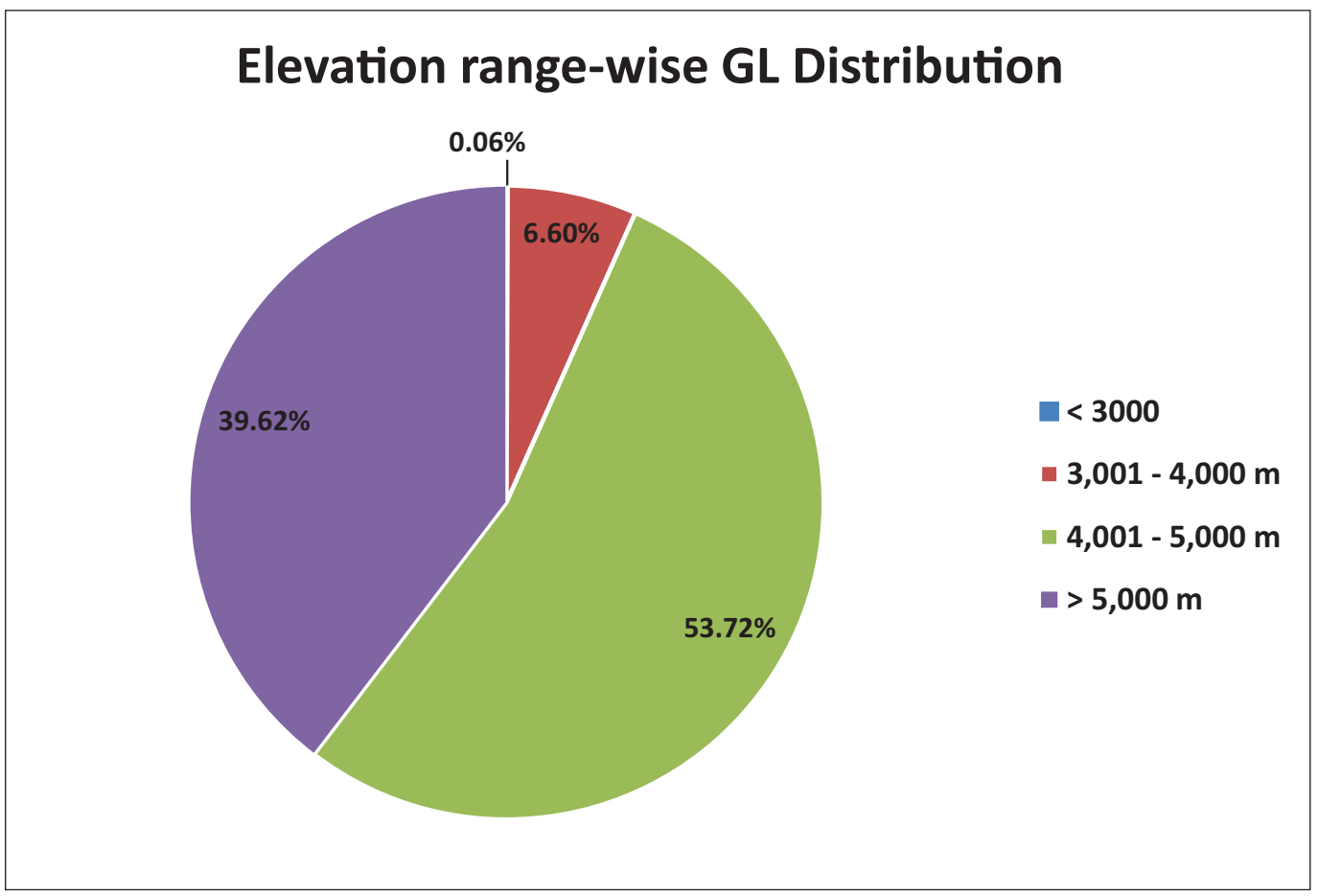


Figure 10: Elevation range-wise distribution of GL in Brahmaputra River basin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 10 and Figure 11. It is noted that, about 39.62% of glacial lakes (7,132) are situated in very high altitude range i.e. > 5,000 m amsl, which also constitutes total lake area within that range i.e. 30.93%. However, very few glacial lakes (11) lies below 3,000 m amsl, has maximum of its lakes with 10 - 50 ha lake area range. Figure 11 shows that maximum of lakes lying in very high altitude range is of size ranging 1 - 5 ha (i.e. 2,728), followed by lakes in high altitude range within in 1 - 5 ha (i.e. 3,772).

Table 10: Area range-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	98	36.60	1,824	655.23	1,705	603.00	3,627	1,294.83
2	0.5 - 1	1	0.64	124	90.74	1,966	1,417.19	1,765	1,263.30	3,856	2,771.84
3	1 - 5	3	10.07	513	1,299.91	3,772	8,855.14	2,728	6,150.52	7,016	16,315.71
4	5 - 10	1	5.77	219	1,576.08	1,035	7,306.45	494	3,460.51	1,749	12,348.79
5	10 - 50	6	135.75	209	4,288.89	952	18,351.30	379	7,264.24	1,546	30,040.25
6	> 50	0	0.00	25	4,255.00	121	15,939.70	61	10,024.36	207	30,219.32
Total		**11**	**152.21**	**1,188**	**11,547.28**	**9,670**	**52,525.25**	**7,132**	**28,765.99**	**18,001**	**92,990.74**

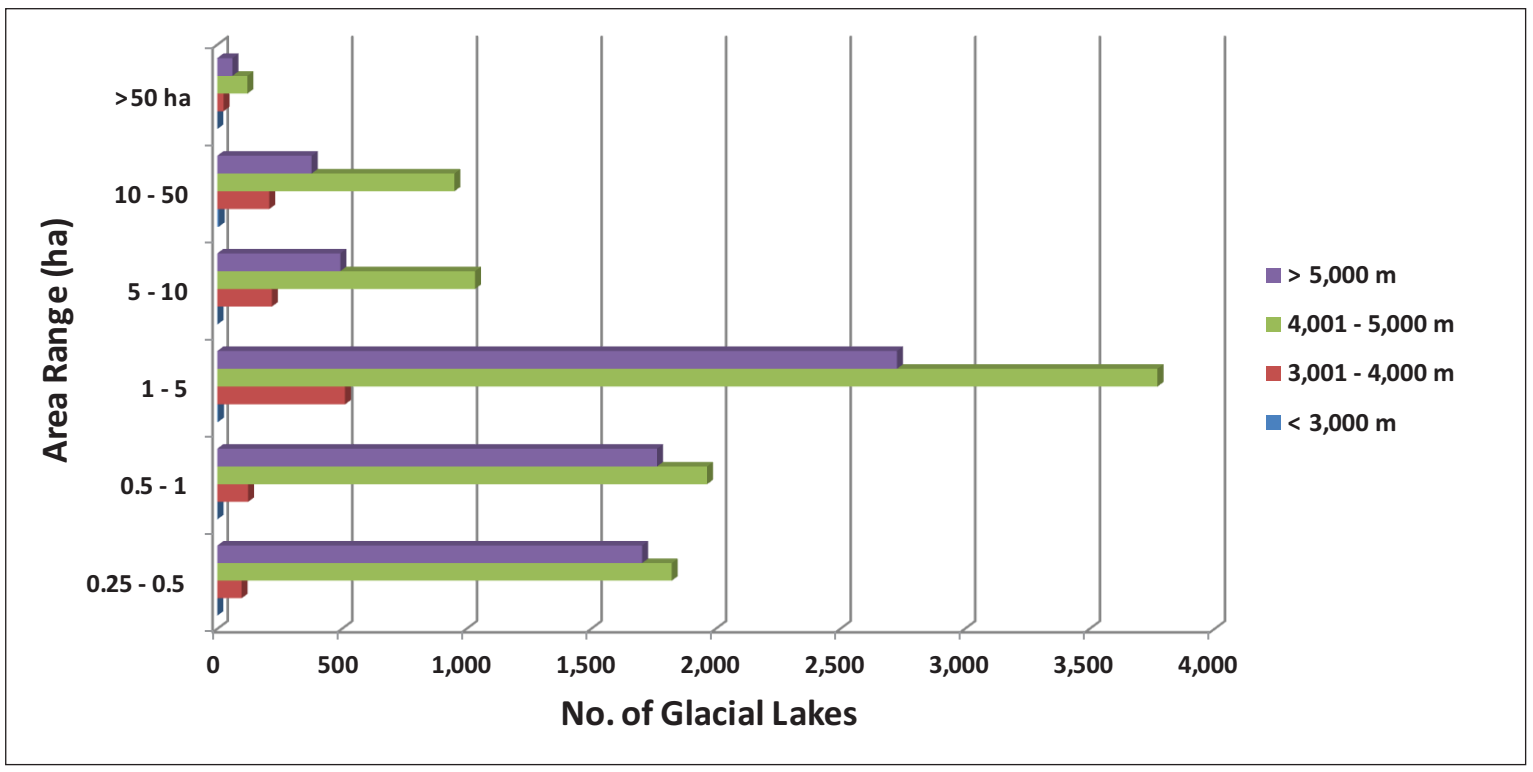


Figure 11: Area range-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

Type-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per type-wise vs. elevation range-wise, given in Table 11 and Figure 12. The dominant lake type in the basin i.e., Other Glacial Erosion lakes (65.81%) are predominantly located in the elevation range of 4,001 - 5,000 m (60.20%). The two other dominant lake types, namely, Other Moraine Dammed and Other Glacial lakes are mostly distributed in both 4,001 - 5,000 m and > 5,000 m elevation ranges. 72.98% of Moraine-dammed glacial lakes, which constitute 13.98% of the total lakes, lies in the very high altitude range of > 5,000 m amsl. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 13.

Table 11: Type-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

S.No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	4	0	0	0	0	4	3	11
2	3,001 - 4,000	11	0	0	26	16	0	158	2	869	106	1,188
3	4,001 - 5,000	147	25	1	718	159	0	687	4	7,131	798	9,670
4	> 5,000	233	13	1	2,271	97	2	98	1	3,842	574	7,132
Total		**391**	**38**	**2**	**3,019**	**272**	**2**	**943**	**7**	**11,846**	**1,481**	**18,001**

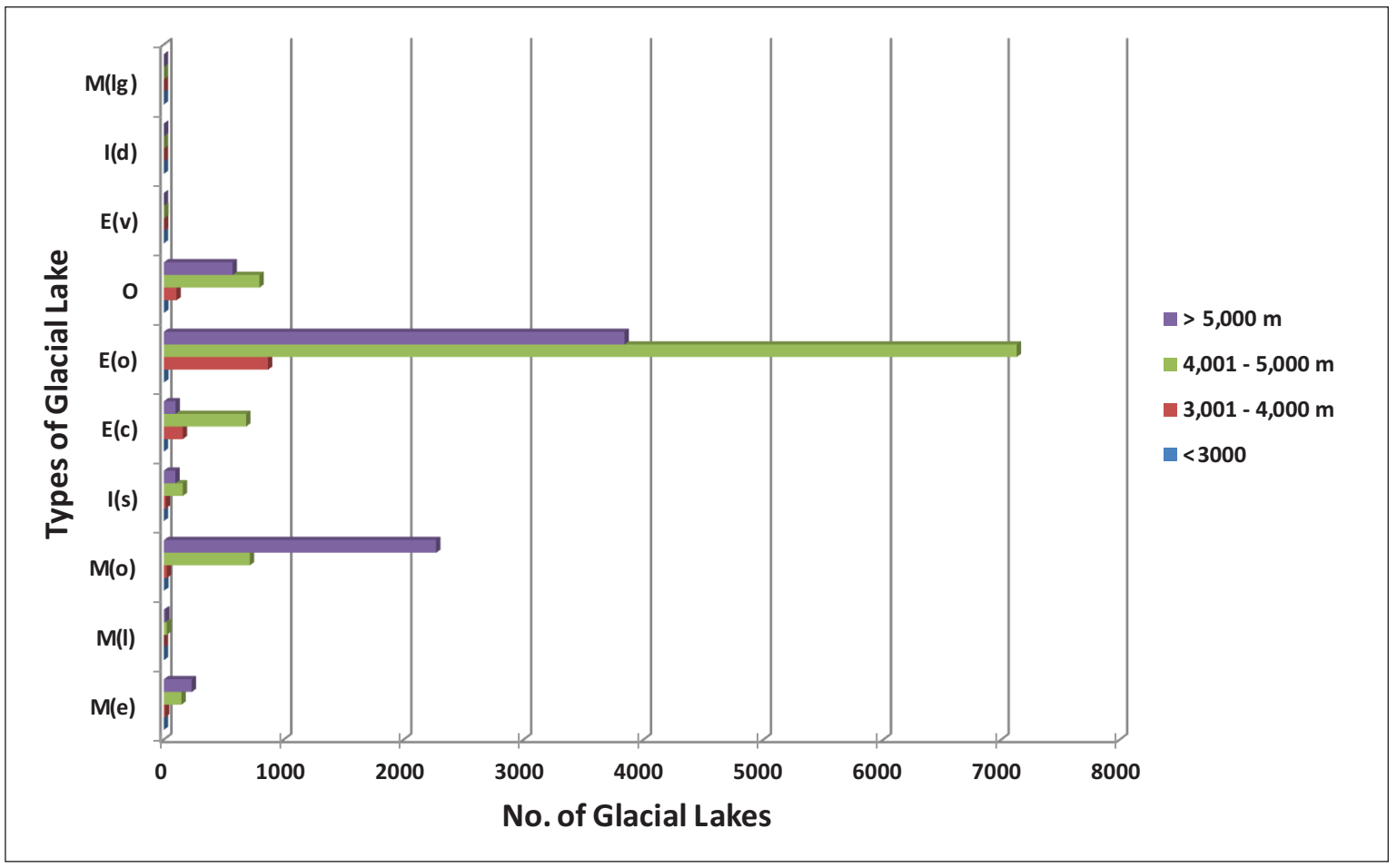


Figure 12: Type-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

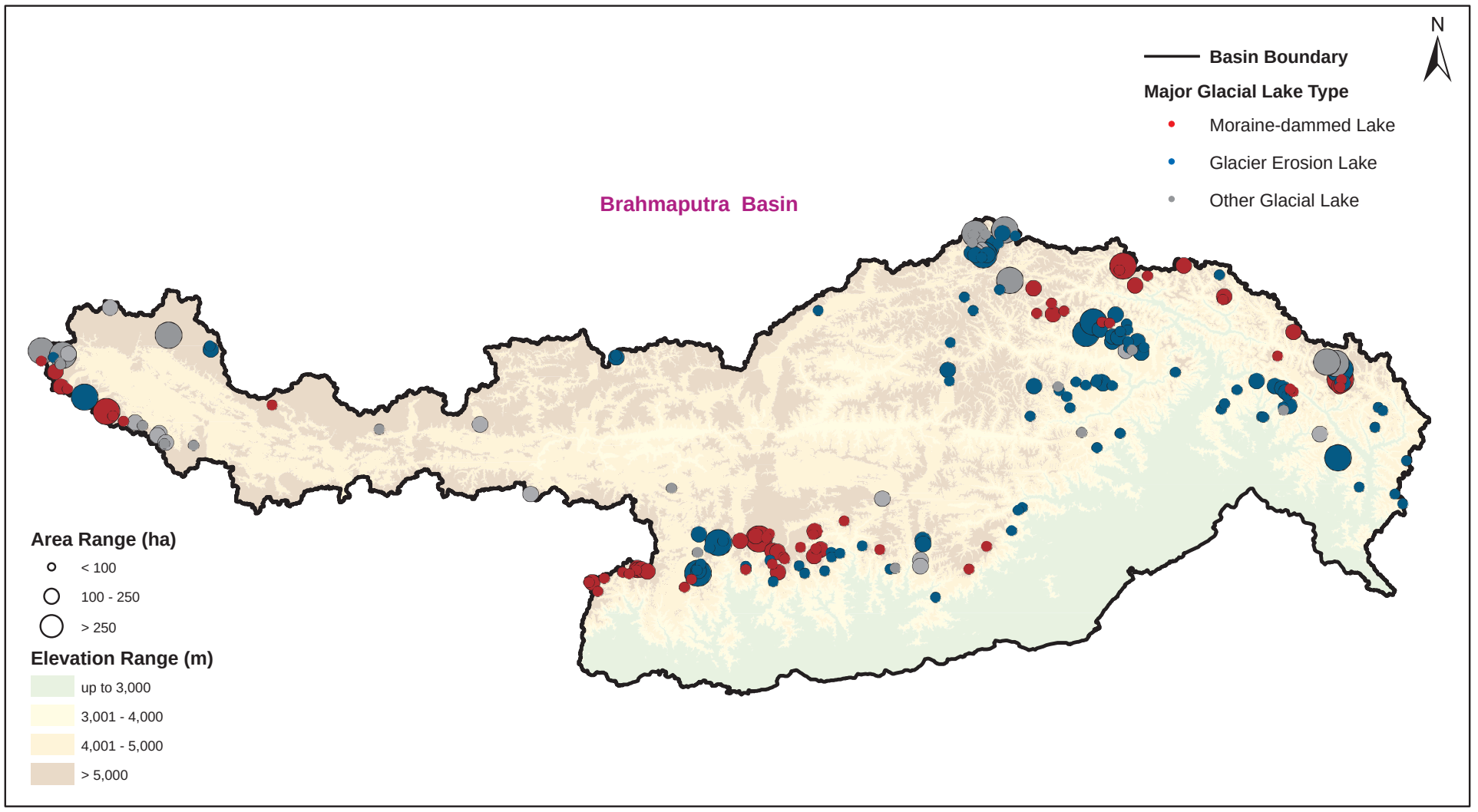


Figure 13: Elevation range-Type-wise spatial distribution of GL in Brahmaputra River basin

5.2 Subbasin-Wise Statistics

5.2.1 Amo Chu Subbasin

The Amo Chu subbasin of the Brahmaputra River basin is the eleventh largest subbasin amongst all, covering a total area of 9,829 Km^2 i.e. 2.46% of the total basin area (Figure 14). The Amo Chu as known as Torsa River originates in Tibet with two main tributaries, the Torsa river, and the Wong Chu, all flowing south. It drains about 16,000 sq.km of Tibetan territory before entering Bhutan, where it flows southeast for about 170 km and then enters the Indian flood plains of West Bengal near Phuntsholing (a border town of Bhutan). A total of 513 glacial lakes has been mapped, covering a total area of 1,565.46 ha i.e. 0.15% of the total area of the subbasin.

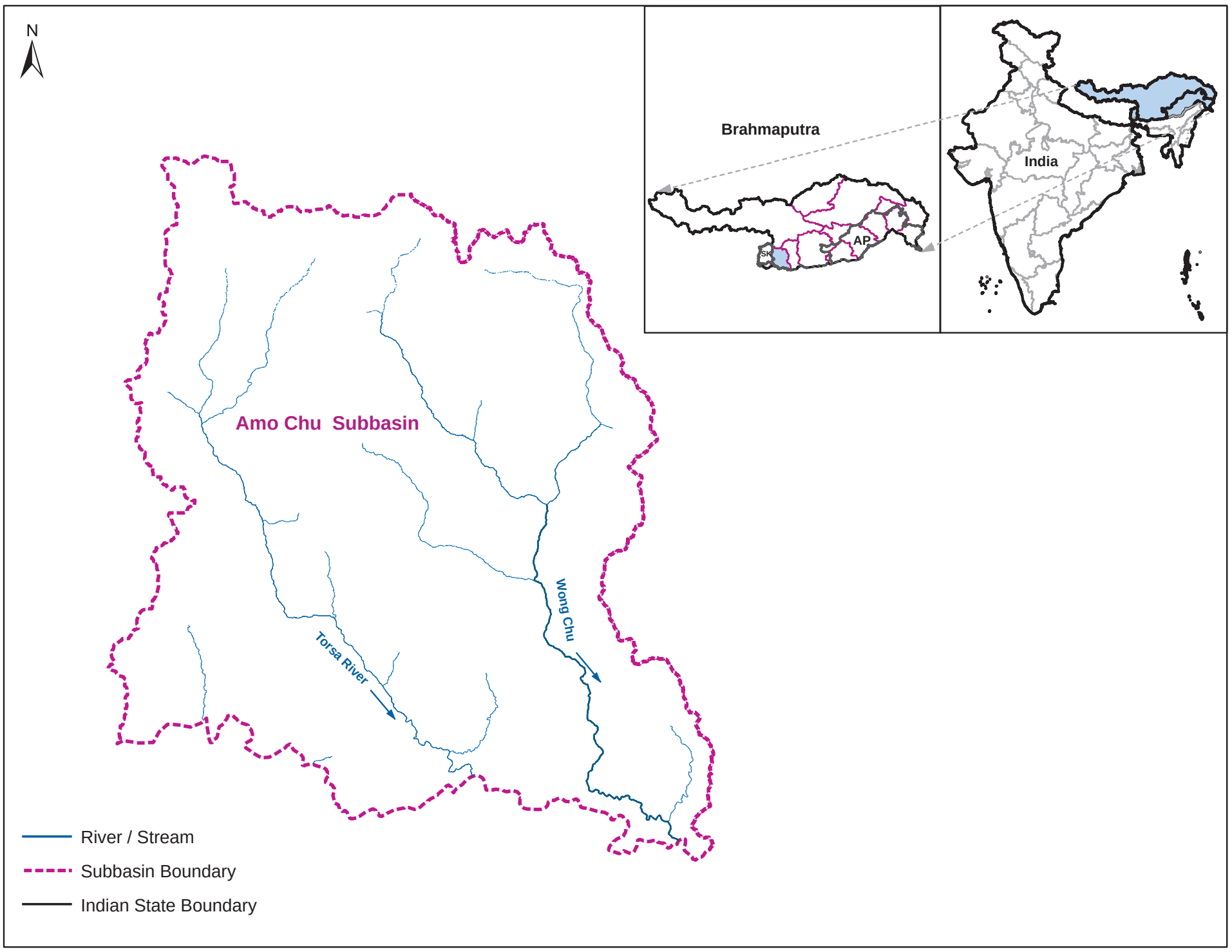


Figure 14: Location map of the Amo Chu subbasin

Area range-wise Distribution

In Amo Chu subbasin, glacial lakes has been distributed in all 6 different classes of area ranges viz., 0.25 - 0.5 ha, 0.5 - 1 ha, 1 - 5 ha, 5 - 10 ha, 10 - 50 ha and > 50 ha. Table 12 and Figure 15 shows the area-wise distribution of glacial lakes for the Amo Chu subbasin. About 437 (85.19%) lakes are with < 5 ha lake area contributing to 36.78% of total lake area. The remaining lakes with > 5 ha in size are only 76 (14.81%) but contributing to 63.22% of total lake area in the subbasin.

Table 12: Area range-wise distribution of GL in Amo Chu subbasin

S.No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	111	37.82	2.42
2	0.5 - 1	130	94.31	6.02
3	1 - 5	196	443.69	28.34
4	5 - 10	43	297.44	19.00
5	10 - 50	32	639.52	40.85
6	> 50	1	52.68	3.37
Total		**513**	**1,565.46**	**100.00**

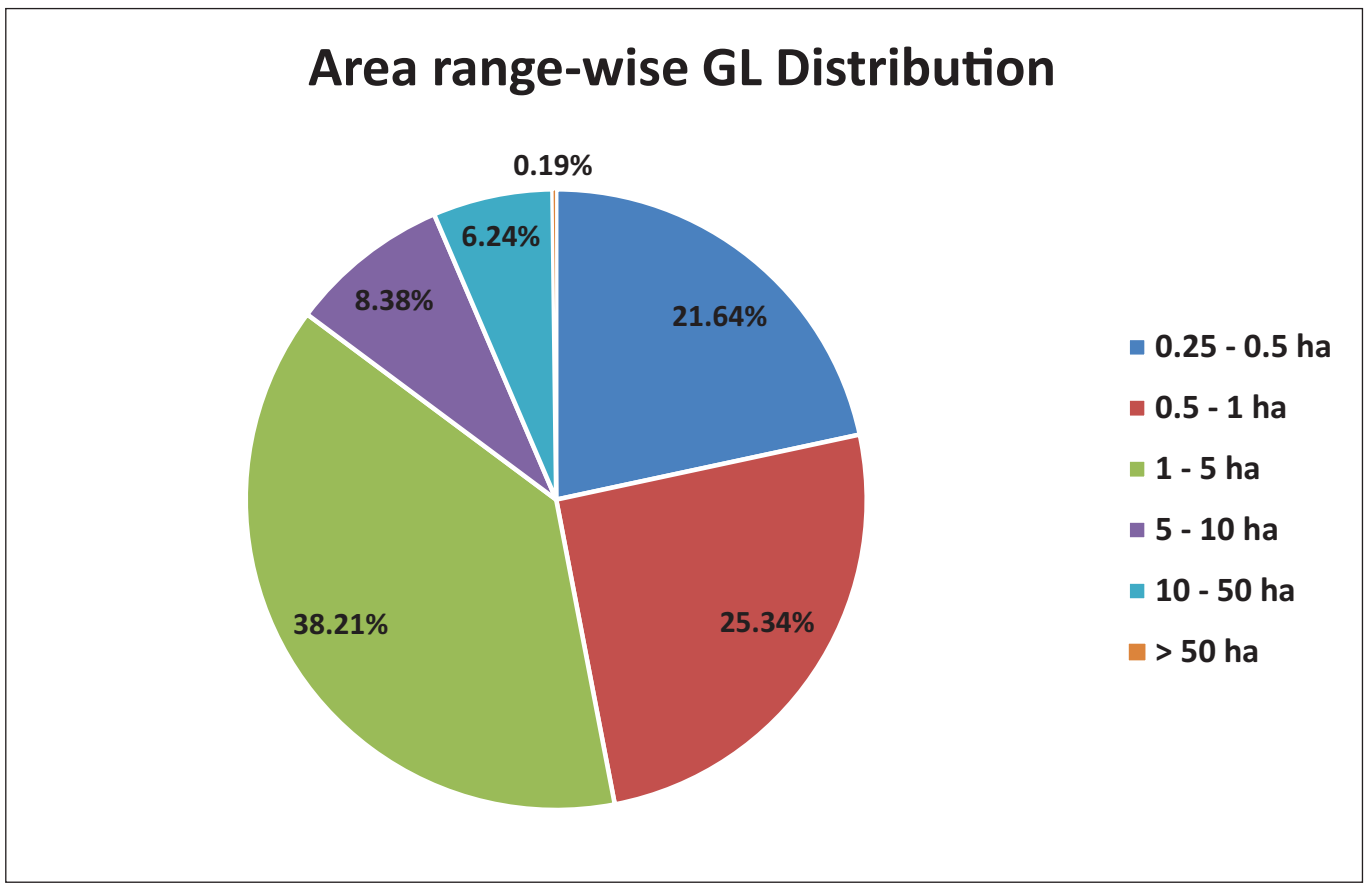


Figure 15: Area range-wise distribution of GL in Amo Chu subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Amo Chu subbasin is given in Table 13 and Figure 16. Out of 10, 7 types of glacial lakes are present in the Amo Chu subbasin, where Other Glacial Erosion lakes are found to be the maximum with 412 (80.31%) occupying a total lake extent of 943.57 ha at 60.27% in the subbasin. Cirque Erosion Lake are second majority of lakes i.e. 61 (11.89%) and extend over an area of 467.50 ha (29.86%).

Table 13: Type-wise distribution of GL in Amo Chu subbasin

S.No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	2	65.08	4.16
2	M(l)	Lateral Moraine Dammed Lake	4	8.37	0.53
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	27	75.33	4.81
5	I(s)	Supra-glacial Lake	5	3.31	0.21
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	61	467.50	29.86
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	412	943.57	60.27
10	O	Other Glacial Lake	2	2.30	0.15
Total			**513**	**1,565.46**	**100.00**

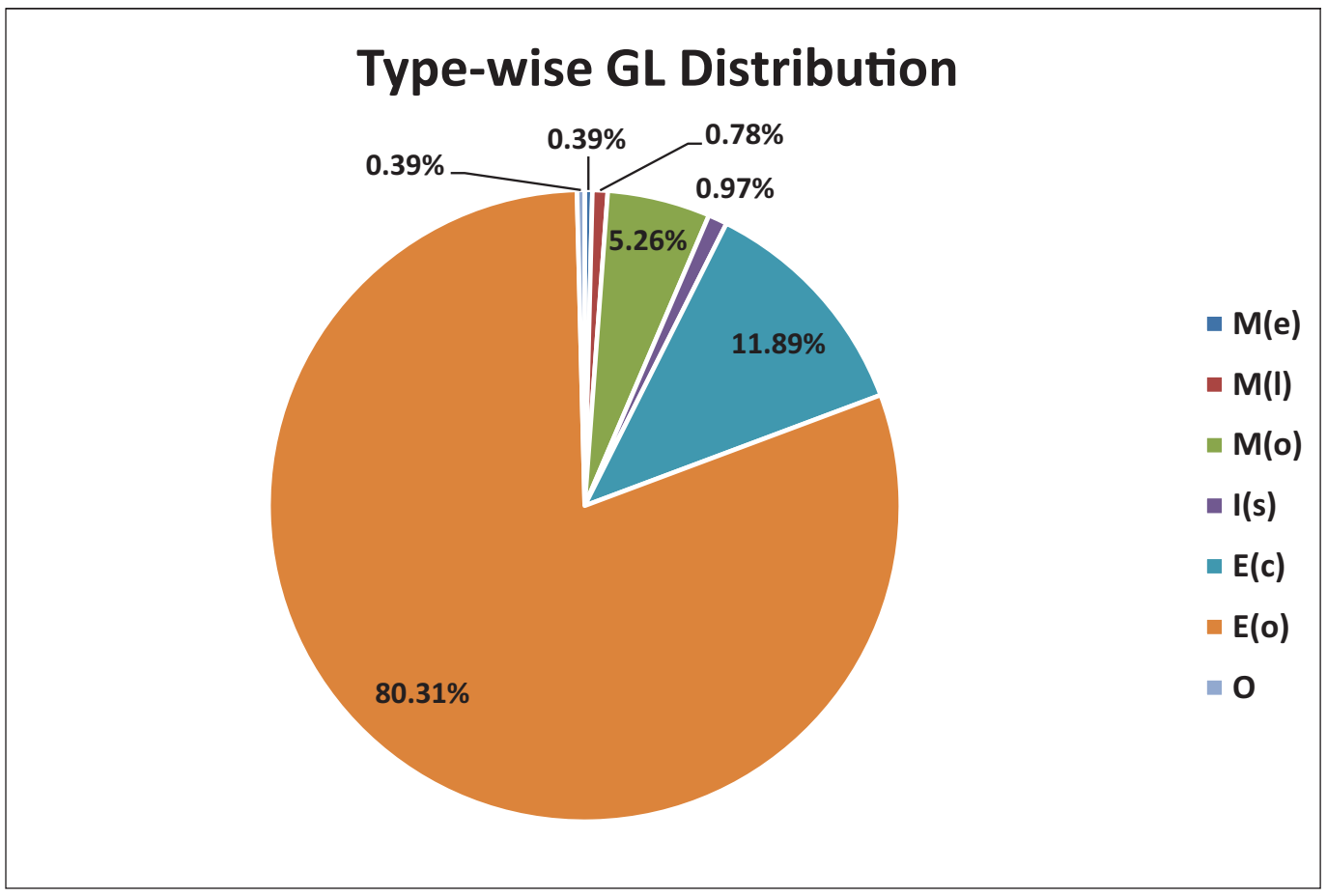


Figure 16: Type-wise distribution of GL in Amo Chu subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 14 and Figure 17. The lakes with < 5 ha in size (85.19%) are dominated by Other Glacial Erosion lake (80.31%) followed by Cirque Erosion lake type (11.89%). Lakes with > 5 ha (14.81%) are dominated by Other Glacial Erosion lake (48.68%) followed by Cirque Erosion lake type (44.74%). All types of Moraine-dammed lakes, which constitute about 6.43%, are predominantly with < 5 ha in water spread.

Table 14: Area range-wise vs. Type-wise distribution of GL in Amo Chu subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	3	2	0	0	0	106	0	111
2	0.5 - 1	0	1	0	6	2	0	5	0	116	0	130
3	1 - 5	0	3	0	15	1	0	22	0	153	2	196
4	5 - 10	0	0	0	1	0	0	19	0	23	0	43
5	10 - 50	1	0	0	2	0	0	15	0	14	0	32
6	> 50	1	0	0	0	0	0	0	0	0	0	1
Total		**2**	**4**	**0**	**27**	**5**	**0**	**61**	**0**	**412**	**2**	**513**

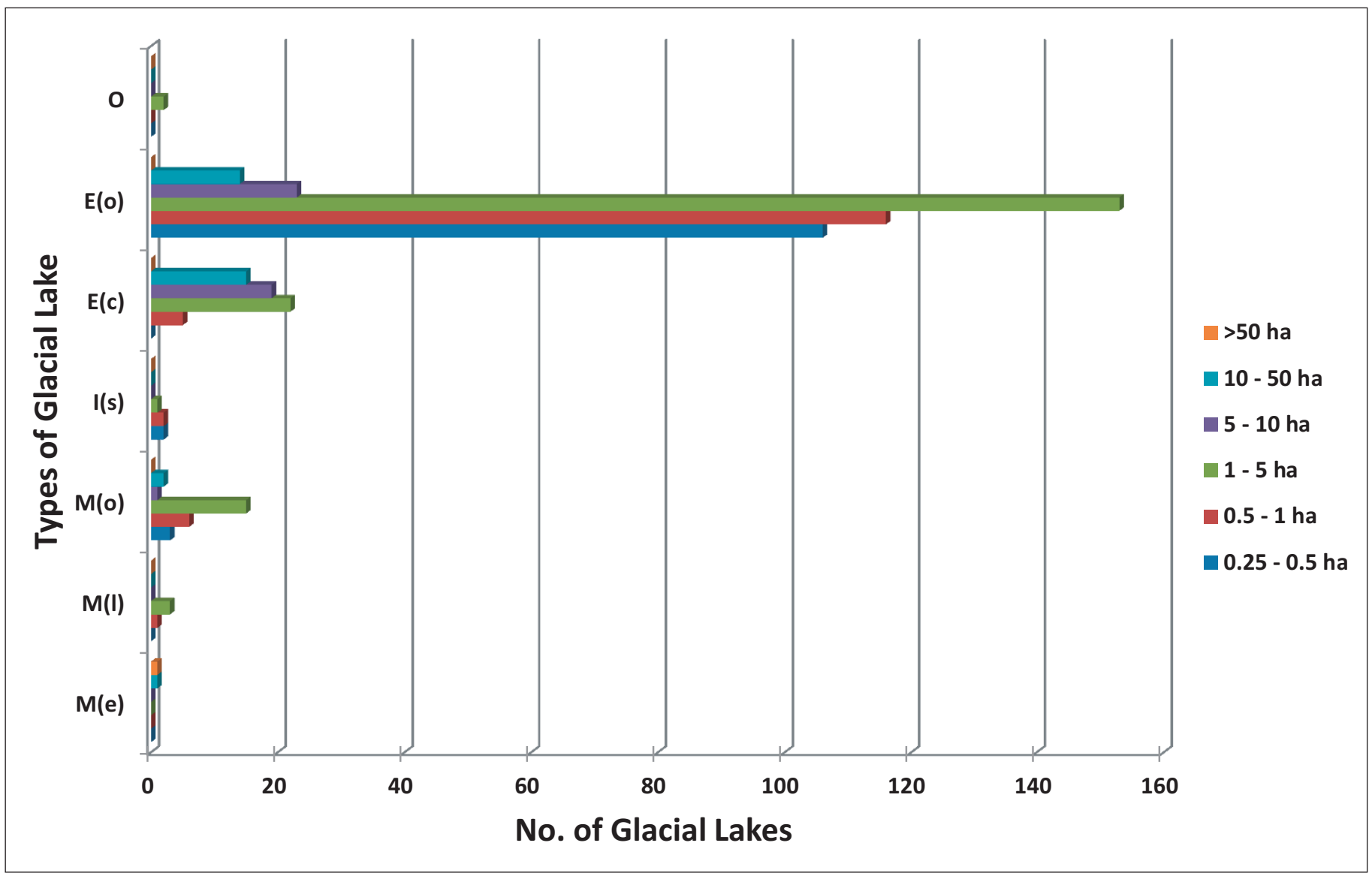


Figure 17: Area range-wise vs. Type-wise distribution of GL in Amo Chu subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Amo Chu subbasin has been shown in Table 15 and Figure 18. Majority of glacial lakes are situated above 4,000 m elevation i.e. 496 (96.69%) with total lake area of 1,460.94 ha (93.31%) and remaining 3.31% glacial lakes are below 4,000 m elevation.

Table 15: Elevation range-wise distribution of GL in Amo Chu subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	17	104.52	6.68
3	4,001 - 5,000	462	1,350.92	86.28
4	> 5,000	34	110.02	7.03
Total		**513**	**1,565.46**	**100.00**

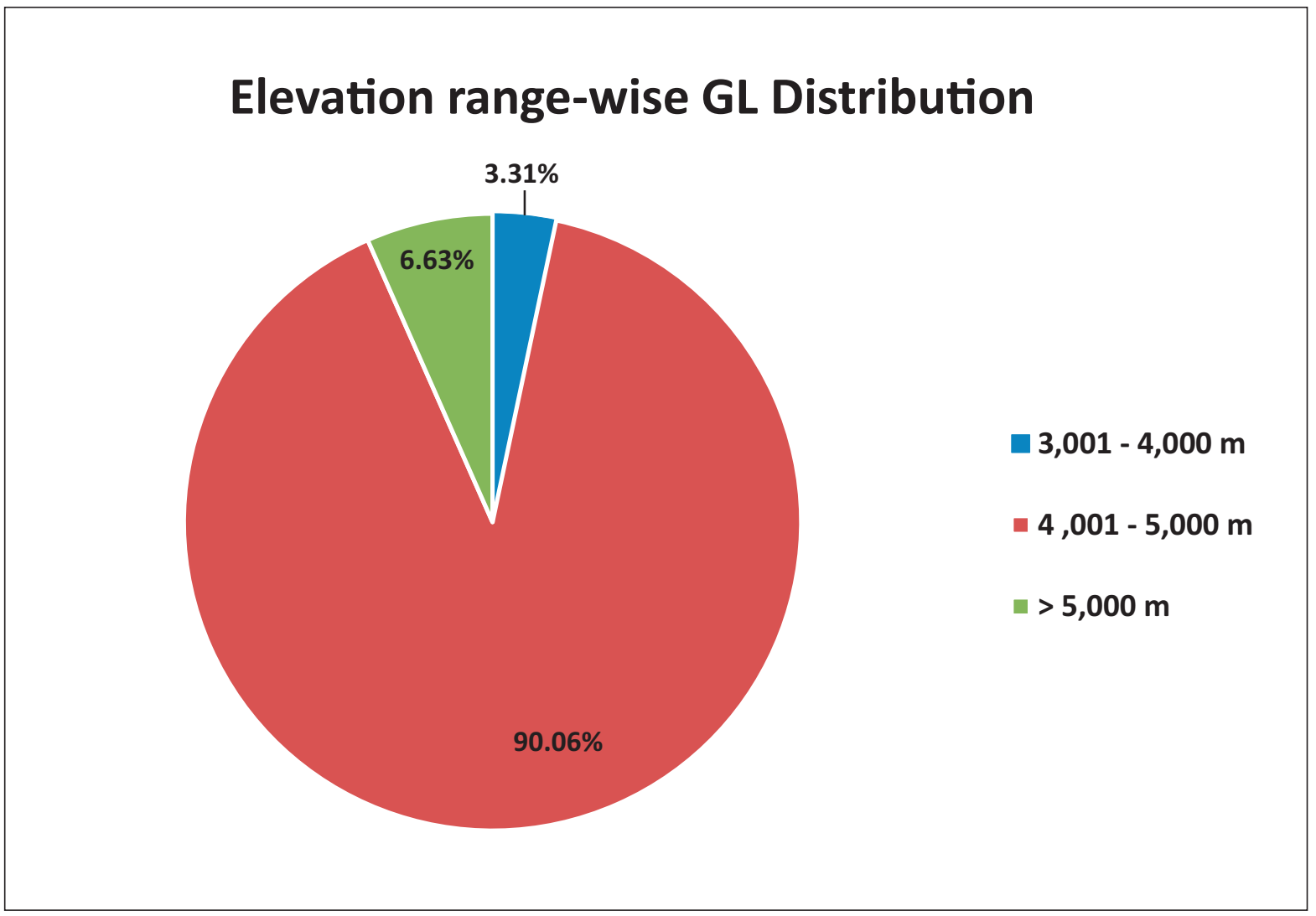


Figure 18: Elevation range-wise distribution of GL in Amo Chu subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 16 and Figure 19. It is noted that, 96.69% of glacial lakes (496) are situated above high altitude range i.e. > 4,000 m amsl, which constitutes 93.32% of total lake area. However, few glacial lakes (17) lies below 4,001 m, which are within 0.25 - 50 ha lake area range. Maximum of lakes lying in very high altitude range is of size ranging 1 - 5 ha (i.e. 196), followed by lakes of size 0.5 - 1 ha (i.e. 130).

Table 16: Area range-wise vs. Elevation range-wise distribution of GL in Amo Chu subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	1	0.35	99	33.84	11	3.63	111	37.82
2	0.5 - 1	0	0.00	0	0.00	122	88.40	8	5.91	130	94.31
3	1 - 5	0	0.00	9	25.18	175	393.48	12	25.04	196	443.69
4	5 - 10	0	0.00	5	35.39	37	255.69	1	6.36	43	297.44
5	10 - 50	0	0.00	2	43.60	29	579.51	1	16.40	32	639.52
6	> 50	0	0.00	0	0.00	0	0.00	1	52.68	1	52.68
Total		**0**	**0.00**	**17**	**104.52**	**462**	**1,350.92**	**34**	**110.02**	**513**	**1,565.46**

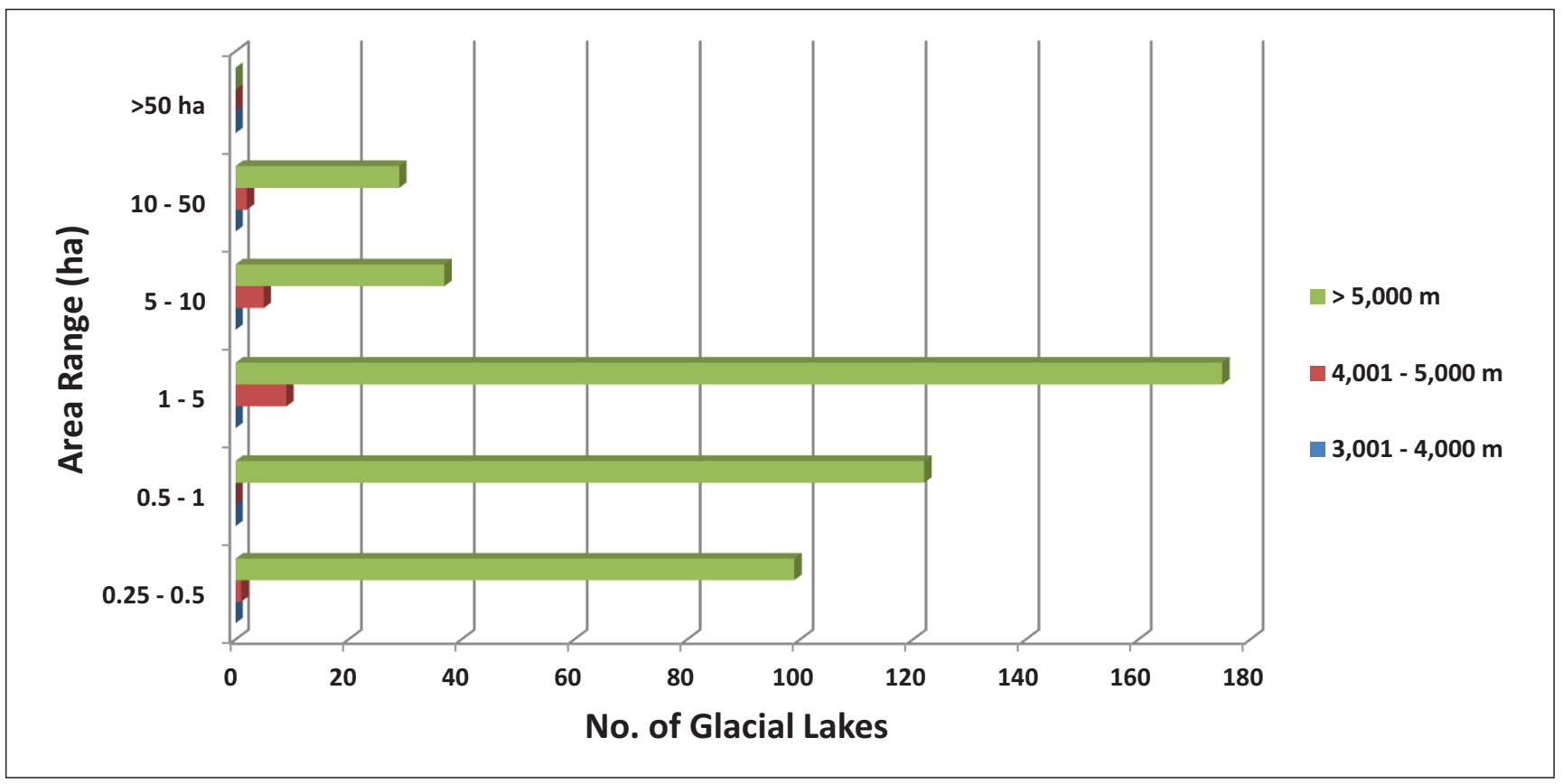


Figure 19: Area range-wise vs. Elevation range-wise distribution of GL in Amo Chu subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 17 and Figure 20. The dominant lake types in the basin i.e., Other Glacial Erosion lakes (80.31%) are predominantly located in the elevation range of > 4,000 m (96.69%). The other dominant lake type, namely, Cirque Erosion lakes are also distributed in > 4,000 m elevation range which constitutes 11.89% of the total lakes. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 21.

Table 17: Type-wise vs. Elevation range-wise distribution of GL in Amo Chu subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	3	0	14	0	17
3	4,001 - 5,000	1	4	0	17	3	0	55	0	380	2	462
4	> 5,000	1	0	0	10	2	0	3	0	18	0	34
Total		**2**	**4**	**0**	**27**	**5**	**0**	**61**	**0**	**412**	**2**	**513**

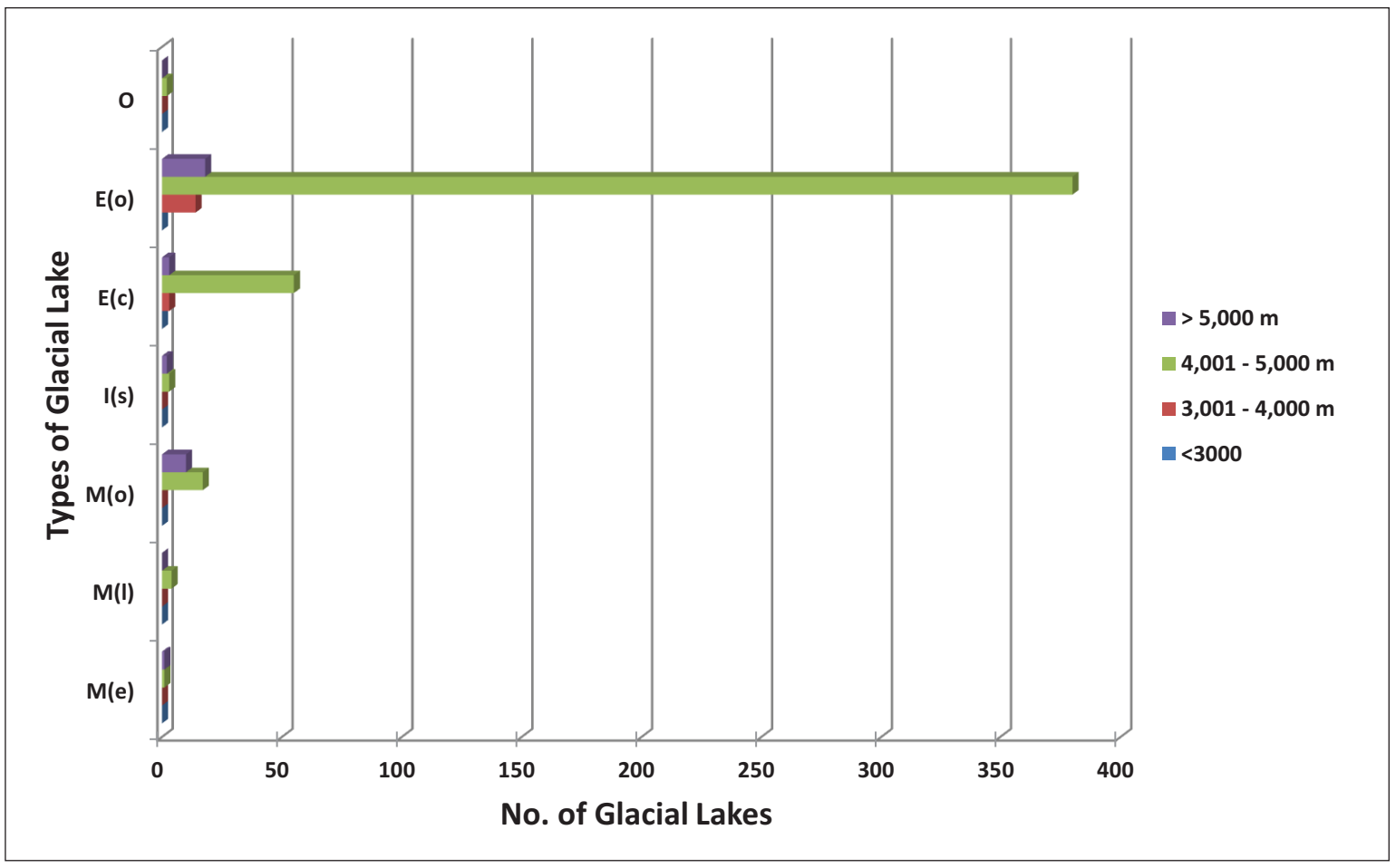


Figure 20: Type-wise vs. Elevation range-wise distribution of GL in Amo Chu subbasin

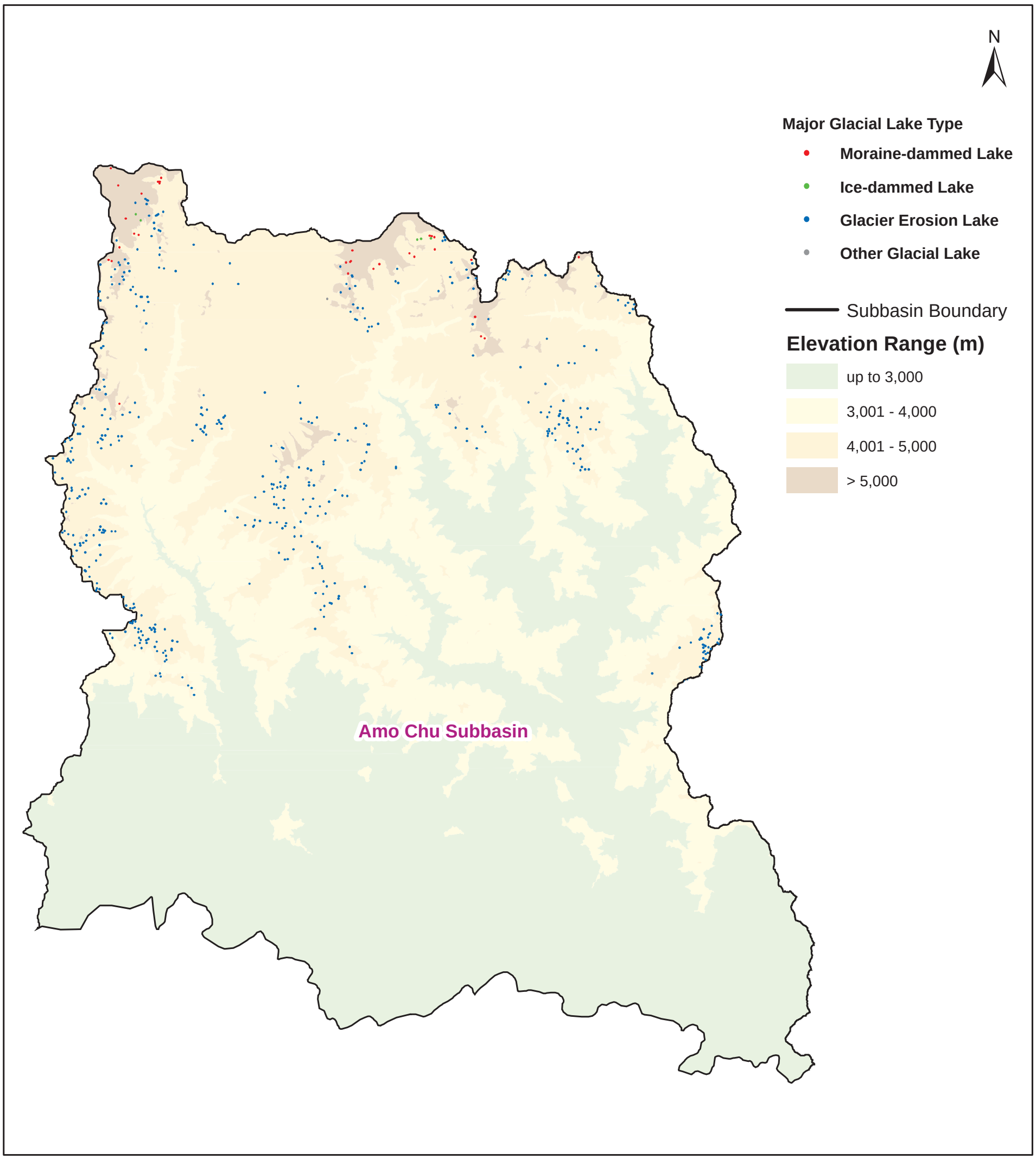


Figure 21: Elevation range-Type-wise spatial distribution of GL in Amo Chu subbasin

5.2.2 Dibang Subbasin

The Dibang subbasin is the Ninth Smallest subbasin of the Brahmaputra basin covering a total area of 12,238 Km^2 i.e. 3.06% of the total basin area (Figure 22). The Sisar, Mathun, Tangon, Dri, Ithun and Emra are the major tributaries of the Dibang. It is an upstream tributary river of the Brahmaputra that originates and flows through the Mishmi Hills from the state of Arunachal Pradesh and Nyingchi Prefecture in the Tibet Autonomous Region. A total of 772 glacial lakes has been mapped, covering a total area of 6,566.10 ha i.e. 0.53% of the total area of the subbasin.

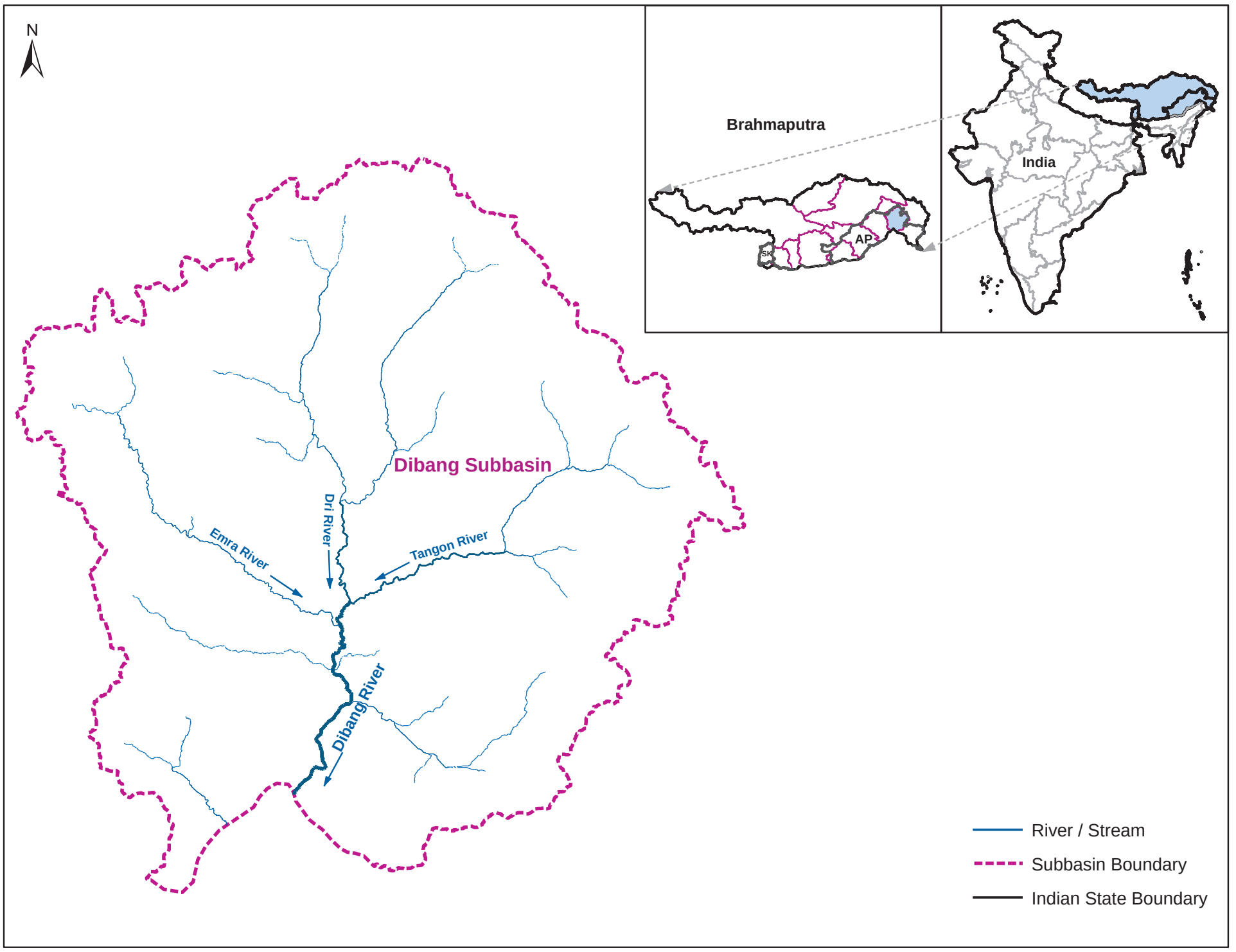


Figure 22: Location map of the Dibang subbasin

Area range-wise Distribution

In Dibang subbasin, glacial lakes have been distributed in all 6 classes of area ranges. Table 18 and Figure 23 shows the area range-wise distribution of glacial lakes for the Dibang subbasin. About 440 (56.99%) lakes are with < 5 ha lake area contributing to 14.78% of total lake area. The remaining lakes with > 5 ha in size are only 332 (43.01%) contributing to 85.22% of total lake area in the subbasin.

Table 18: Area range-wise distribution of GL in Dibang subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	24	9.90	0.15
2	0.5 - 1	82	60.95	0.93
3	1 - 5	334	899.70	13.70
4	5 - 10	144	1,030.44	15.69
5	10 - 50	175	3,532.30	53.80
6	> 50	13	1,032.81	15.73
Total		**772**	**6,566.10**	**100.00**

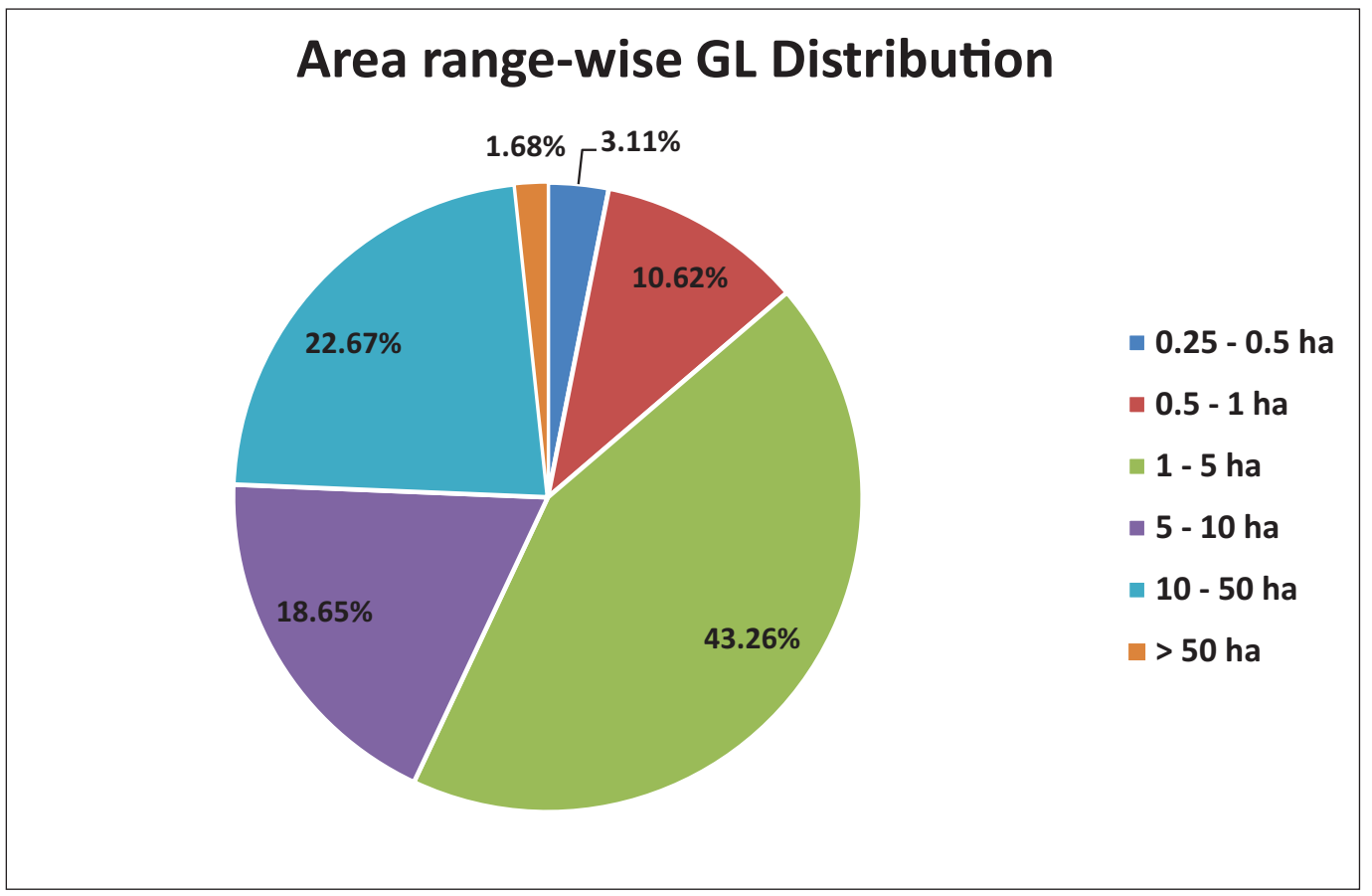


Figure 23: Area range-wise distribution of GL in Dibang subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Dibang subbasin is given in Table 19 and Figure 24. Out of 10 types of glacial lakes, 5 types of lake are present in the Dibang subbasin, where Other Glacial Erosion lakes are found to be the maximum with 601 (77.85%) occupying a total lake extent of 4,319.31 ha at 65.78% in the subbasin. After that, Other Cirque Erosion lakes are in majority with 141 (18.26%) and extend over a total area of 1,750.15 ha (26.65%). All Moraine Dammed lakes covers about 0.49% of entire area in the subbasin.

Table 19: Type-wise distribution of GL in Dibang subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	1	4.29	0.07
2	M(l)	Lateral Moraine Dammed Lake	0	0.00	0.00
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	1	27.72	0.42
5	I(s)	Supra-glacial Lake	0	0.00	0.00
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	141	1,750.15	26.65
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	601	4,319.31	65.78
10	O	Other Glacial Lake	28	464.63	7.08
Total			**772**	**6,566.10**	**100.00**

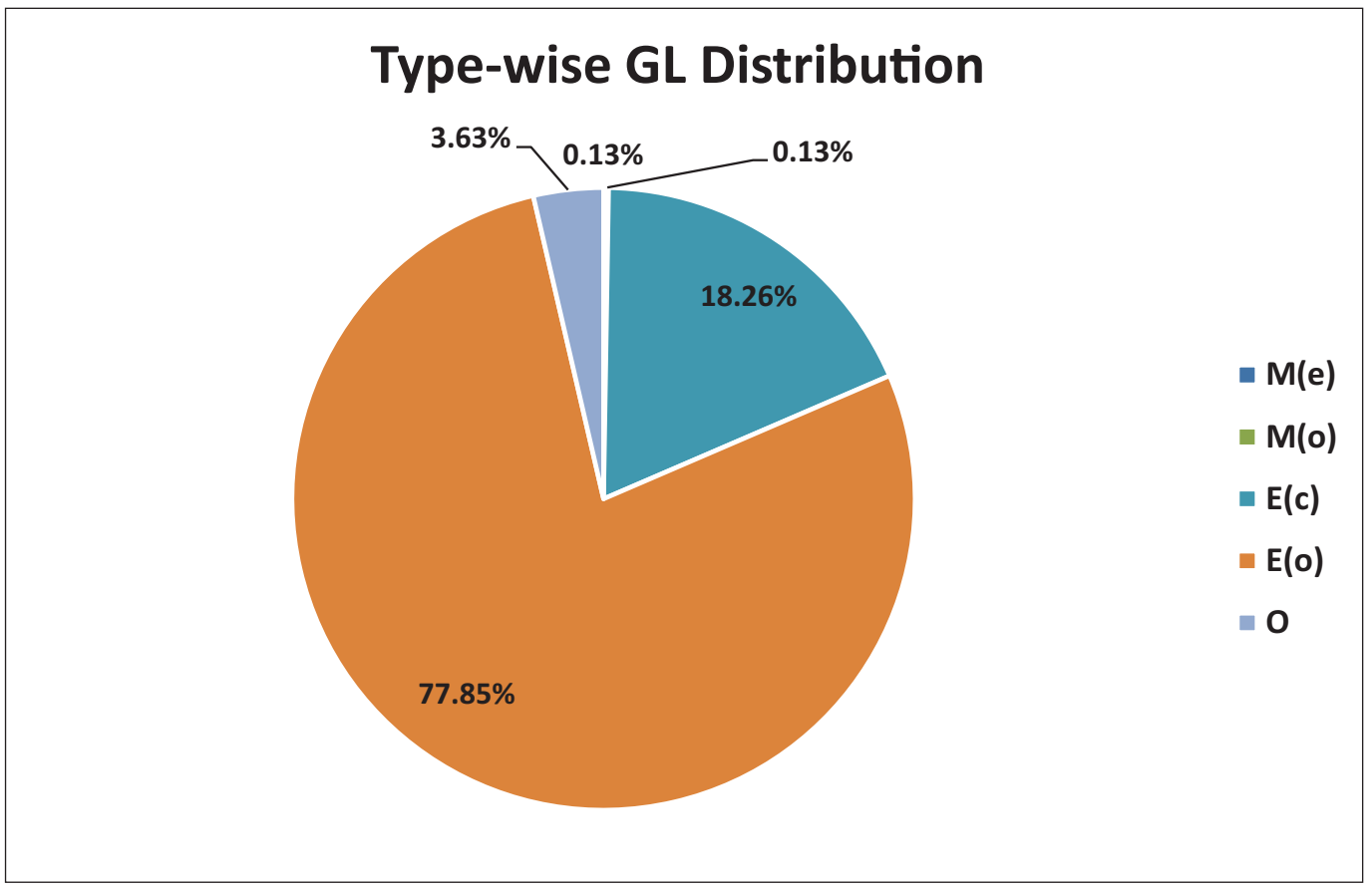


Figure 24: Type-wise distribution of GL in Dibang subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 20 and Figure 25. The lakes with < 5 ha in size (56.99%) are dominant with Other Glacial Erosion Lakes (87.50%) and Cirque Erosion lakes (8.86%). Lakes with > 5 ha (43.01%) are dominated by Other Glacial Erosion Lakes (65.06%). Out of 772, 742 are all types of Glacier Erosion lakes contributes to about 96.11%.

Table 20: Area range-wise vs. Type-wise distribution of GL in Dibang subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(c)	E(o)	O	
1	0.25 - 0.5	0	0	0	0	0	0	1	0	20	3	24
2	0.5 - 1	0	0	0	0	0	0	1	0	80	1	82
3	1 - 5	1	0	0	0	0	0	37	0	285	11	334
4	5 - 10	0	0	0	0	0	0	39	0	103	2	144
5	10 - 50	0	0	0	1	0	0	62	0	103	9	175
6	> 50	0	0	0	0	0	0	1	0	10	2	13
Total		**1**	**0**	**0**	**1**	**0**	**0**	**141**	**0**	**601**	**28**	**772**

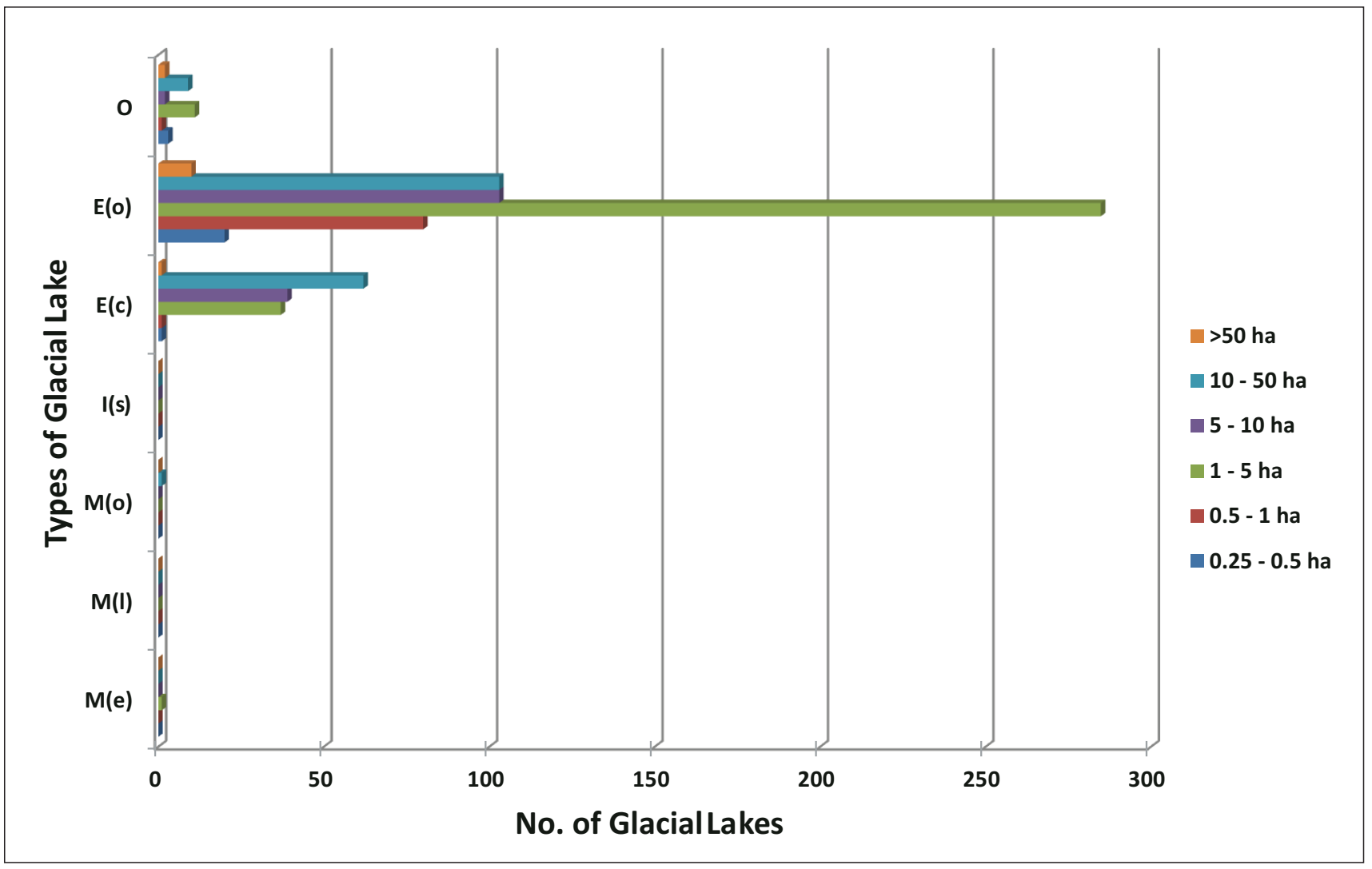


Figure 25: Area range-wise vs. Type-wise distribution of GL in Dibang subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Dibang subbasin has been shown in Table 21 and Figure 26. Majority of glacial lakes are situated above 3,000 m elevation range i.e. 770 (99.74%) with total lake area of 6,538.64 ha (99.58%) and remaining only 0.26% glacial lakes are below 3,000 m elevation.

Table 21: Elevation range-wise distribution of GL in Dibang subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	2	27.46	0.42
2	3,001 - 4,000	405	3,586.02	54.61
3	4,001 - 5,000	365	2,952.62	44.97
4	> 5,000	0	0.00	0.00
Total		**772**	**6,566.10**	**100.00**

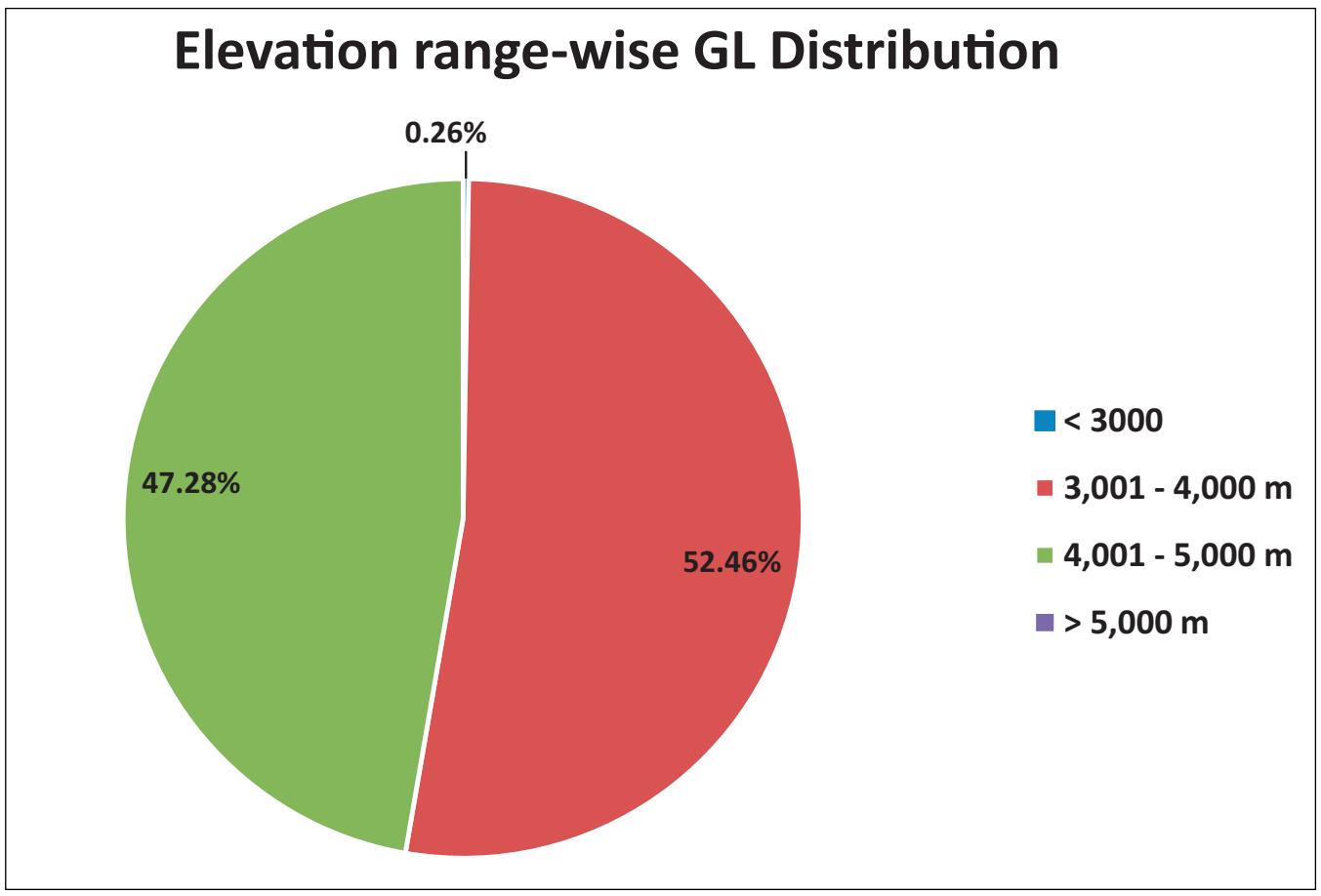


Figure 26: Elevation range-wise distribution of GL in Dibang subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 22 and Figure 27. It is noted that, 52.46% of glacial lakes (405) are situated in altitude range of 3,001 - 4,000 m amsl, which constitutes a total lake area of 54.61%. However, majority of glacial lakes (334) of size < 5 ha lies in the range of 3,001 - 4,000 m. It has been further noticed that, no lakes are lying at very high altitude of > 5,000 m.

Table 22: Area range-wise vs. Elevation range-wise distribution of GL in Dibang subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	13	5.34	11	4.56	0	0.00	24	9.90
2	0.5 - 1	0	0.00	34	25.03	48	35.92	0	0.00	82	60.95
3	1 - 5	0	0.00	178	485.06	156	414.64	0	0.00	334	899.70
4	5 - 10	0	0.00	81	594.52	63	435.92	0	0.00	144	1,030.44
5	10 - 50	2	27.46	90	1,778.56	83	1,726.28	0	0.00	175	3,532.30
6	> 50	0	0.00	9	698.00	4	335.00	0	0.00	13	1,032.81
Total		**2**	**27.46**	**405**	**3,586.02**	**365**	**2,952.62**	**0**	**0.00**	**772**	**6,566.10**

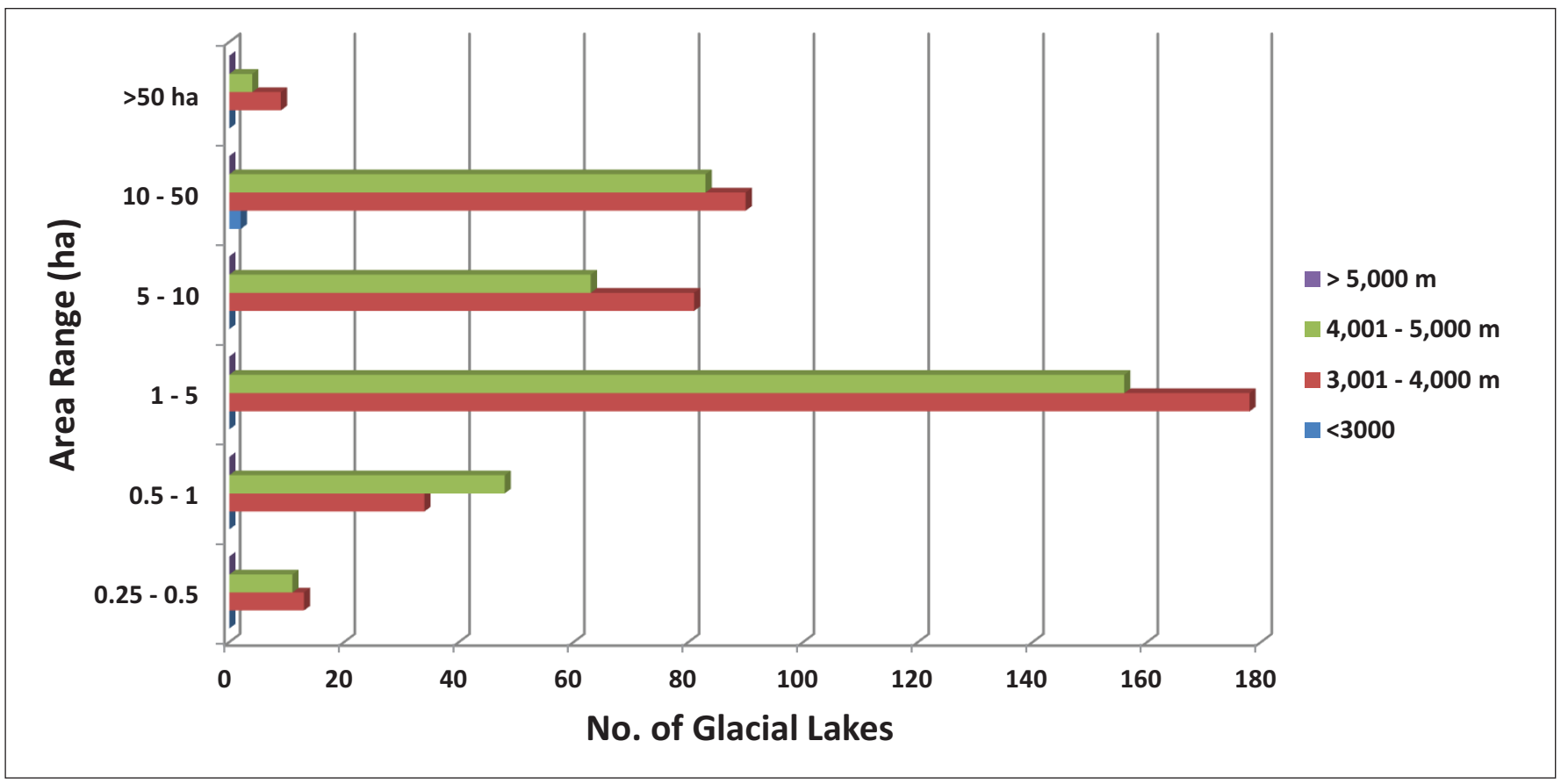


Figure 27: Area range-wise vs. Elevation range-wise distribution of GL in Dibang subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 23 and Figure 28. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (601) with 77.85% are predominantly located in the elevation range of 3,001 - 4,000 m (53.58%). The other dominant lake type, Cirque Erosion Lakes are distributed predominantly in 3,001 - 5,000 m and 4,001 - 5,000 m elevation ranges with 40.43% and 59.57% respectively. Only 2 lakes of total Other Moraine-dammed Lakes lie above 4,000 m elevation. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 29.

Table 23: Type-wise vs. Elevation range-wise distribution of GL in Dibang subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	2	2
2	3,001 - 4,000	0	0	0	0	0	0	57	0	322	26	405
3	4,001 - 5,000	1	0	0	1	0	0	84	0	279	0	365
4	> 5,000	0	0	0	0	0	0	0	0	0	0	0
Total		**1**	**0**	**0**	**1**	**0**	**0**	**141**	**0**	**601**	**28**	**772**

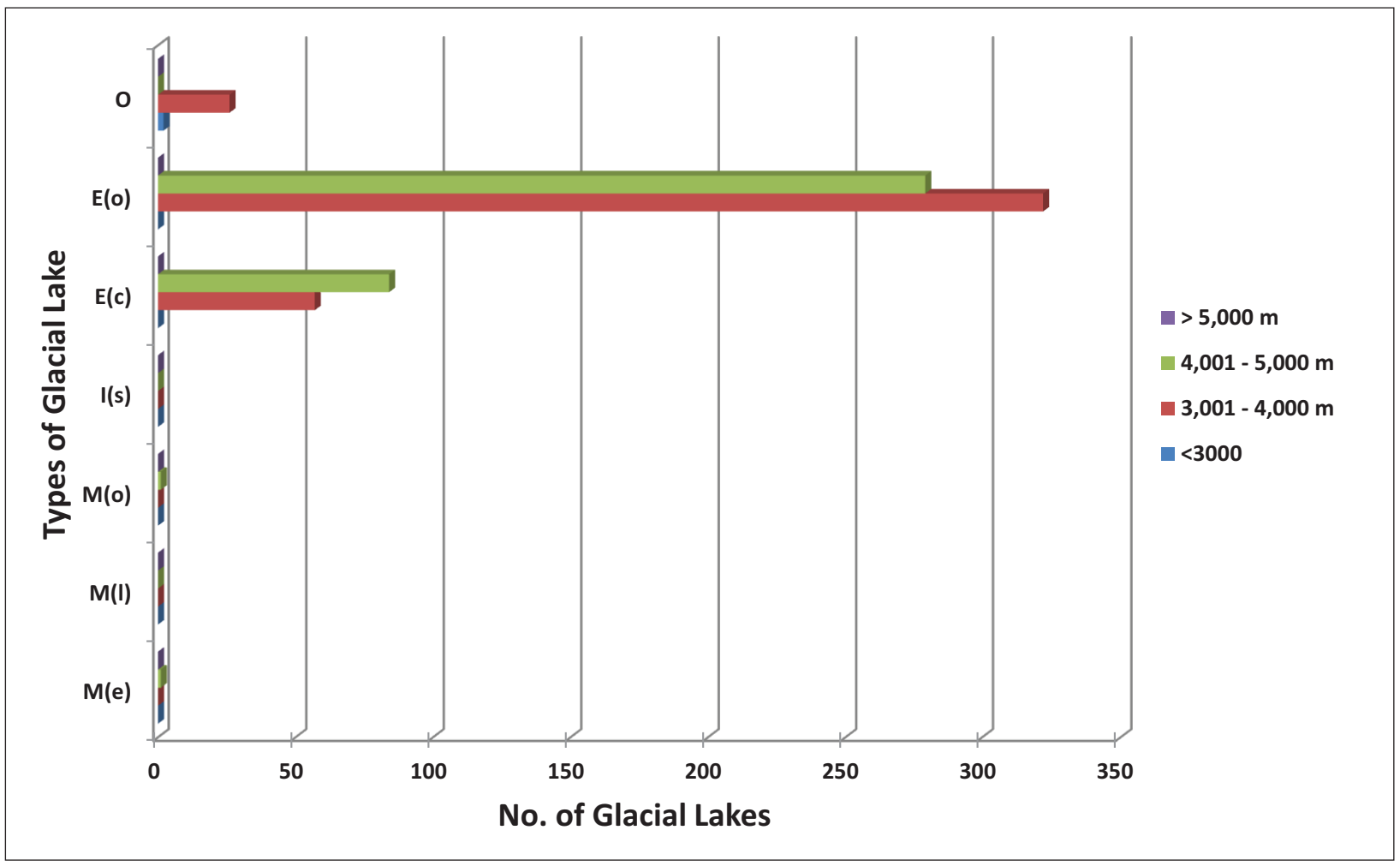


Figure 28: Type-wise vs. Elevation range-wise distribution of GL in Dibang subbasin

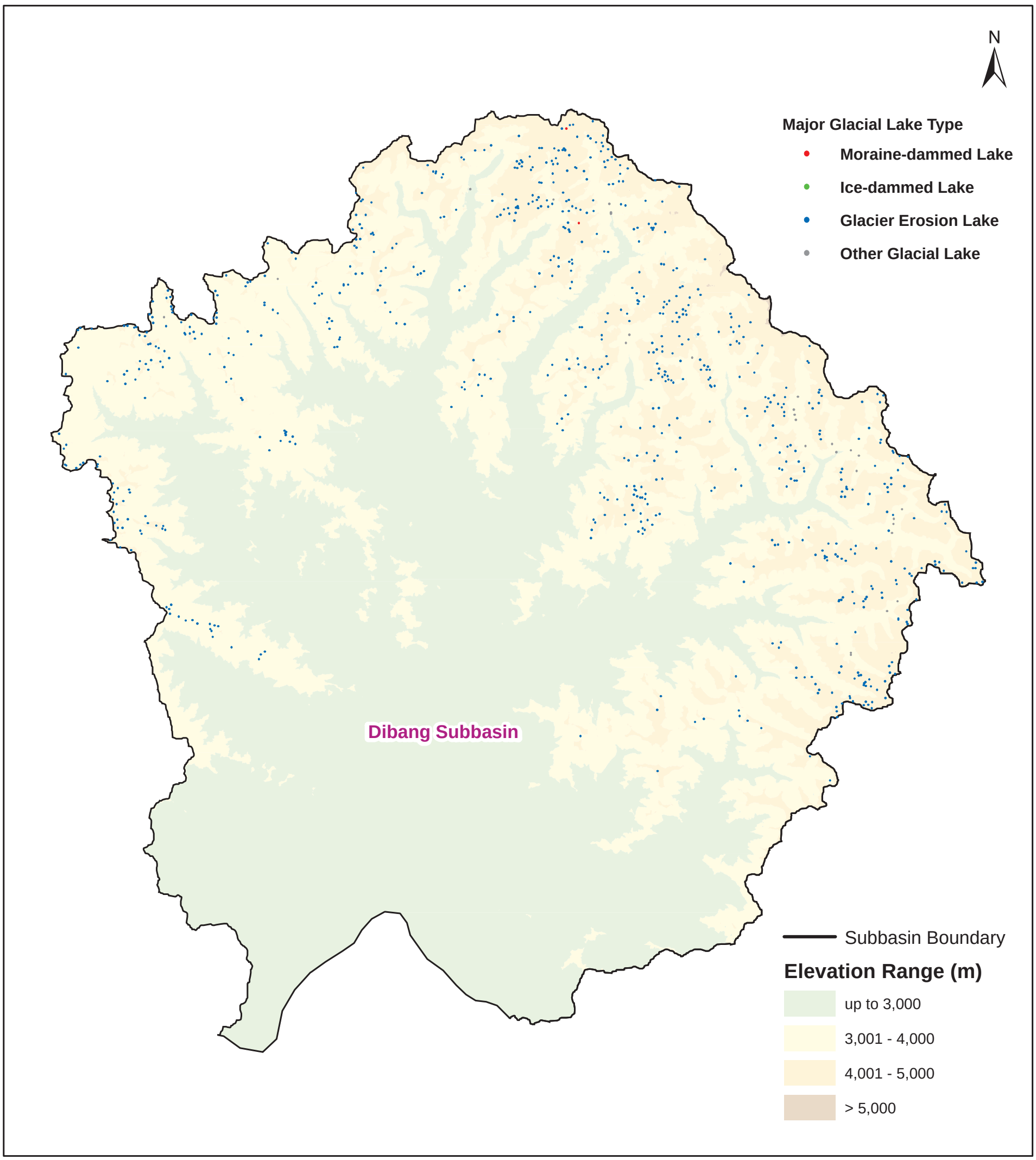


Figure 29: Elevation range-Type-wise spatial distribution of GL in Dibang subbasin

5.2.3 Dihang Subbasin

The Dihang subbasin is the Seventh largest subbasin of the Brahmaputra River basin covering a total area of 22,158 Km^2 i.e. 5.54% of the total basin area (Figure 30). It is formed by the confluence of two small rivers, Namphuk and Namchik, which originate in the Patkai hills, part of the Eastern Himalayan ranges in Arunachal Pradesh. Shyom River is one of the main tributary of Dihang River. A total of 433 glacial lakes has been mapped, covering a total area of 2,923.66 ha i.e. 0.13% of the total area of the subbasin.

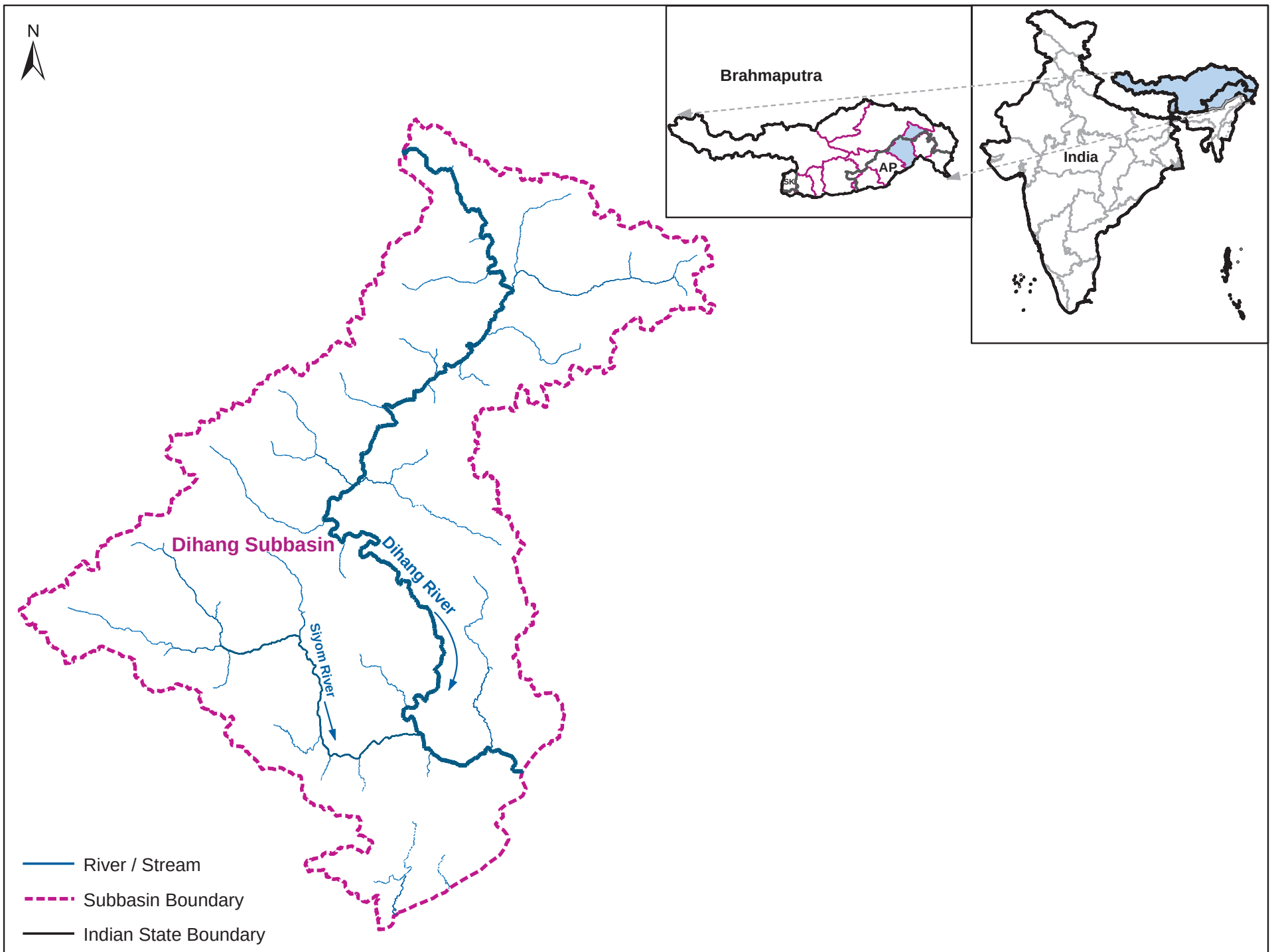


Figure 30: Location map of the Dihang subbasin

Area range-wise Distribution

In Dihang subbasin, glacial lakes have been distributed in all 6 classes of area ranges. Table 24 and Figure 31 shows the area range-wise distribution of glacial lakes for the Dihang subbasin. About 275 (63.51%) lakes are with < 5 ha lake area contributing to 17.44% of total lake area. The remaining lakes with > 5 ha in size are only 158 (36.49%) but contributing to 82.56% of total lake area in the subbasin.

Table 24: Area range-wise distribution of GL in Dihang subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	39	13.89	0.48
2	0.5 - 1	60	43.21	1.48
3	1 - 5	176	452.83	15.49
4	5 - 10	78	543.84	18.60
5	10 - 50	77	1,602.17	54.80
6	> 50	3	267.72	9.16
Total		**433**	**2,923.66**	**100.00**

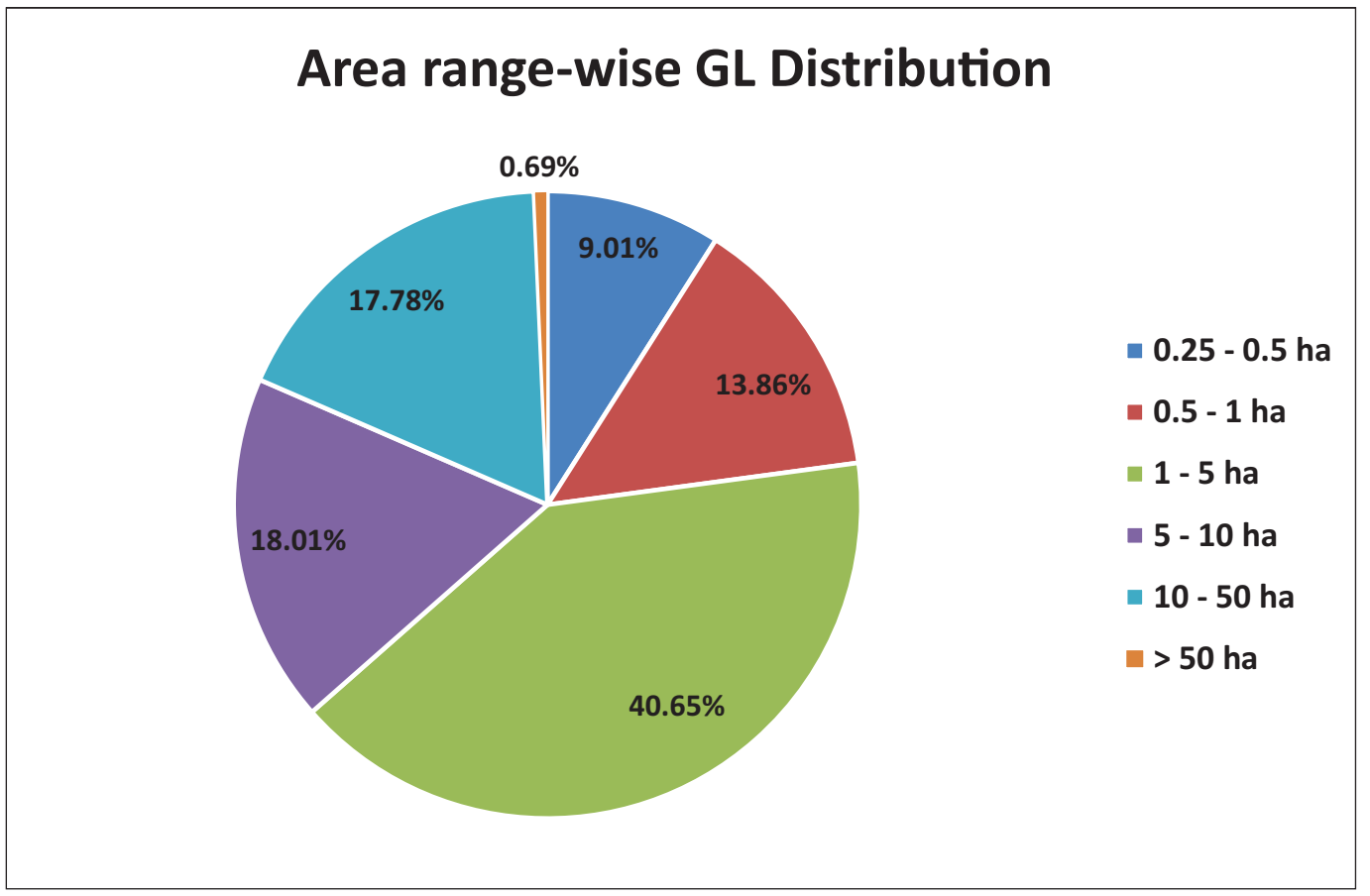


Figure 31: Area range-wise distribution of GL in Dihang subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Dihang subbasin is given in Table 25 and Figure 32. Out of 10 types of glacial lakes, 7 types of lake are present in the Dihang subbasin, where Other Glacial Erosion lakes are found to be the maximum with 301 (69.52%) occupying a total lake extent of 1,696.49 ha at 58.03% in the subbasin. After that, Cirque Erosion Lake are in majority with 108 (24.94%) extend over a total lake area of 922.66 ha (31.56%).

Table 25: Type-wise distribution of GL in Dihang subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	1	6.82	0.23
2	M(l)	Lateral Moraine Dammed Lake	0	0.00	0.00
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	18	213.54	7.30
5	I(s)	Supra-glacial Lake	3	1.31	0.04
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	108	922.66	31.56
8	E(v)	Glacier Trough Valley Erosion Lake	1	70.17	2.40
9	E(o)	Other Glacial Erosion Lake	301	1,696.49	58.03
10	O	Other Glacial Lake	1	12.67	0.43
Total			**433**	**2,923.66**	**100.00**

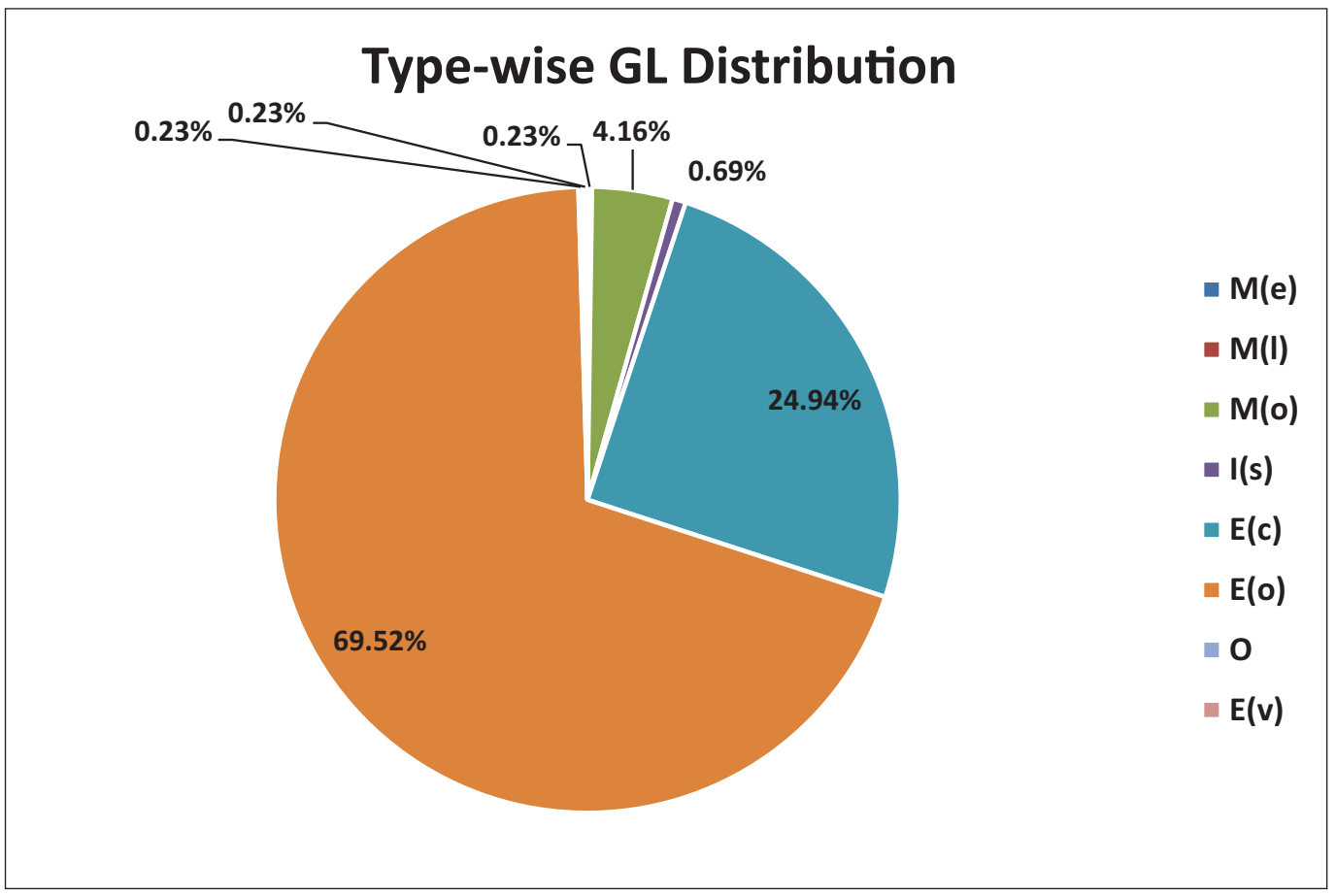


Figure 32: Type-wise distribution of GL in Dihang subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 26 and Figure 33. The lakes with < 5 ha in size (63.51%) are dominant with Other Glacial Erosion (78.91%) and Cirque Erosion lake (16.36%). Lakes with > 5 ha (36.49%) are dominated by Other Glacial Erosion lakes (53.16%). All types of Moraine Dammed lakes, which constitute about 4.39% are predominantly with < 5 ha in water spread.

Table 26: Area range-wise vs. Type-wise distribution of GL in Dihang subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	1	2	0	1	0	35	0	39
2	0.5 - 1	0	0	0	2	1	0	4	0	53	0	60
3	1 - 5	0	0	0	7	0	0	40	0	129	0	176
4	5 - 10	1	0	0	3	0	0	34	0	40	0	78
5	10 - 50	0	0	0	5	0	0	29	0	42	1	77
6	> 50	0	0	0	0	0	0	0	1	2	0	3
Total		**1**	**0**	**0**	**18**	**3**	**0**	**108**	**1**	**301**	**1**	**433**

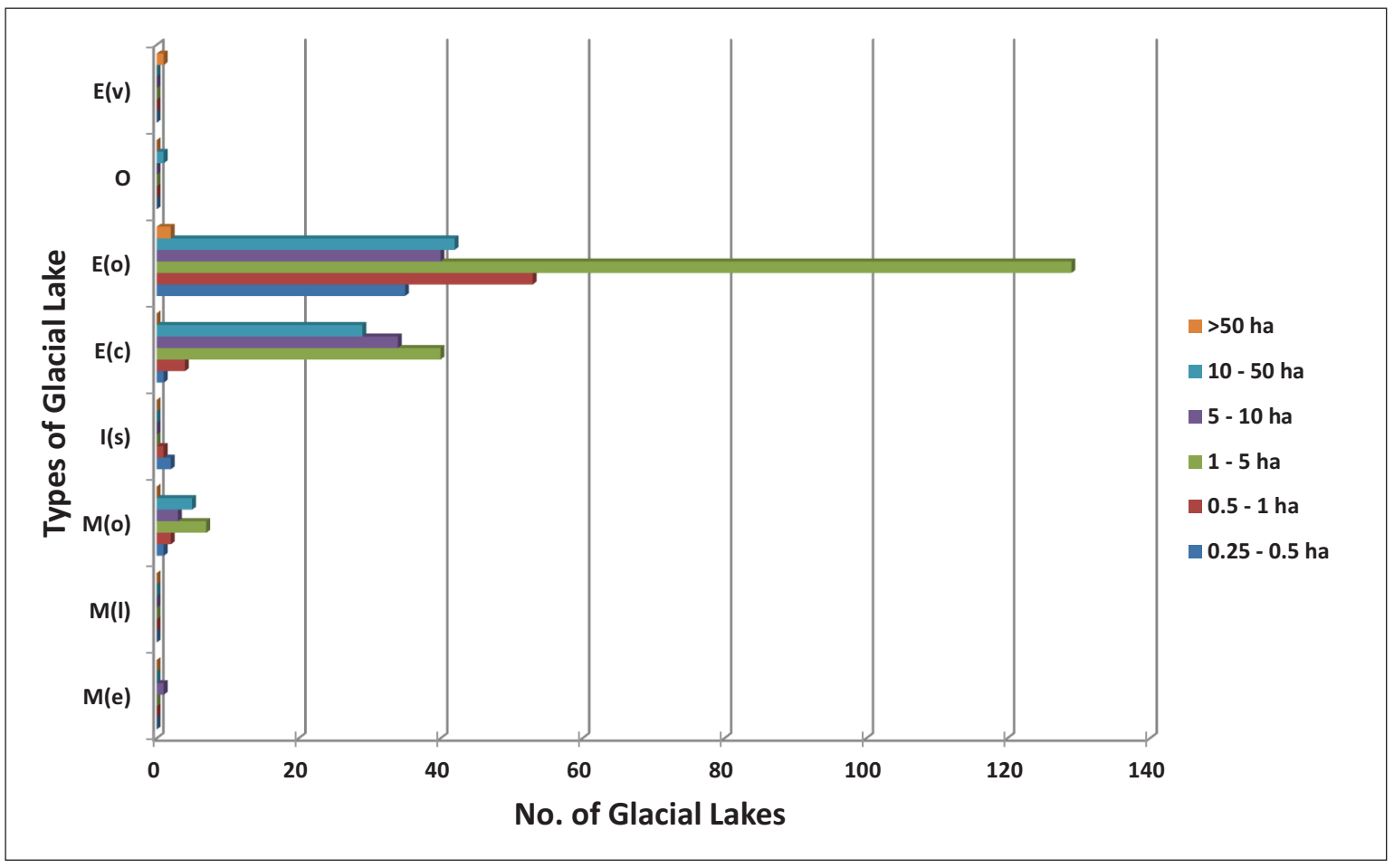


Figure 33: Area range-wise vs. Type-wise distribution of GL in Dihang subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Dihang subbasin has been shown in Table 27 and Figure 34. Majority of glacial lakes are situated below 4,000 m elevation range i.e. 229 (52.89%) with total lake area of 1,640.37 ha (56.11%) and remaining 47.11% glacial lakes are above 4,000 m elevation.

Table 27: Elevation range-wise distribution of GL in Dihang subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	2	26.48	0.91
2	3,001 - 4,000	227	1,613.89	55.20
3	4,001 - 5,000	204	1,283.29	43.89
4	> 5,000	0	0.00	0.00
Total		**433**	**2,923.66**	**100.00**

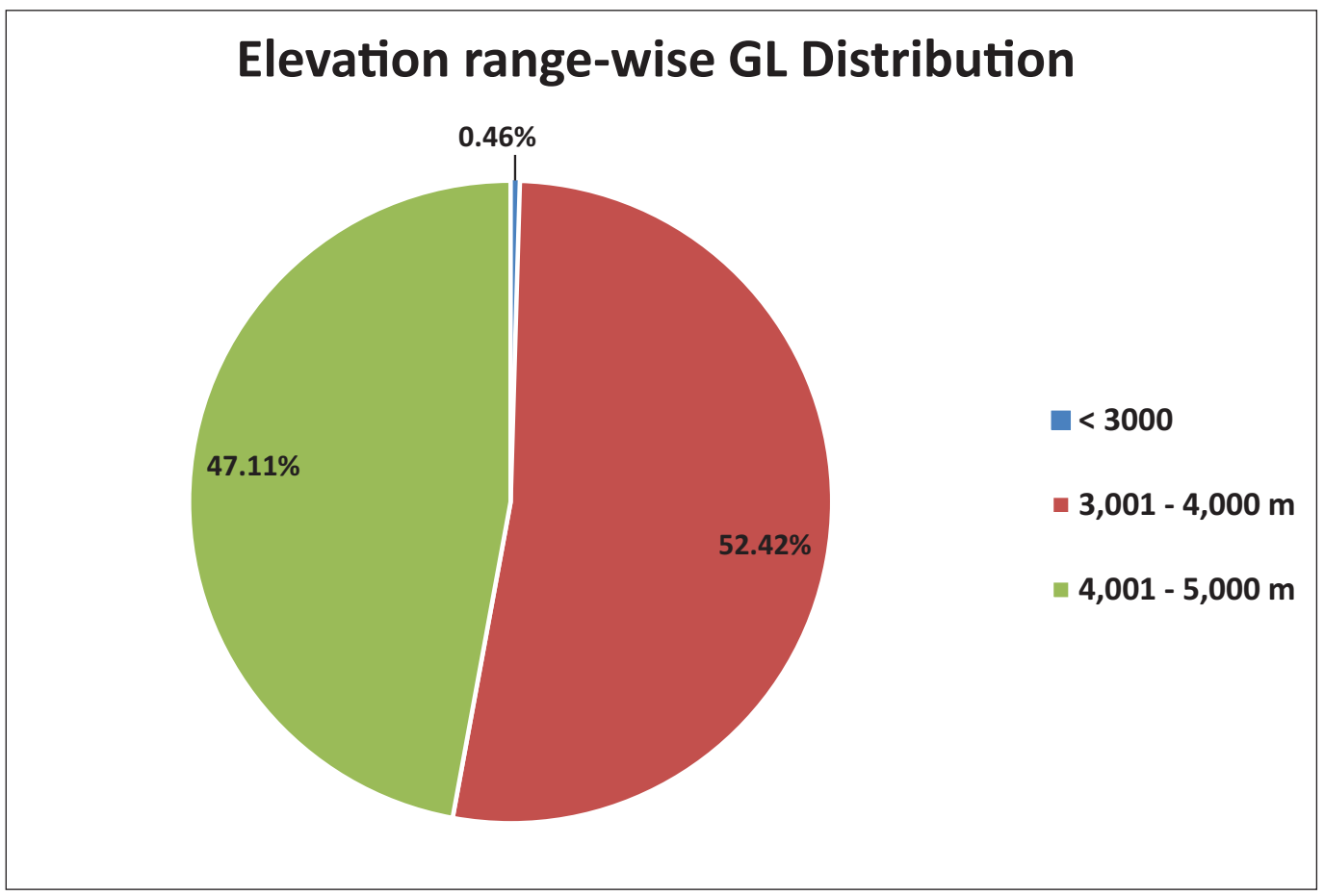


Figure 34: Elevation range-wise distribution of GL in Dihang subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 28 and Figure 35. It is noted that, 47.11% of glacial lakes (204) and 52.42% of glacial lakes (227) are situated in the range of 4,001 – 5,000 m and 3,001 – 4,000 m amsl respectively, which also constitutes total lake area of 2,897.18 ha (99.09%). However, no glacial lakes lies above 5,000 m. Lakes in the elevation of range of 3,001 – 4,001 m and 4,001 – 5,000 m are well distributed in all the lake area ranges.

Table 28: Area range-wise vs. Elevation range-wise distribution of GL in Dihang subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	17	5.88	22	8.01	0	0.00	39	13.89
2	0.5 - 1	0	0.00	26	18.53	34	24.68	0	0.00	60	43.21
3	1 - 5	0	0.00	95	246.22	81	206.61	0	0.00	176	452.83
4	5 - 10	1	5.76	49	336.78	28	201.30	0	0.00	78	543.84
5	10 - 50	1	20.72	38	842.51	38	738.94	0	0.00	77	1,602.17
6	> 50	0	0.00	2	164.00	1	104.00	0	0.00	3	267.72
Total		**2**	**26.48**	**227**	**1,613.89**	**204**	**1,283.29**	**0**	**0.00**	**433**	**2,923.66**

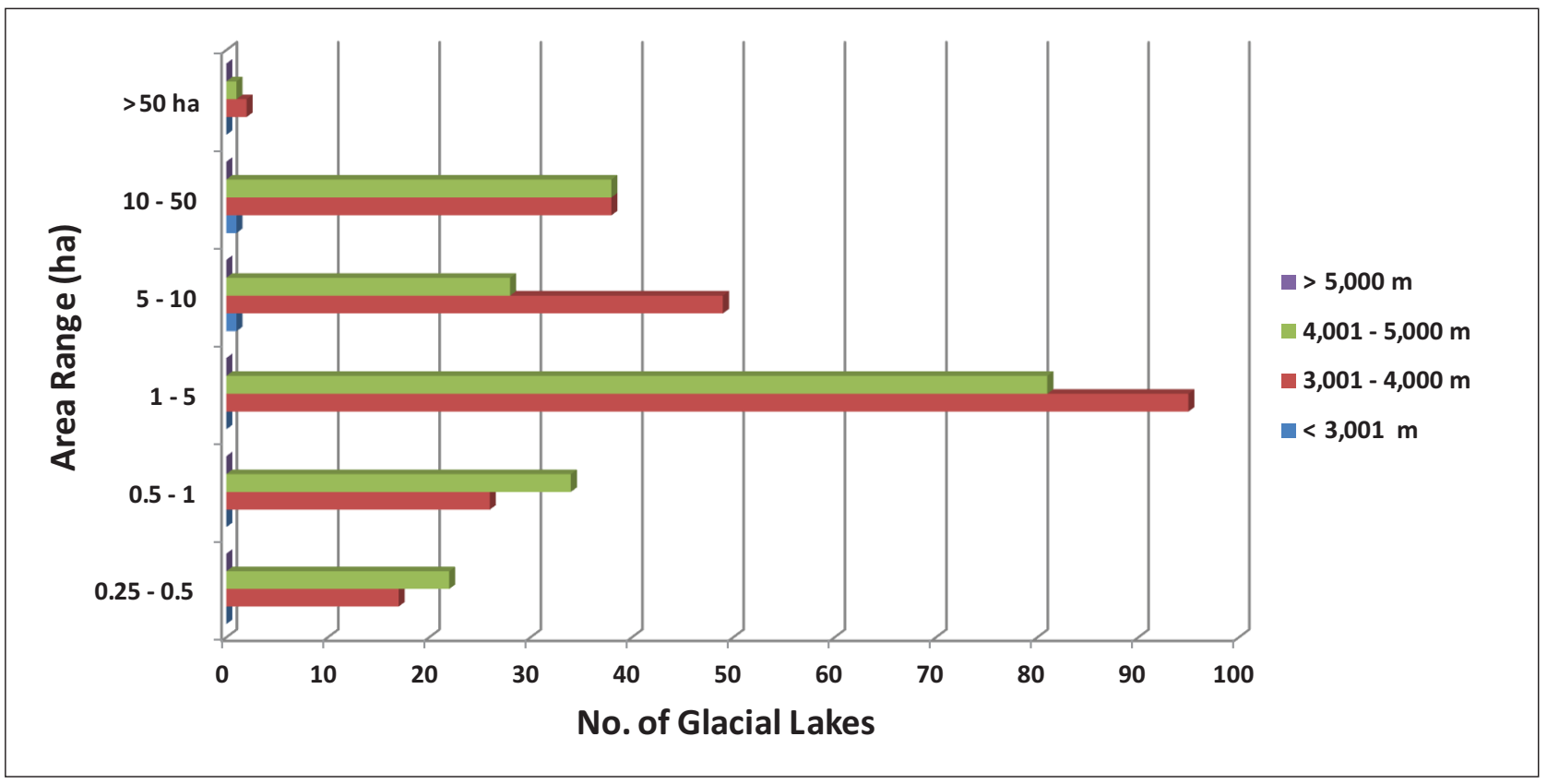


Figure 35: Area range-wise vs. Elevation range-wise distribution of GL in Dihang subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 29 and Figure 36. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (69.51%) are predominantly located in the elevation range of 3,001 – 4,000 m (54.82%). Other Moraine Dammed are distributed predominantly in the elevation range of 4,001 – 5,000 m i.e. 94.44%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 37.

Table 29: Type-wise vs. Elevation range-wise distribution of GL in Dihang subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	2	0	2
2	3,001 - 4,000	0	0	0	1	3	0	56	1	165	1	227
3	4,001 - 5,000	1	0	0	17	0	0	52	0	134	0	204
4	> 5,000	0	0	0	0	0	0	0	0	0	0	0
Total		**1**	**0**	**0**	**18**	**3**	**0**	**108**	**1**	**301**	**1**	**433**

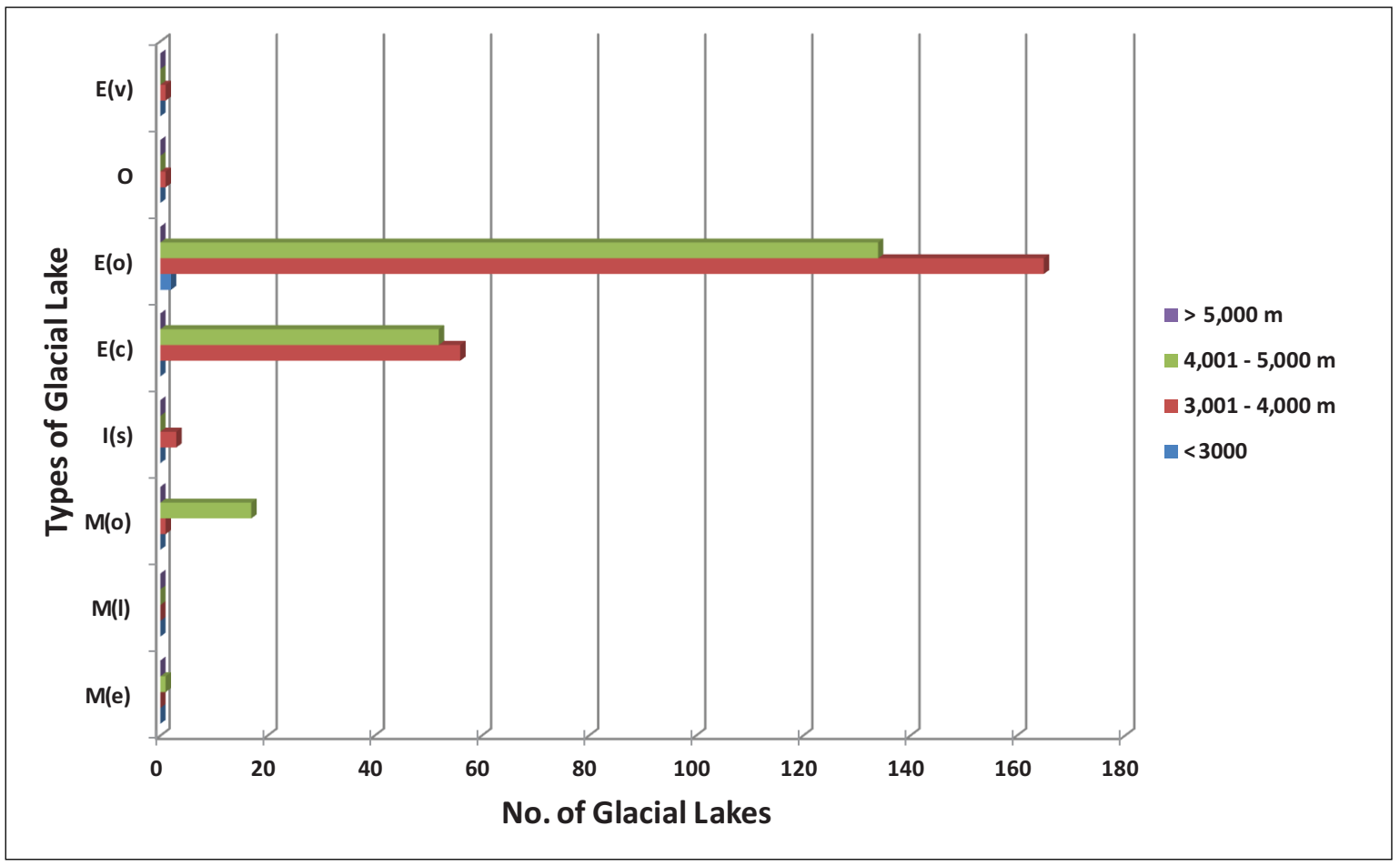


Figure 36: Type-wise vs. Elevation range-wise distribution of GL in Dihang subbasin

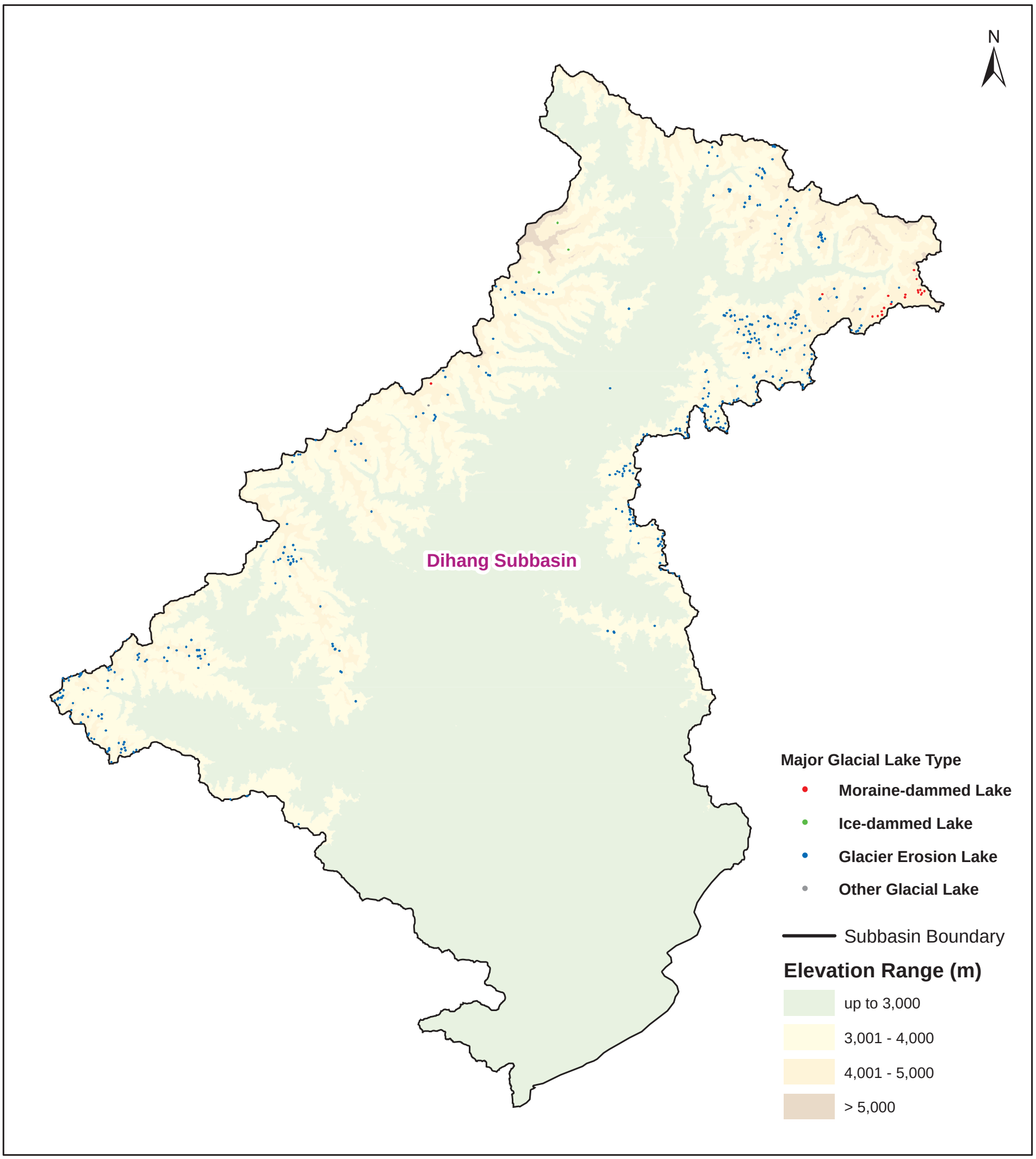


Figure 37: Elevation range-Type-wise spatial distribution of GL in Dihang subbasin

5.2.4 Jia Bharali Subbasin

The Jia Bharali subbasin is the eighth largest subbasin of the Brahmaputra River basin covering a total area of 13,084 Km^2 i.e. 3.27% of the total basin area (Figure 38). Bhareli River and Bichom River are the two main tributaries. The Bhareli river originates in the hills of Arunachal Pradesh and flows through the heart of Tezpur before its confluence with the Brahmaputra River. A total of 234 glacial lakes has been mapped, covering a total area of 640.12 ha i.e. 0.04% of the total area of the subbasin.

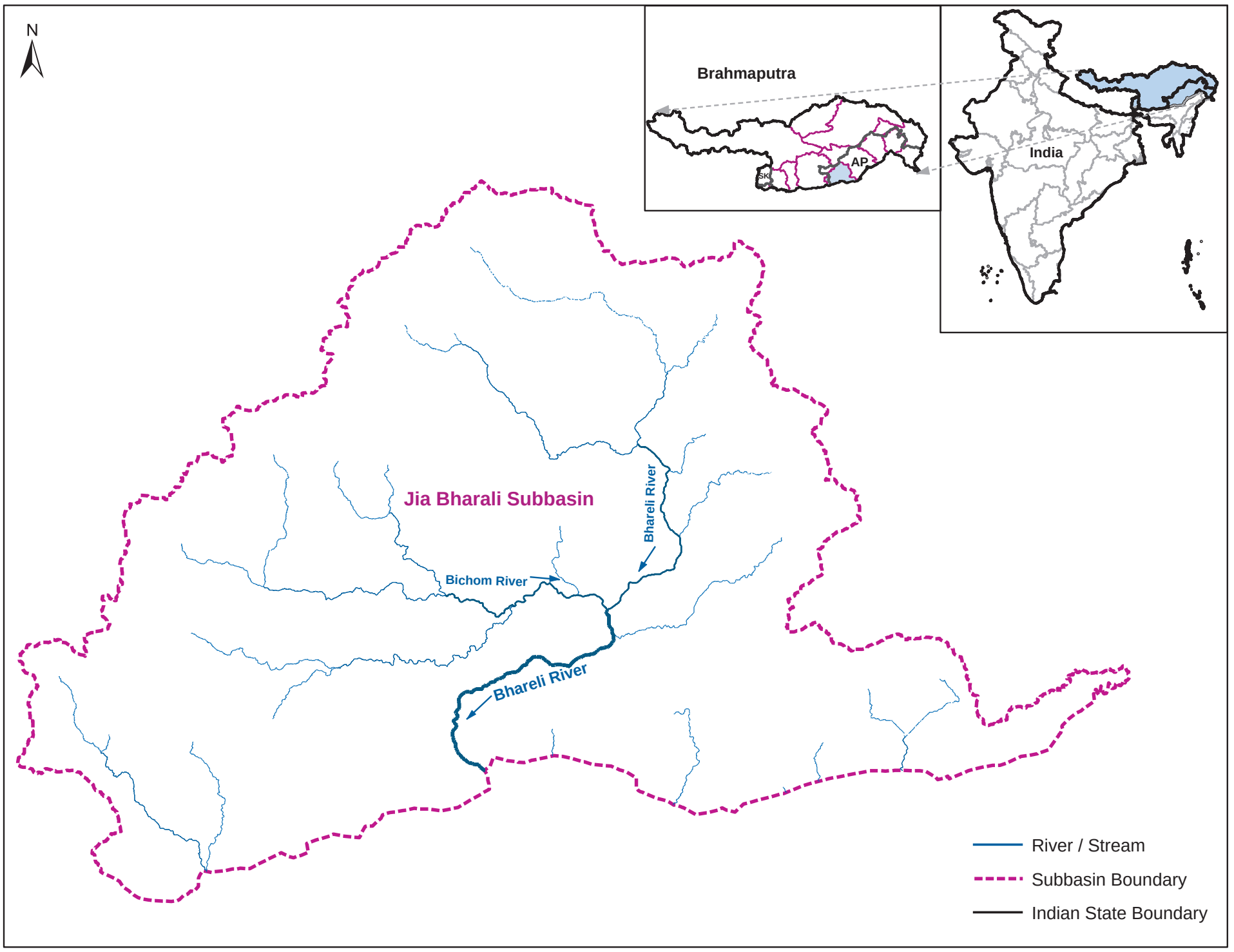


Figure 38: Location map of the Jia Bharali subbasin

Area range-wise Distribution

In Jia Bharali subbasin, glacial lakes have been distributed in 5 classes of area ranges except > 50 ha range. Table 30 and Figure 39 shows the area range-wise distribution of glacial lakes for the Jia Bharali subbasin. About 200 (85.47%) lakes are with < 5 ha lake area contributing to 43.05% of total lake area. The remaining lakes with > 5 ha in size are only 34 (14.53%) contributing to 56.95% of total lake area in the subbasin.

Table 30: Area range-wise distribution of GL in Jia Bharali subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	43	16.00	2.50
2	0.5 - 1	63	43.82	6.85
3	1 - 5	94	215.77	33.71
4	5 - 10	24	168.51	26.32
5	10 - 50	10	196.02	30.62
6	> 50	0	0.00	0.00
Total		**234**	**640.12**	**100.00**

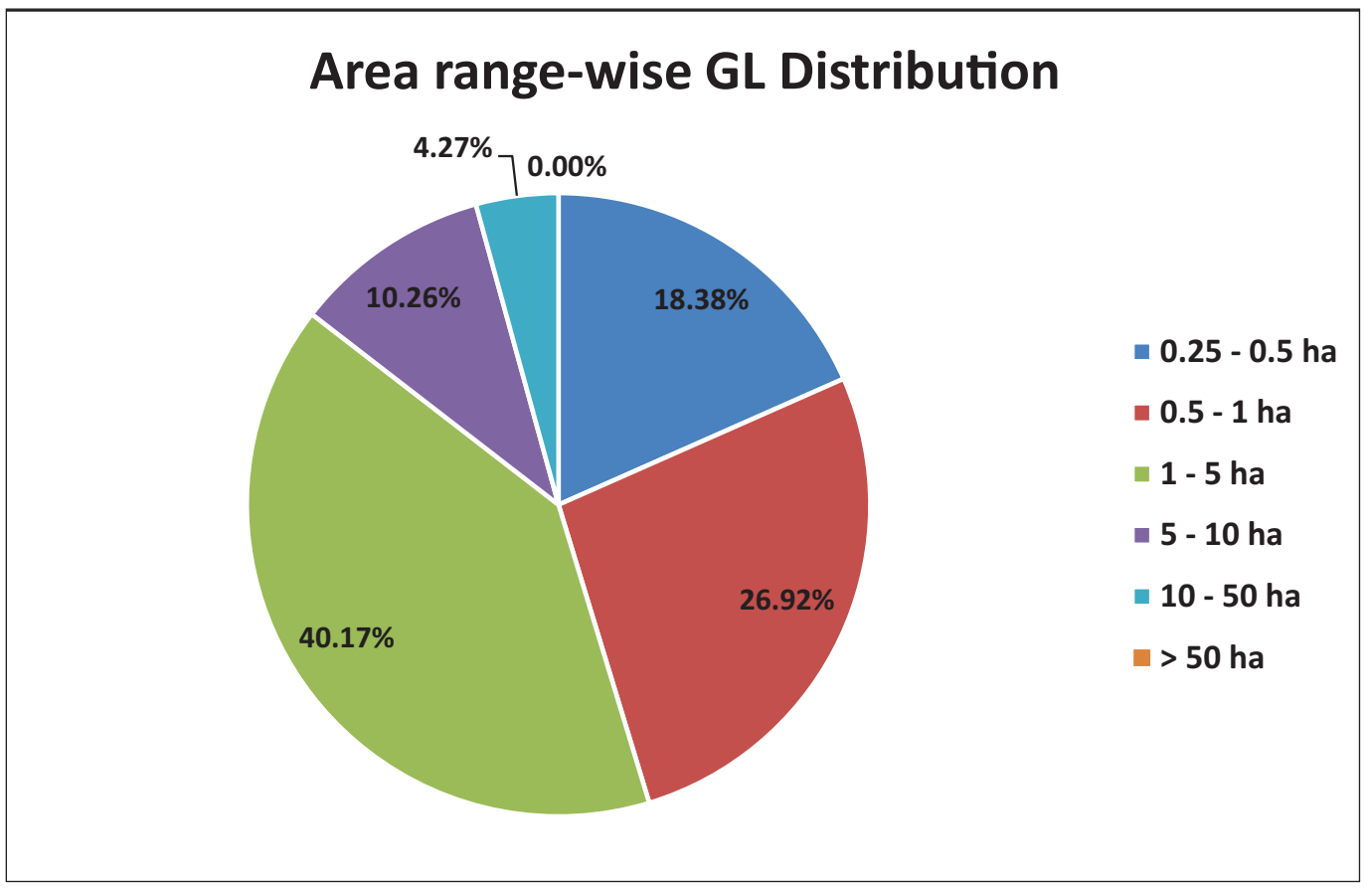


Figure 39: Area range-wise distribution of GL in Jia Bharali subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Jia Bharali subbasin is given in Table 31 and Figure 40. Out of 10 types of glacial lakes, 5 types of lake are present in the Jia Bharali subbasin, where Other Glacial Erosion Lakes are found to be the maximum with 192 (82.05%) occupying a total lake extent of 520.46 ha at 81.31% in the subbasin. After that, Other Moraine Dammed Lake and Cirque Erosion lakes are in majority with 26 (11.11%) and 13 (5.56%) and extend over a total lake area of 46.05 ha (7.19%) and 51.5 ha (8.05%) respectively.

Table 31: Type-wise distribution of GL in Jia Bharali subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	0	0.00	0.00
2	M(l)	Lateral Moraine Dammed Lake	1	13.80	2.16
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	26	46.05	7.19
5	I(s)	Supra-glacial Lake	0	0.00	0.00
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	13	51.50	8.05
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	192	520.46	81.31
10	O	Other Glacial Lake	2	8.31	1.30
Total			**234**	**640.12**	**100.00**

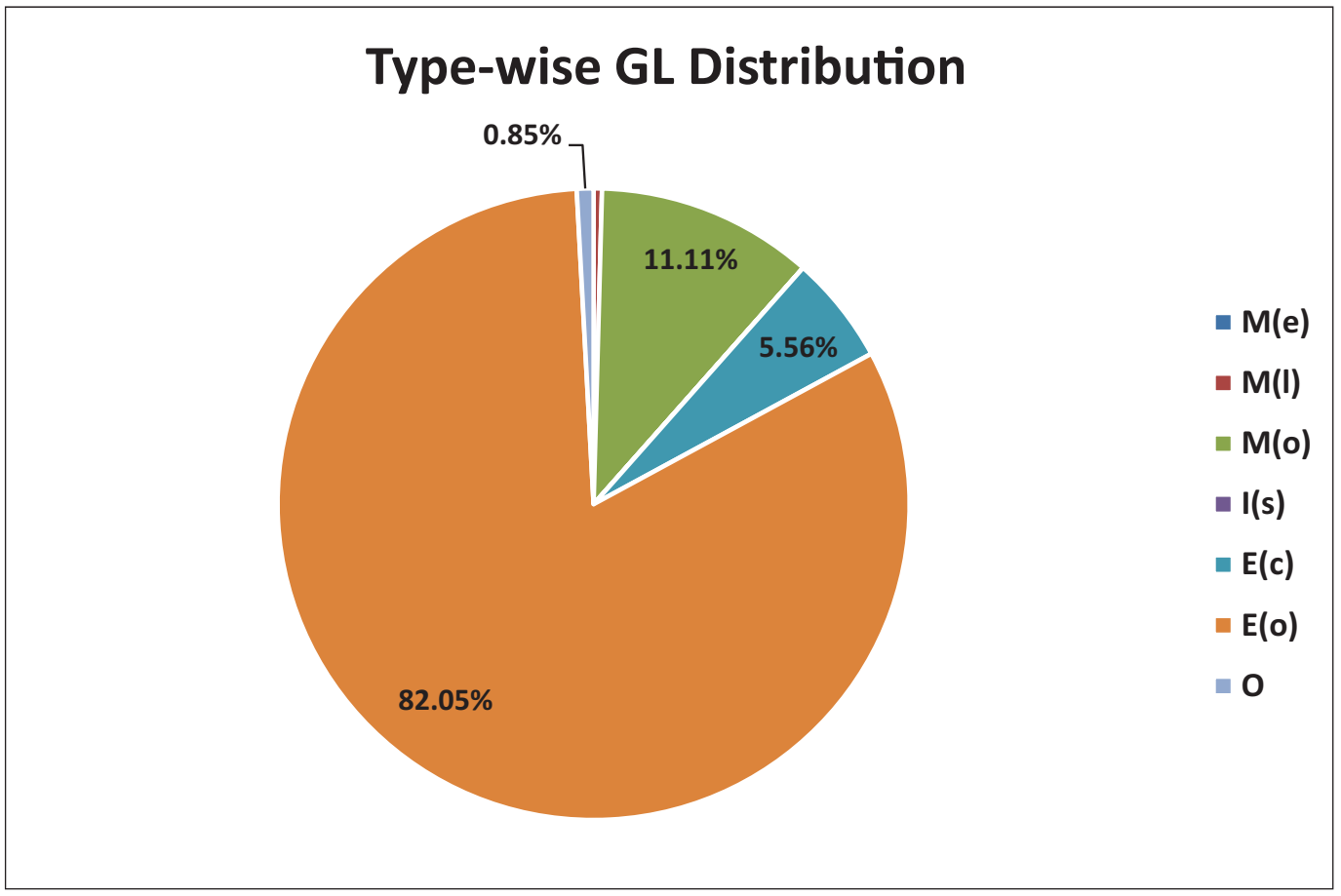


Figure 40: Type-wise distribution of GL in Jia Bharali subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 32 and Figure 41. The lakes with < 5 ha in size (85.47%) are dominant with Other Glacial Erosion lakes (83%) and Other Moraine Dammed (11.50%). Lakes with > 5 ha (14.53%) are dominated by Other Glacial Erosion Lake (76.47%). All types of Moraine Dammed lakes, which constitute about 85.18% are predominantly with < 5 ha in water spread.

Table 32: Area range-wise vs. Type-wise distribution of GL in Jia Bharali subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	5	0	0	1	0	37	0	43
2	0.5 - 1	0	0	0	10	0	0	1	0	51	1	63
3	1 - 5	0	0	0	8	0	0	8	0	78	0	94
4	5 - 10	0	0	0	3	0	0	2	0	18	1	24
5	10 - 50	0	1	0	0	0	0	1	0	8	0	10
6	> 50	0	0	0	0	0	0	0	0	0	0	0
Total		**0**	**1**	**0**	**26**	**0**	**0**	**13**	**0**	**192**	**2**	**234**

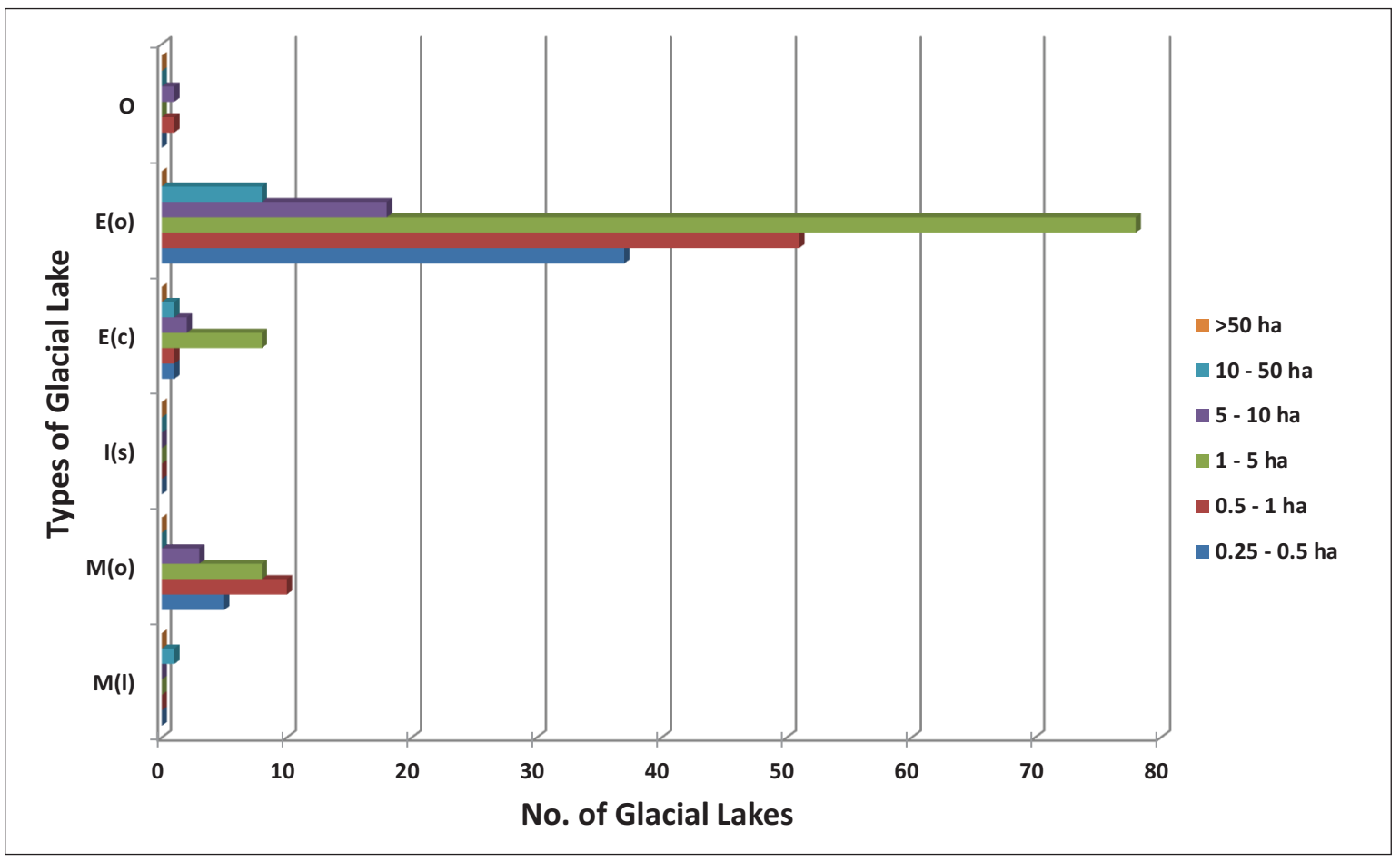


Figure 41: Area range-wise vs. Type-wise distribution of GL in Jia Bharali subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Jai Bharali subbasin has been shown in Table 33 and Figure 42. Majority of glacial lakes are situated in 4,001 - 5,000 m elevation range i.e. 195 (83.33%) with total lake area of 500.45 ha (78.18%) and remaining 23 glacial lakes constituting area of 44.00 ha (6.87%) are in > 5000 m elevation range.

Table 33: Elevation range-wise distribution of GL in Jia Bharali subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	16	95.67	14.95
3	4,001 - 5,000	195	500.45	78.18
4	> 5,000	23	44.00	6.87
Total		**234**	**640.12**	**100.00**

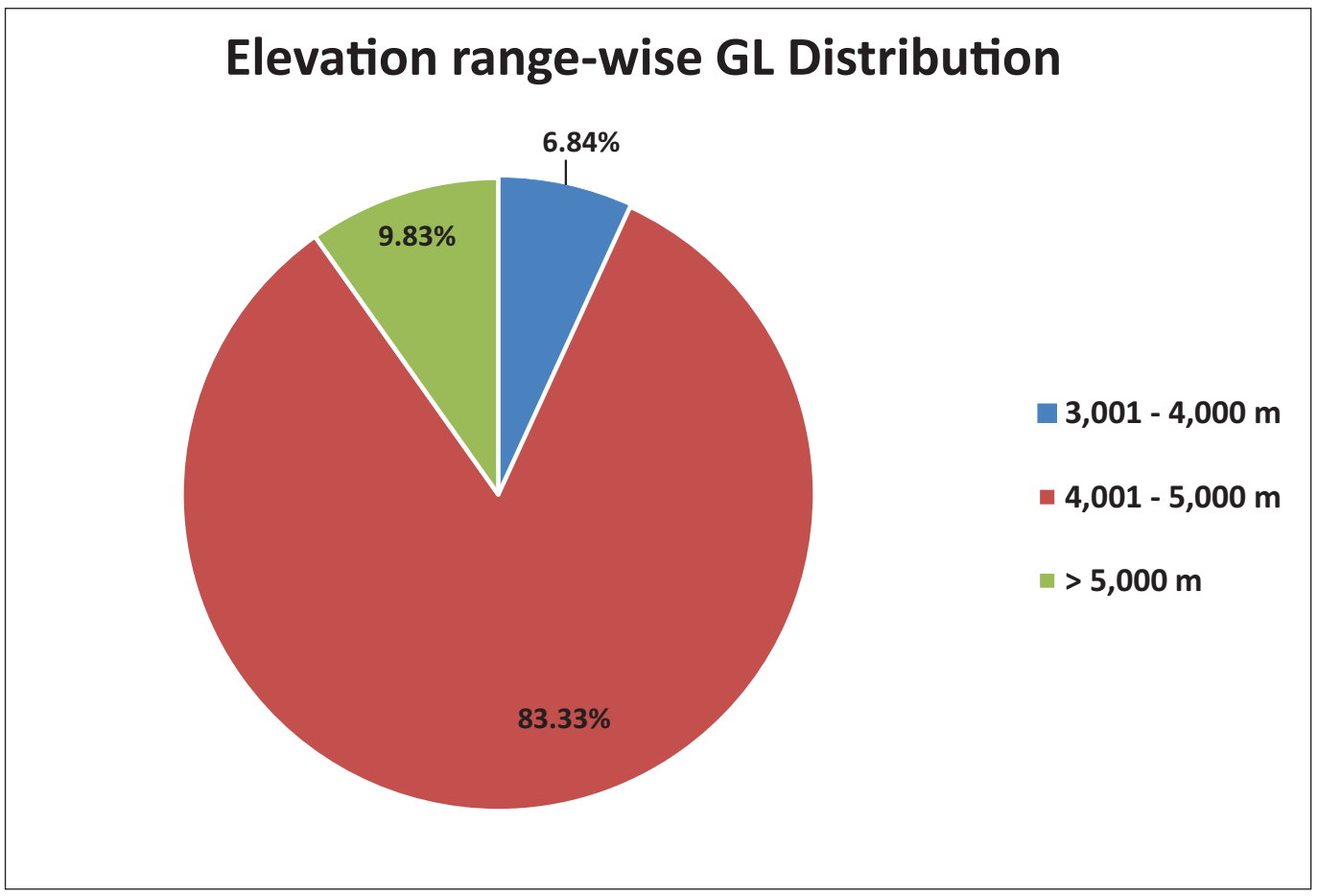


Figure 42: Elevation range-wise distribution of GL in Jia Bharali subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 34 and Figure 43. It is noted that, 83.33% of glacial lakes (195) are situated in high altitude range i.e. 4,001 - 5,000 m amsl out of total of 234 lakes. However, only 23 glacial lakes lies above the 5,000 m elevation, predominantly having size of < 5ha. It has been further noticed that, 82.35% of lakes > 5 ha are lying within in high altitude range i.e. 4,001 - 5,000 m, with majority in the ranges of 5 - 10 ha.

Table 34: Area range-wise vs. Elevation range-wise distribution of GL in Jia Bharali subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	1	0.43	37	13.89	5	1.68	43	16.00
2	0.5 - 1	0	0.00	1	0.87	55	38.15	7	4.80	63	43.82
3	1 - 5	0	0.00	11	27.12	75	169.77	8	18.88	94	215.77
4	5 - 10	0	0.00	0	0.00	21	149.87	3	18.64	24	168.51
5	10 - 50	0	0.00	3	67.25	7	128.77	0	0.00	10	196.02
6	> 50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total		**0**	**0.00**	**16**	**95.67**	**195**	**500.45**	**23**	**44.00**	**234**	**640.12**

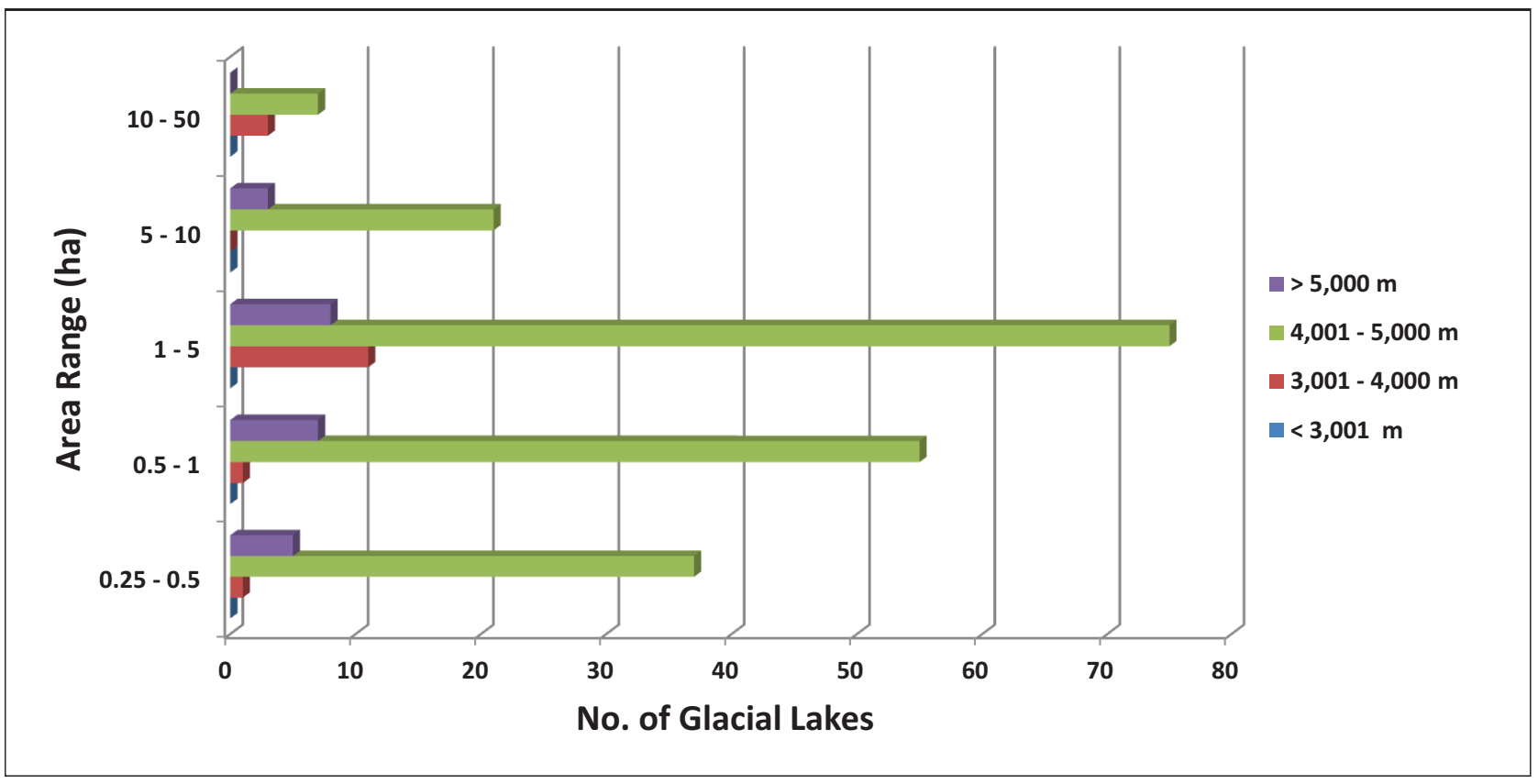


Figure 43: Area range-wise vs. Elevation range-wise distribution of GL in Jia Bharali subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 35 and Figure 44. The dominant lake type in the subbasin i.e., Other Glacial Erosion Lakes (82.05%) are predominantly located in the elevation range of 4,001 - 5,000 m (93.22%). The other dominant lake type, namely, Other Moraine Dammed Lakes are distributed predominantly in very high altitude elevation range of > 5,000 m. All (100%) of all types of Moraine Dammed lakes lies above 4,000 m elevation. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 45.

Table 35: Type-wise vs. Elevation range-wise distribution of GL in Jia Bharali subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(c)	E(v)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	3	0	13	0	16
3	4,001 - 5,000	0	1	0	3	0	0	10	0	179	2	195
4	> 5,000	0	0	0	23	0	0	0	0	0	0	23
Total		**0**	**1**	**0**	**26**	**0**	**0**	**13**	**0**	**192**	**2**	**234**

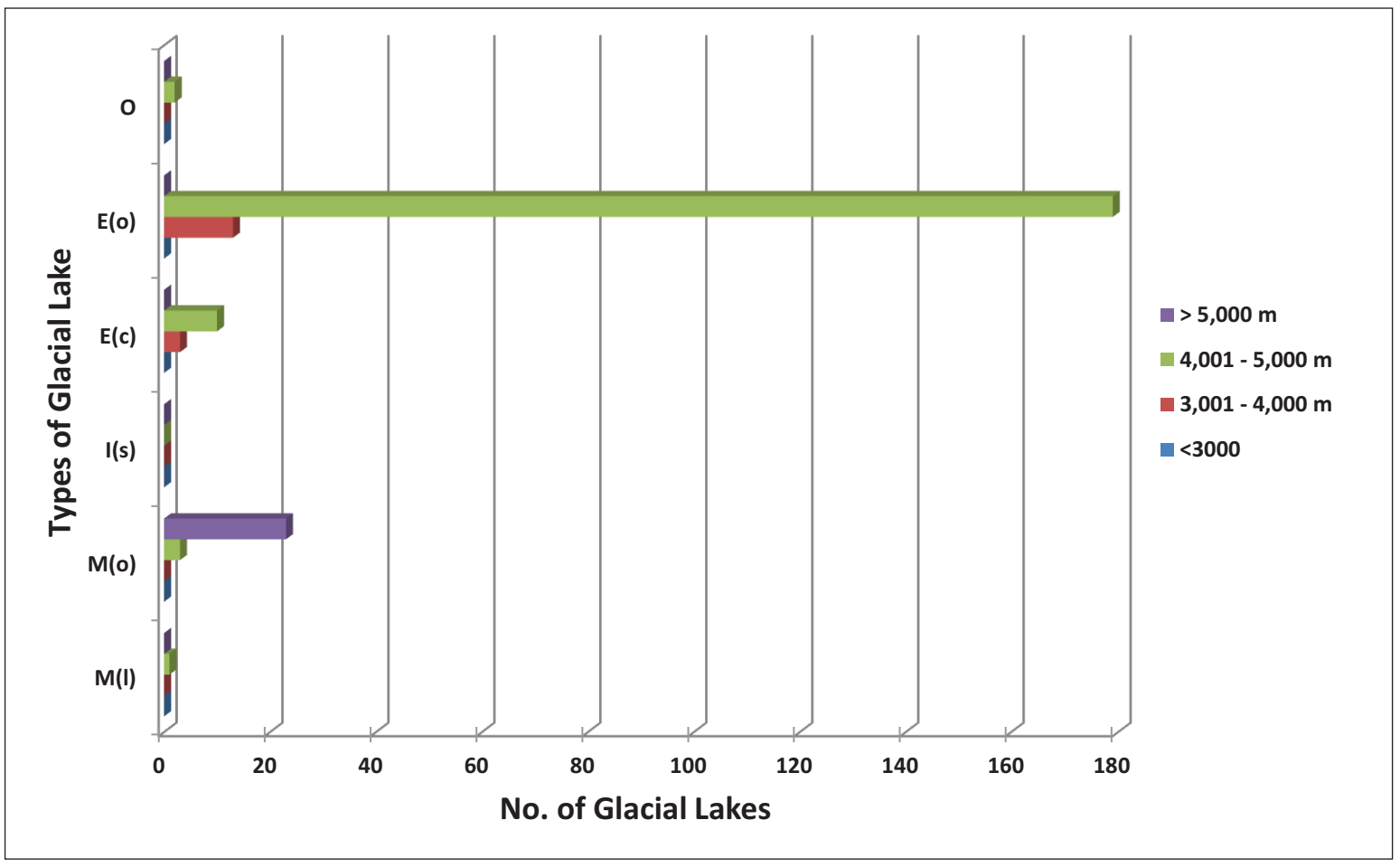


Figure 44: Type-wise vs. Elevation range-wise distribution of GL in Jia Bharali subbasin

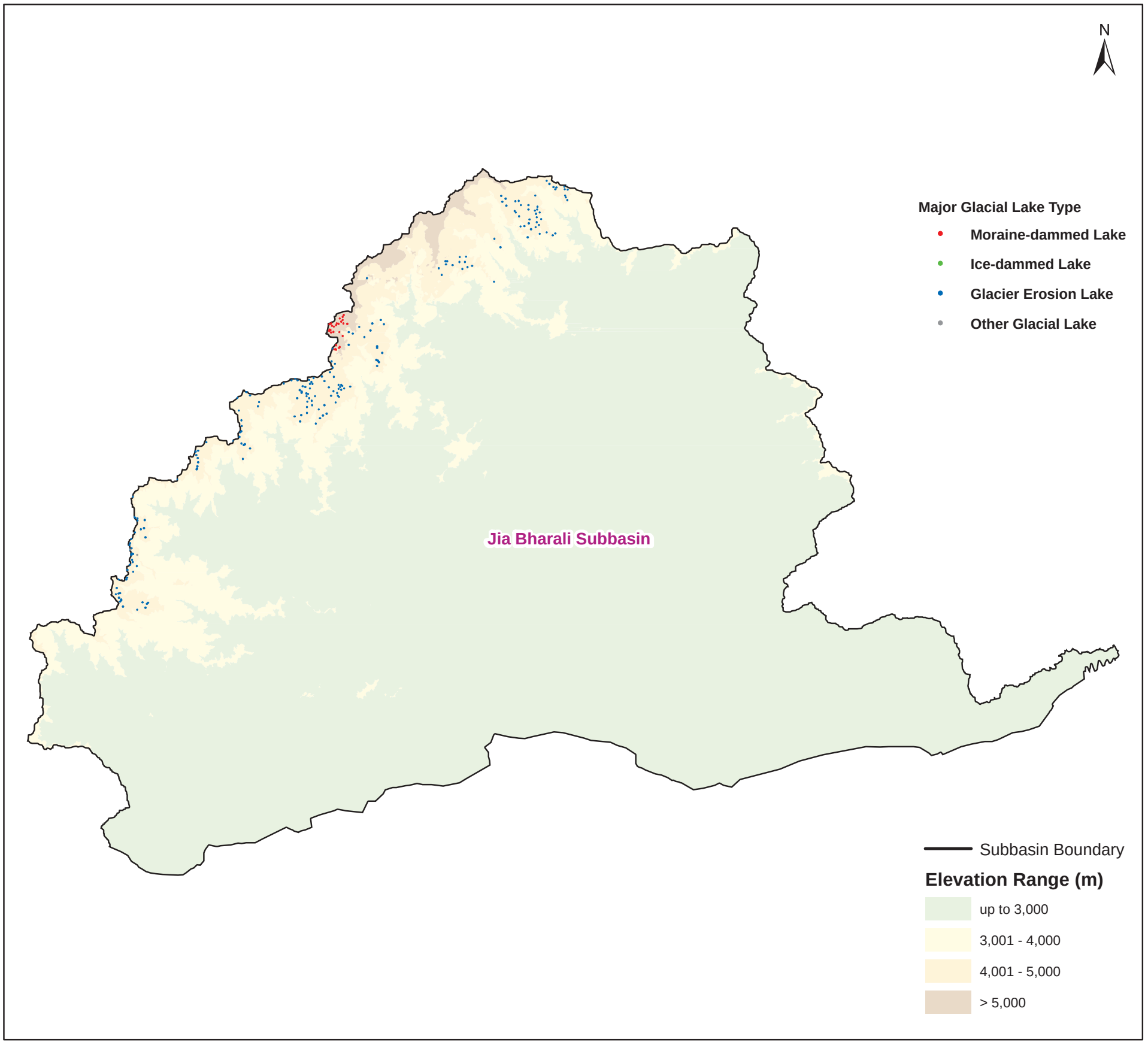


Figure 45: Elevation range-Type-wise spatial distribution of GL in Jia Bharali subbasin

5.2.5 Lhasa Tsangpo Subbasin

The Lhasa Tsangpo subbasin is the third largest subbasin of the Brahmaputra River basin covering a total area of 32,896 Km^2 i.e. 8.23% of the total basin area (Figure 46). The Lhasa River is the longest of the Yarlung Tsangpo tributaries. It flows through the south of the Tibet Autonomous Region of China, and is a left tributary of the Yarlung Tsangpo which is about 450 kilometers long. Tsenrak Chu is one of the main tributaries of the Lhasa Tsangpo River. A total of 1,225 lakes were mapped, covering a total area of 6,980.94 ha i.e. 0.21% of the total area of the subbasin.

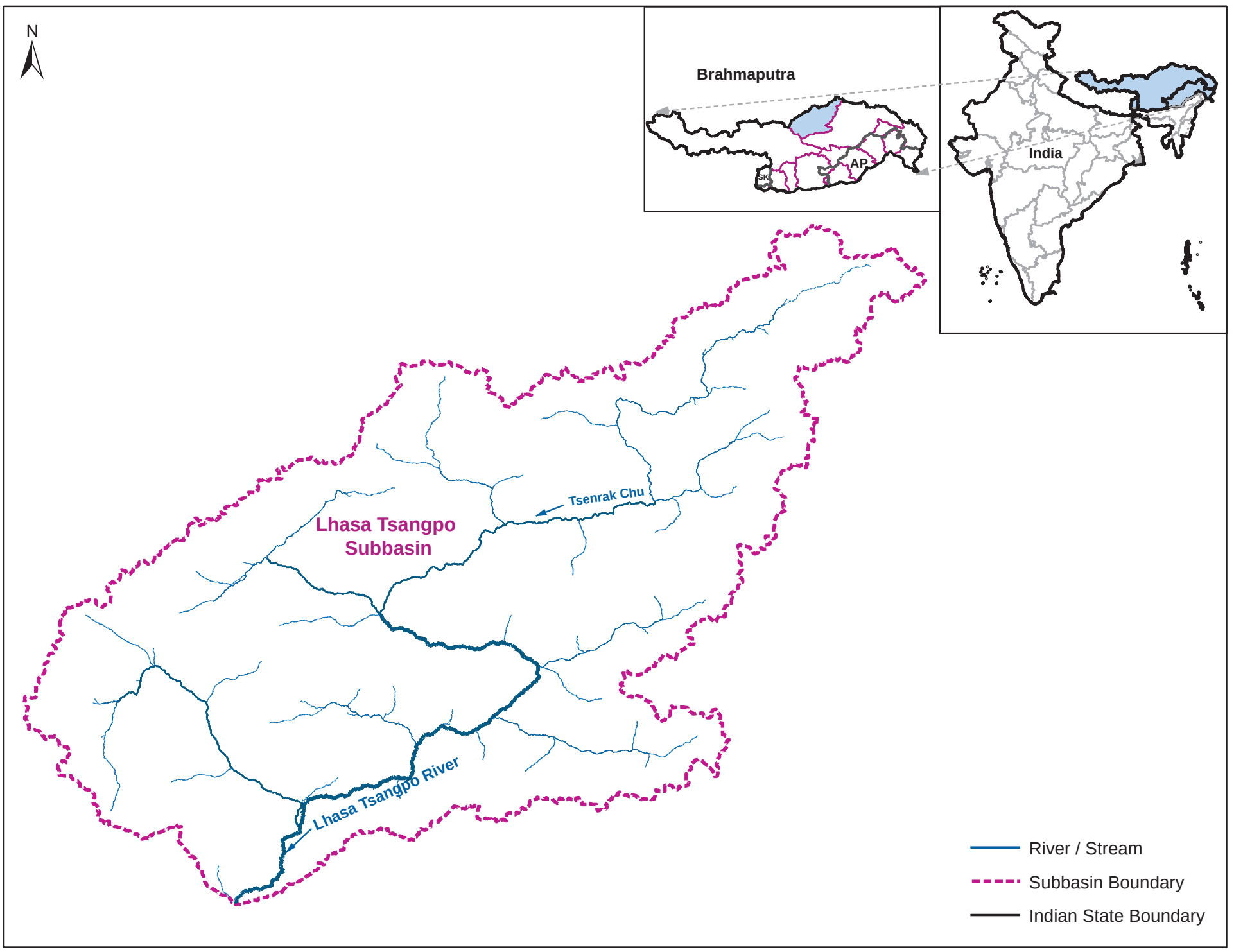


Figure 46: Location map of the Lhasa Tsangpo subbasin

Area range-wise Distribution

In Lhasa Tsangpo subbasin, glacial lakes have been distributed in all area ranges. Table 36 and Figure 47 shows the area range-wise distribution of glacial lakes for the Lhasa Tsangpo subbasin. About 1,048 (85.55%) lakes are with < 5 ha lake area contributing to 19.33% of total lake area. The remaining lakes with > 5 ha in size are only 177 (14.45%) contributing to 80.67% of total lake area in the subbasin.

Table 36: Area range-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	267	98.10	1.41
2	0.5 - 1	294	209.19	3.00
3	1 - 5	487	1,041.65	14.92
4	5 - 10	84	567.46	8.13
5	10 - 50	72	1,413.21	20.24
6	> 50	21	3,651.33	52.30
Total		**1,225**	**6,980.94**	**100.00**

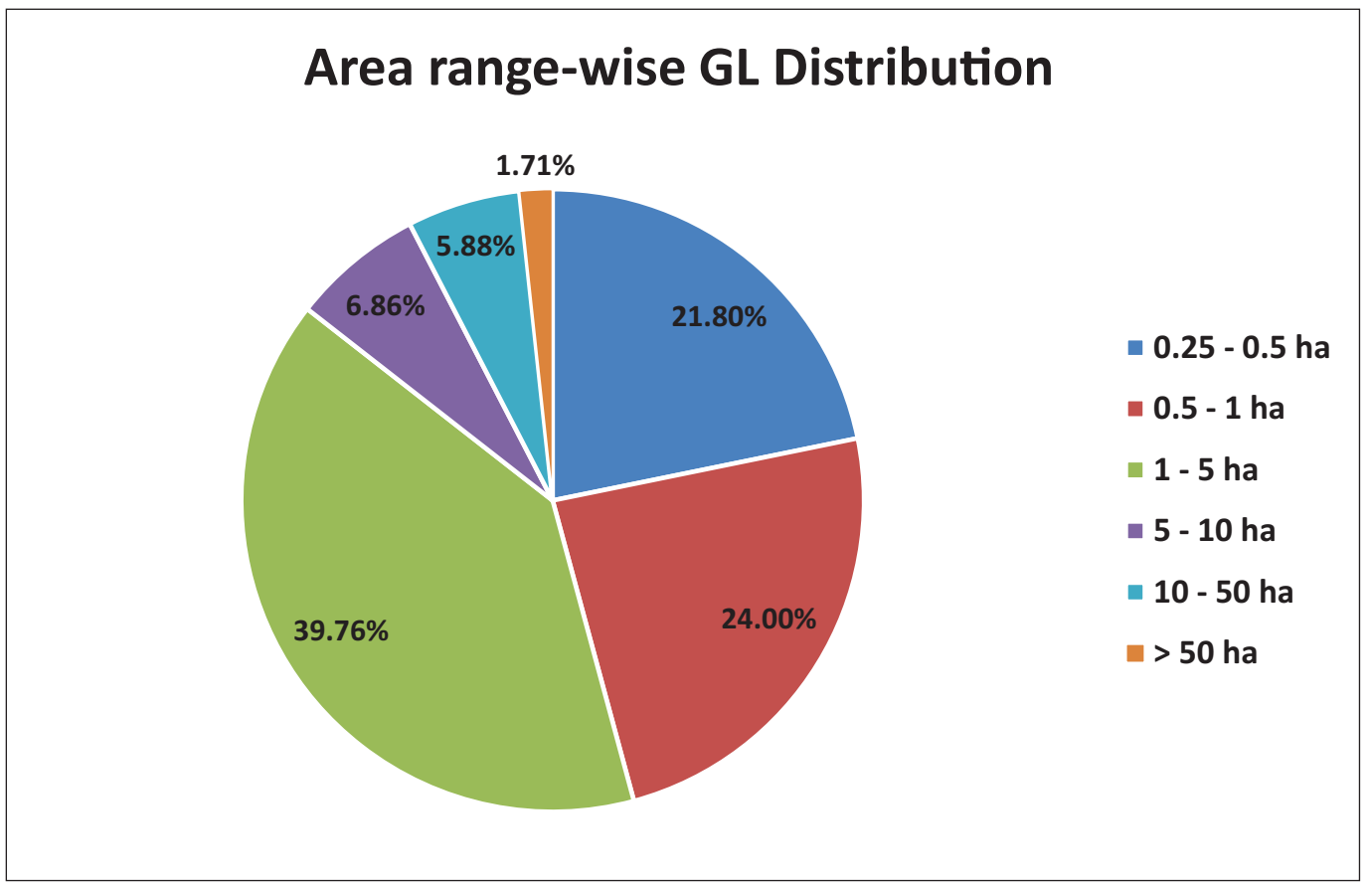


Figure 47: Area range-wise distribution of GL in Lhasa Tsangpo subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Lhasa Tsangpo subbasin is given in Table 37 and Figure 48. Out of 10 types of glacial lakes, only 7 types of lake are present in the Lhasa Tsangpo subbasin, where Other Glacial Erosion Lakes are found to be the maximum with 673 (54.94%) occupying a total lake area extent of 3,824.79 ha at 54.79% in the subbasin. Two other types of lake, namely, Other Moraine Dammed and Other Glacier lakes are 126 (10.29%) and 389 (31.76%) and extend over lake area of 220.78 ha (3.16%) and 2,759.67 ha (39.53%) respectively.

Table 37: Type-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	9	70.26	1.01
2	M(l)	Lateral Moraine Dammed Lake	1	20.39	0.29
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	126	220.78	3.16
5	I(s)	Supra-glacial Lake	4	2.16	0.03
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	23	82.90	1.19
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	673	3,824.79	54.79
10	O	Other Glacial Lake	389	2,759.67	39.53
Total			**1,225**	**6,980.94**	**100.00**

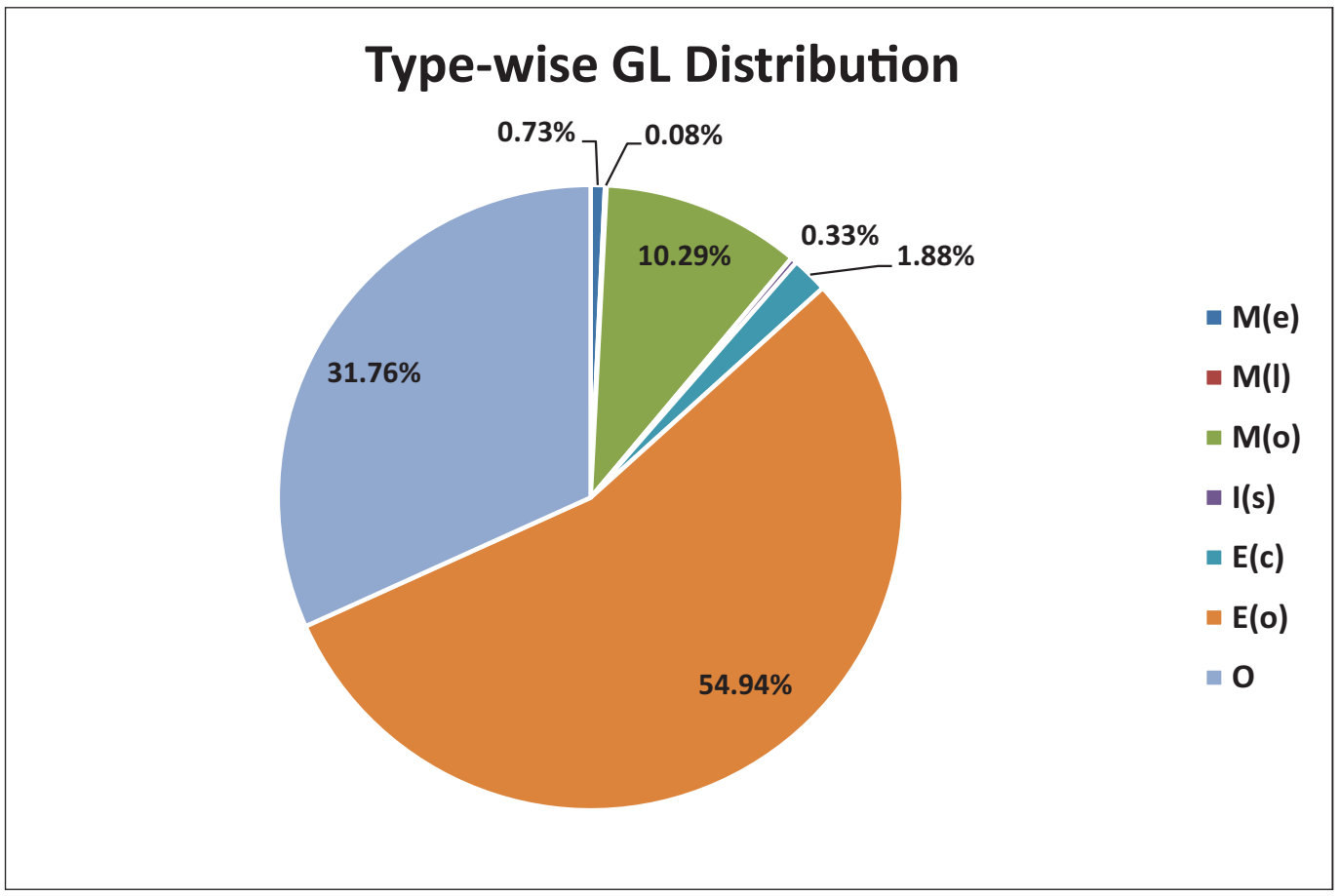


Figure 48: Type-wise distribution of GL in Lhasa Tsangpo subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 38 and Figure 49. The lakes with < 5 ha in size (85.55%) are dominant with Other Glacial Erosion Lake (55.05%) and Other Glacial lake (31.29%). Lakes with > 5 ha (14.45%) are equally by Other Glacial Erosion Lake (54.23%) and Other Glacial lake (34.46%). All types of Moraine Dammed lakes, which constitutes about 11.10% are predominantly with < 5 ha in water spread

Table 38: Area range-wise vs. Type-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(c)	E(o)	O	
1	0.25 - 0.5	0	0	0	28	2	0	1	0	132	104	267
2	0.5 - 1	0	0	0	39	2	0	2	0	167	84	294
3	1 - 5	4	0	0	50	0	0	15	0	278	140	487
4	5 - 10	2	0	0	6	0	0	4	0	40	32	84
5	10 - 50	3	1	0	3	0	0	1	0	42	22	72
6	> 50	0	0	0	0	0	0	0	0	14	7	21
Total		**9**	**1**	**0**	**126**	**4**	**0**	**23**	**0**	**673**	**389**	**1,225**

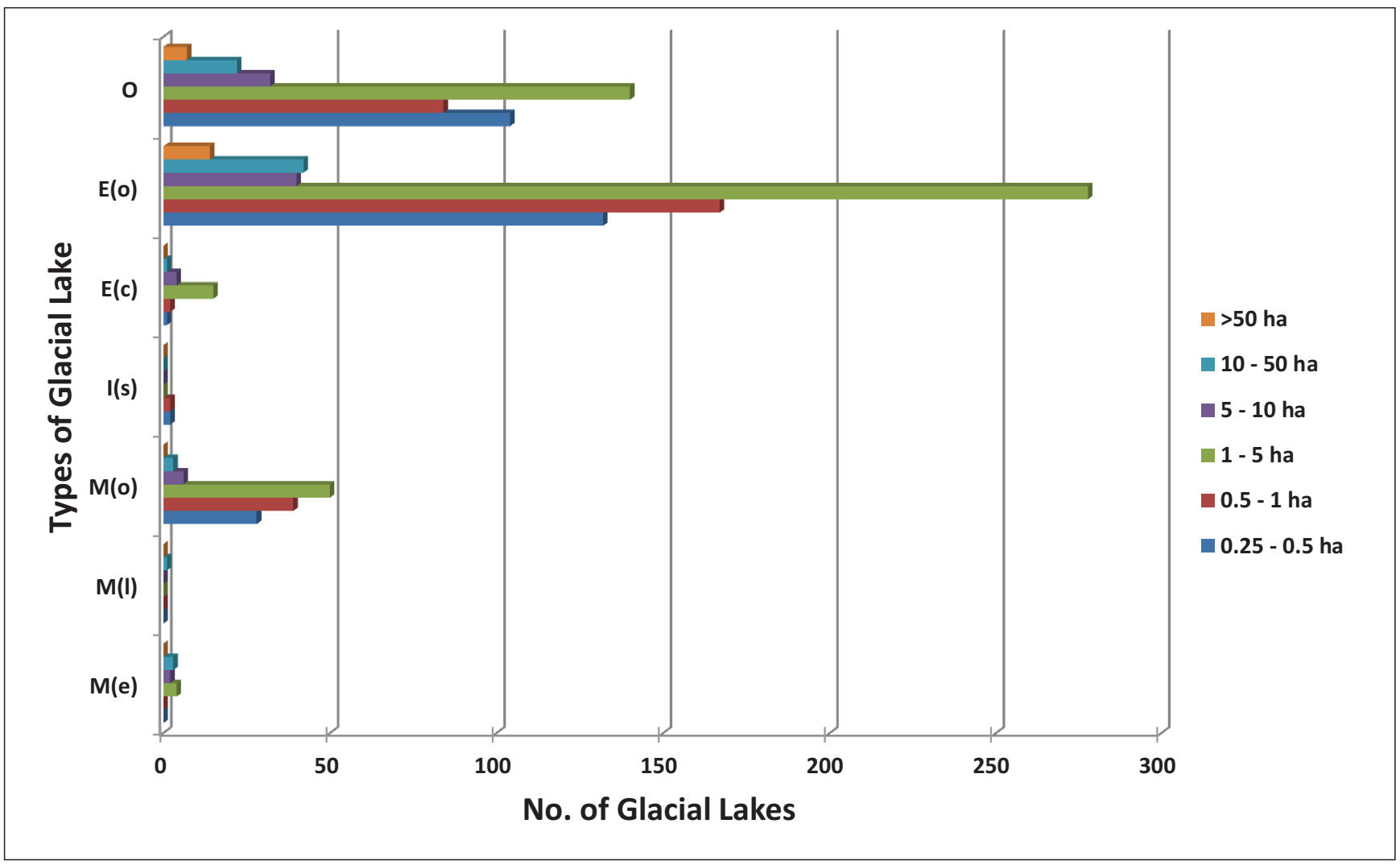


Figure 49: Area range-wise vs. Type-wise distribution of GL in Lhasa Tsangpo subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Lhasa Tsangpo subbasin has been shown in Table 39 and Figure 50. Except one, all glacial lakes are situated above 4,000 m elevation range i.e. 1,224 (99.92%) with total lake area of 6,980.46 ha (99.99%) and remaining 1 glacial lake is in the range of 3,001 - 4,000 m elevation.

Table 39: Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	1	0.49	0.01
3	4,001 - 5,000	376	3,684.05	52.77
4	> 5,000	848	3,296.40	47.22
Total		**1,225**	**6,980.94**	**100.00**

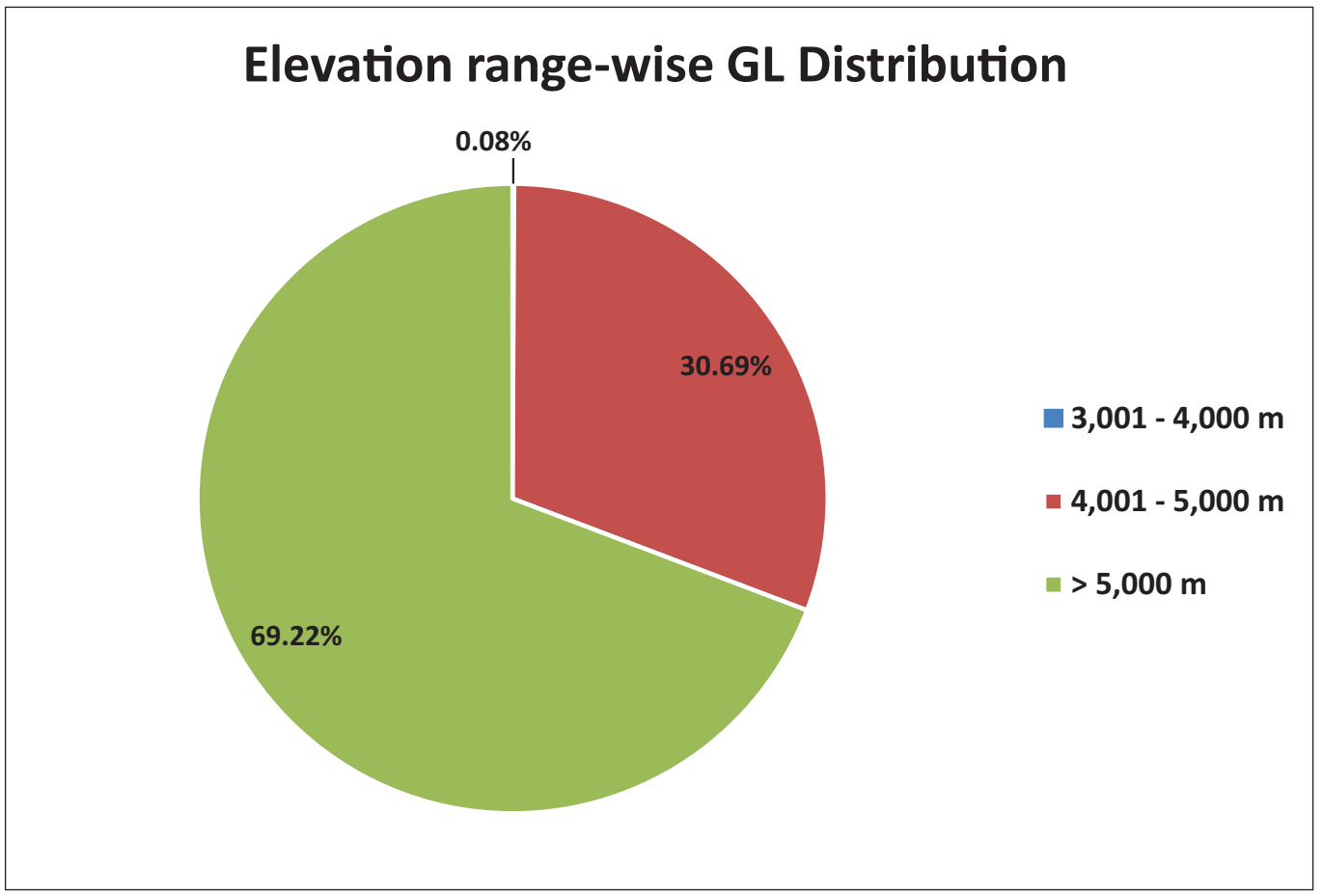


Figure 50: Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 40 and Figure 51. It is noted that, 30.69% of glacial lakes (376) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which also constitutes maximum total lake area within that range i.e. 52.77%. However, 848 glacial lakes lies above 5,000 m, has majority of its lakes are < 5 ha i.e. 87.38%. Maximum lakes lying in high altitude range is of size ranging 1 - 5 ha (i.e. 138), followed by lakes of size 0.25 – 0.5 ha (i.e. 92). It has been further noticed that, 18.61% of lakes > 5 ha are lying within in high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size ranging of 10 - 50 ha.

Table 40: Area range-wise vs. Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	1	0.49	92	34.98	174	62.63	267	98.10
2	0.5 - 1	0	0.00	0	0.00	76	54.79	218	154.40	294	209.19
3	1 - 5	0	0.00	0	0.00	138	284.08	349	757.57	487	1,041.65
4	5 - 10	0	0.00	0	0.00	26	181.03	58	386.43	84	567.46
5	10 - 50	0	0.00	0	0.00	29	566.75	43	846.46	72	1,413.21
6	> 50	0	0.00	0	0.00	15	2,562.00	6	1,089.00	21	3,651.33
Total		**0**	**0.00**	**1**	**0.49**	**376**	**3,684.05**	**848**	**3,296.40**	**1,225**	**6,980.94**

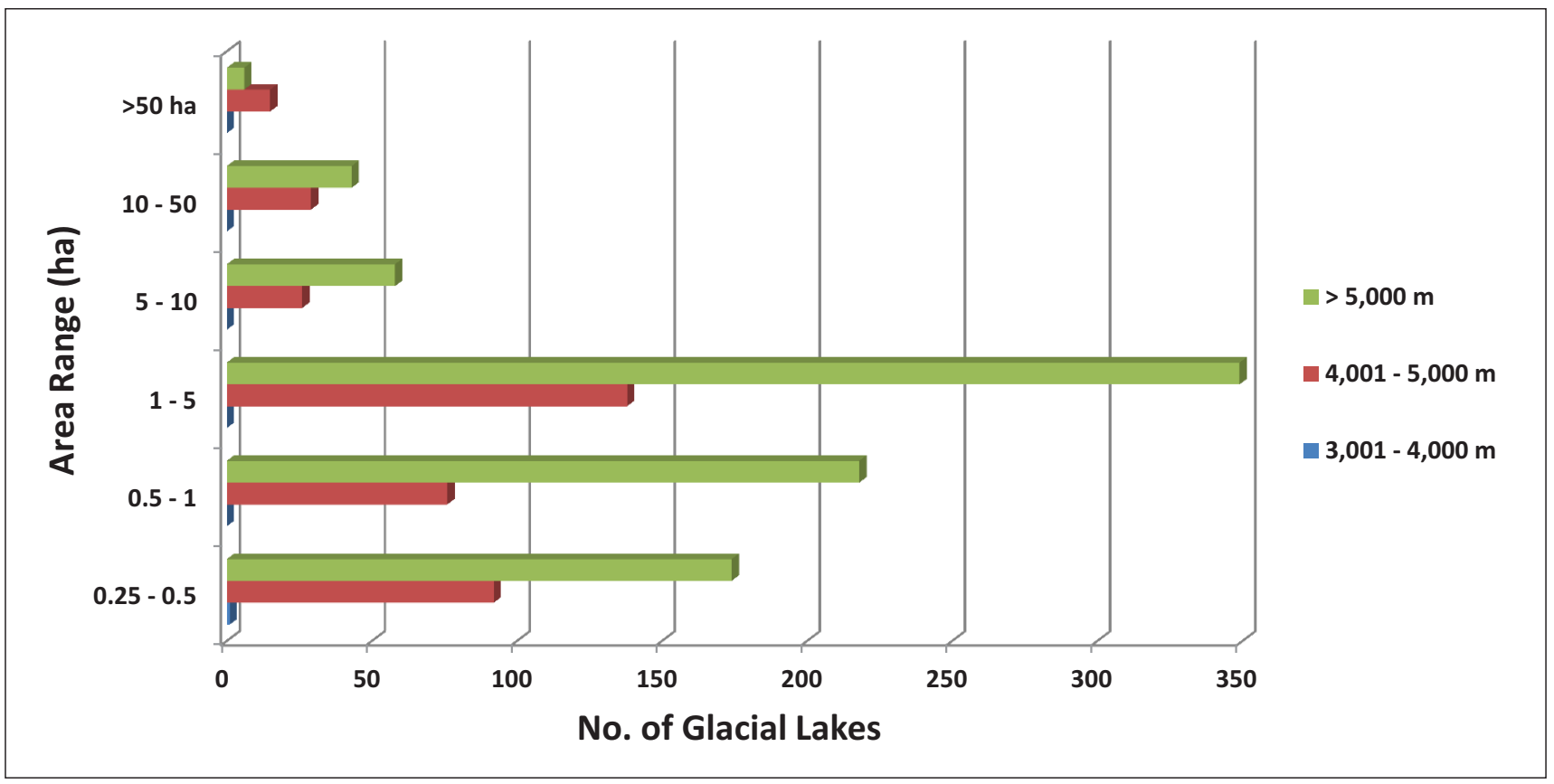


Figure 51: Area range-wise vs. Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 41 and Figure 52. The dominant lake types in the subbasin i.e., Other Glacial Erosion Lakes (54.93%) are predominantly located in the very high elevation range of > 5,000 m (69.22%). The other dominant lake type, namely, Other Moraine Dammed and Other Glacial lakes are also seen > 5,000 m elevation range i.e. 14.85% and 11.43% respectively. All types of Moraine-dammed lakes, lie above 5,000 m elevation. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 53.

Table 41: Type-wise vs. Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(c)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	0	0	0	1	1
3	4,001 - 5,000	0	0	0	0	0	0	0	0	85	291	376
4	> 5,000	9	1	0	126	4	0	23	0	588	97	848
Total		**9**	**1**	**0**	**126**	**4**	**0**	**23**	**0**	**673**	**389**	**1,225**

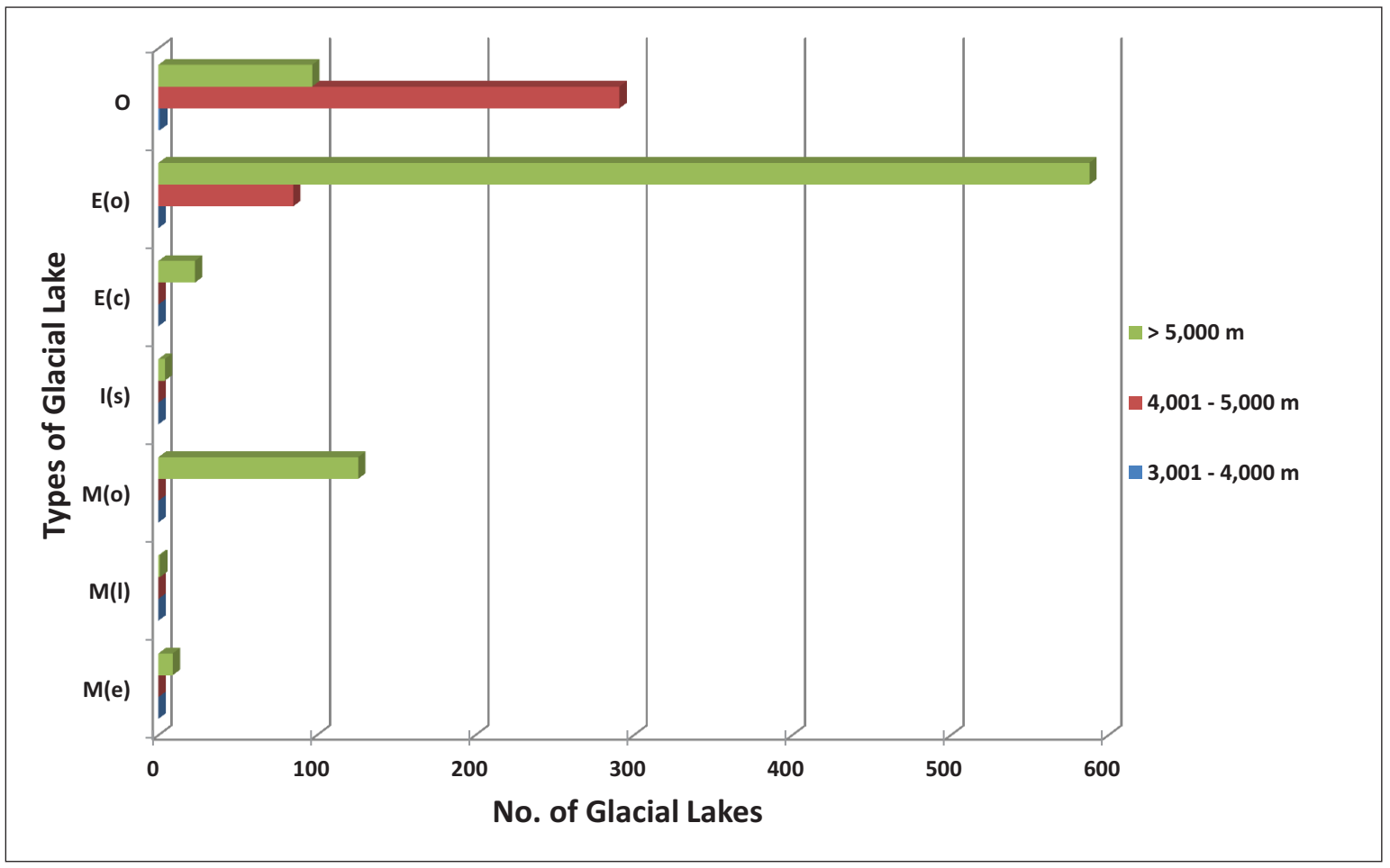


Figure 52: Type-wise vs. Elevation range-wise distribution of GL in Lhasa Tsangpo subbasin

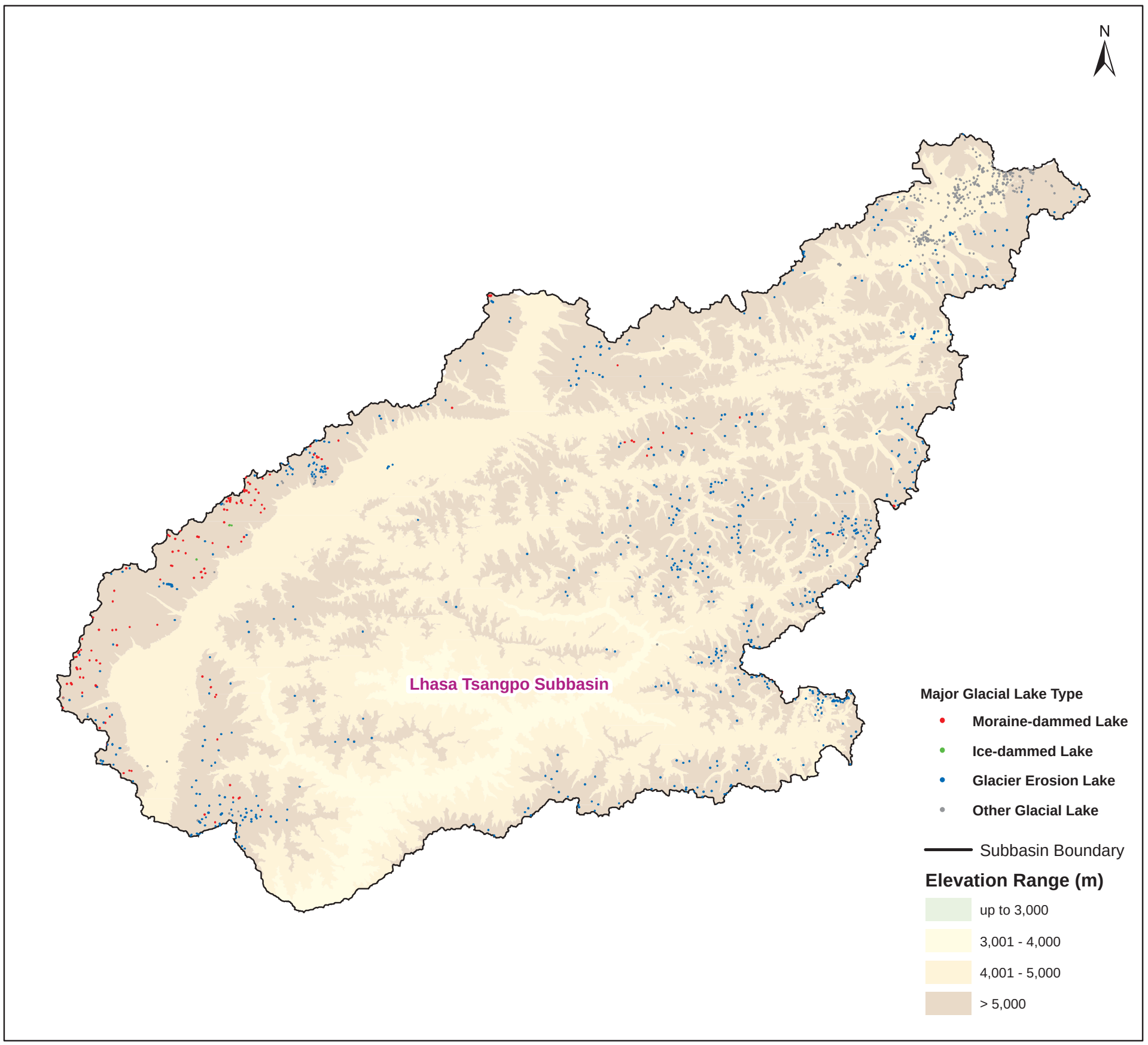


Figure 53: Elevation range-Type-wise spatial distribution of GL in Lhasa Tsangpo subbasin

5.2.6 Lohit Subbasin

The Lohit subbasin is the sixth largest subbasin of the Brahmaputra River basin covering a total area of 25,799 Km^2 i.e. 6.45% of the total basin area (Figure 54). Lohit River is a river in Arunachal Pradesh in India. It is a tributary to the Brahmaputra River. It originates in eastern Tibet, in the Zayal Chu range and surges through Arunachal Pradesh for 200 km, before reaching in the plains of Assam. The river flows through Mishmi hills to meet the Siang at the head of the Brahmaputra valley. Kangri Karpo Chu and Zang Chu are two main tributaries of Lohit River. A total of 2,276 glacial lakes has been mapped, covering a total area of 11,529.23 ha i.e. 0.44% of the total area of the subbasin.

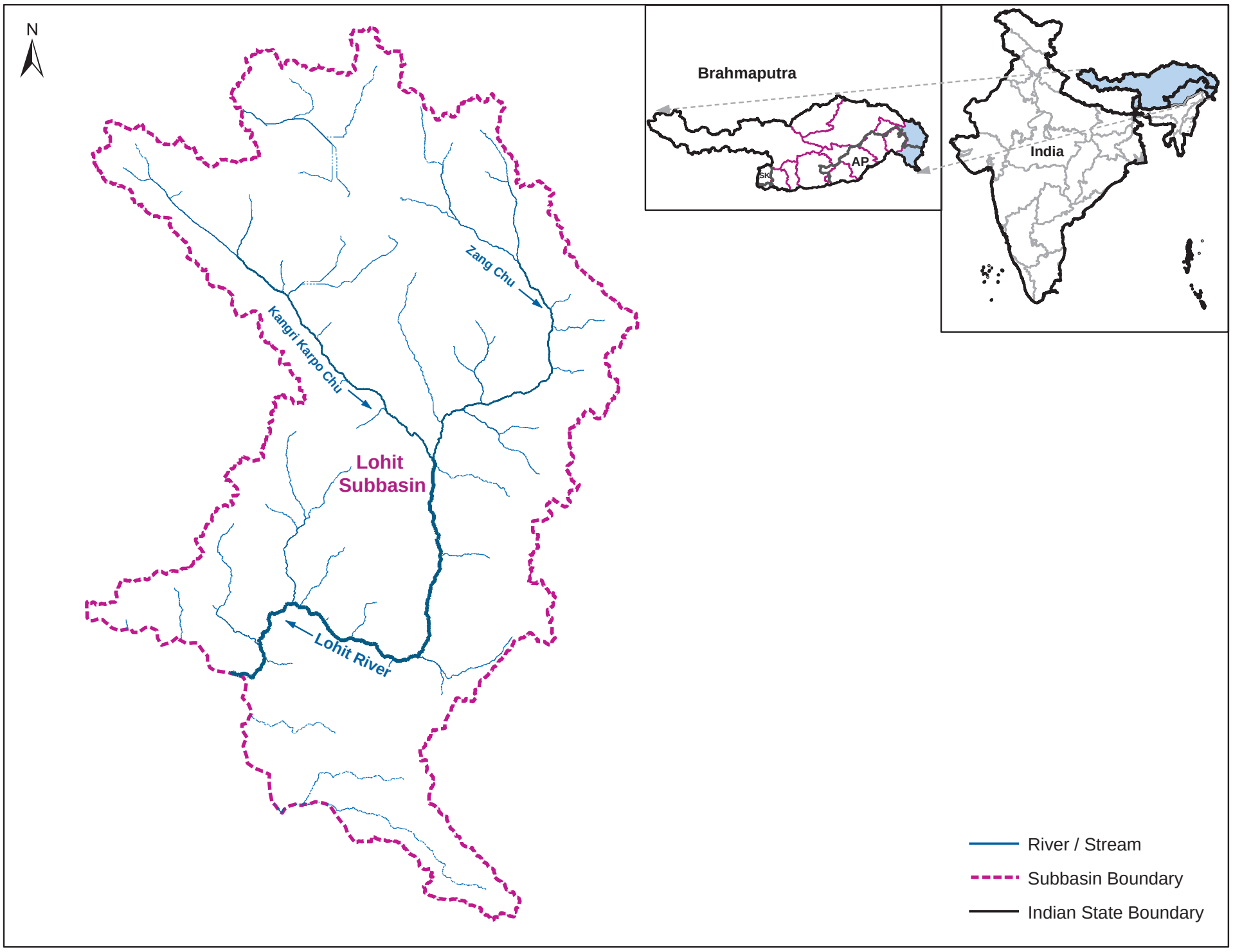


Figure 54: Location map of the Lohit subbasin

Area range-wise Distribution

In Lohit subbasin, glacial lakes have been distributed in all area ranges. Table 42 and Figure 55 shows the area range-wise distribution of glacial lakes for the Lohit subbasin. About 1,819 (79.92%) lakes are with < 5 ha lake area contributing to 22.28% of total lake area. The remaining lakes with > 5 ha in size are 457 (20.08%) contributing to 77.72% of total lake area in the subbasin.

Table 42: Area range-wise distribution of GL in Lohit subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	466	165.05	1.43
2	0.5 - 1	496	360.40	3.13
3	1 - 5	857	2,043.43	17.73
4	5 - 10	229	1,615.47	14.01
5	10 - 50	209	3,989.56	34.62
6	> 50	19	3,355.32	29.12
Total		**2,276**	**11,529.23**	**100.00**

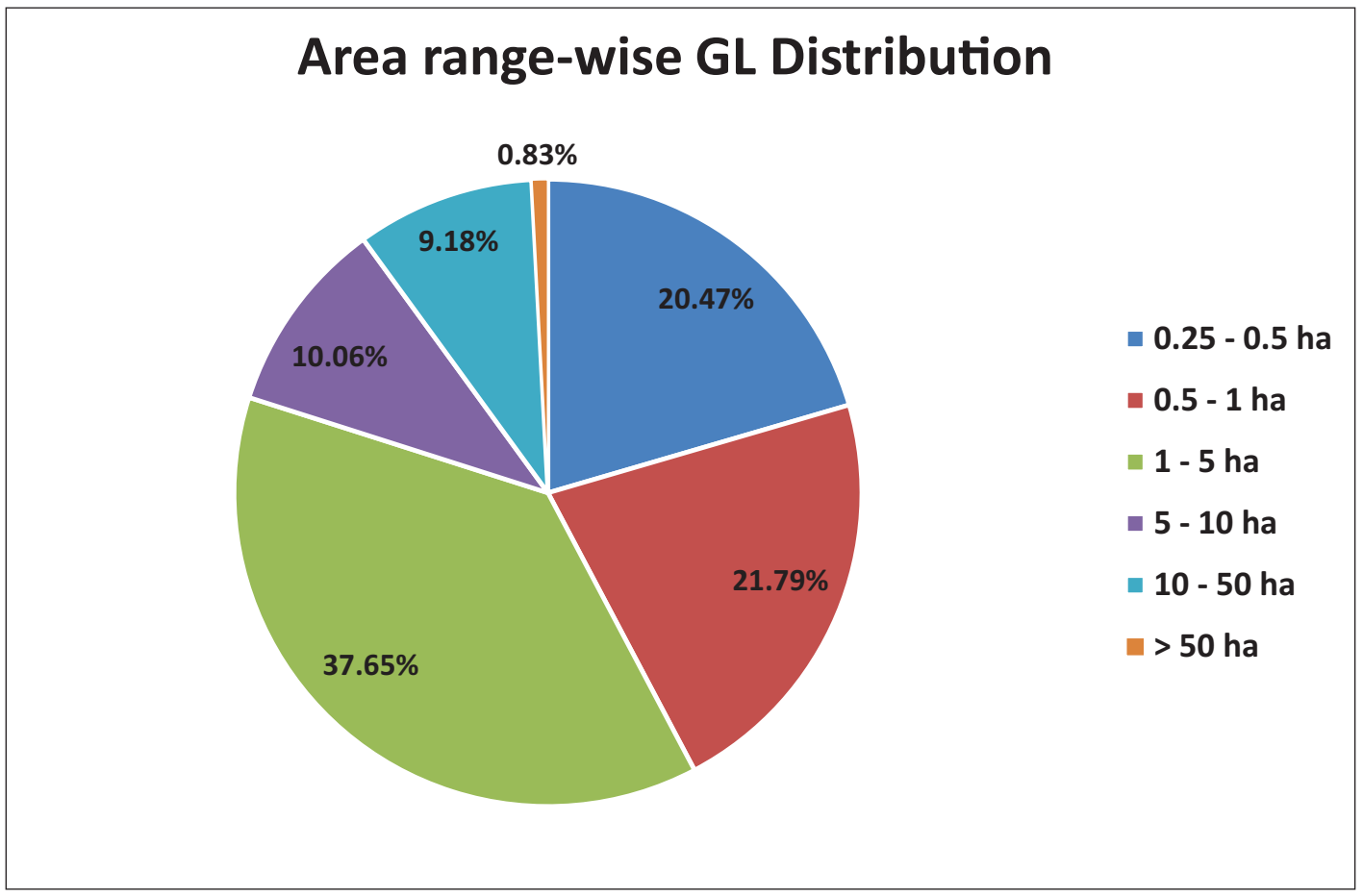


Figure 55: Area range-wise distribution of GL in Lohit subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Lohit subbasin is given in Table 43 and Figure 56. Out of 10 types of glacial lakes, only 7 types of lake are present in the Lohit subbasin, where Other Glacial lakes are found to be the maximum with 1,572 (69.06%) occupying a total lake extent of 6,632.45 ha at 57.53% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 386 (16.95%) and extend over a total area of 1,589.65 ha at 13.79%. in the subbasin.

Table 43: Type-wise distribution of GL in Lohit subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	59	850.32	7.38
2	M(l)	Lateral Moraine Dammed Lake	5	102.81	0.89
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	386	1,589.65	13.79
5	I(s)	Supra-glacial Lake	12	11.00	0.10
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	82	879.15	7.63
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	1,572	6,632.45	57.53
10	O	Other Glacial Lake	160	1,463.85	12.70
Total			**2,276**	**11,529.23**	**100.00**

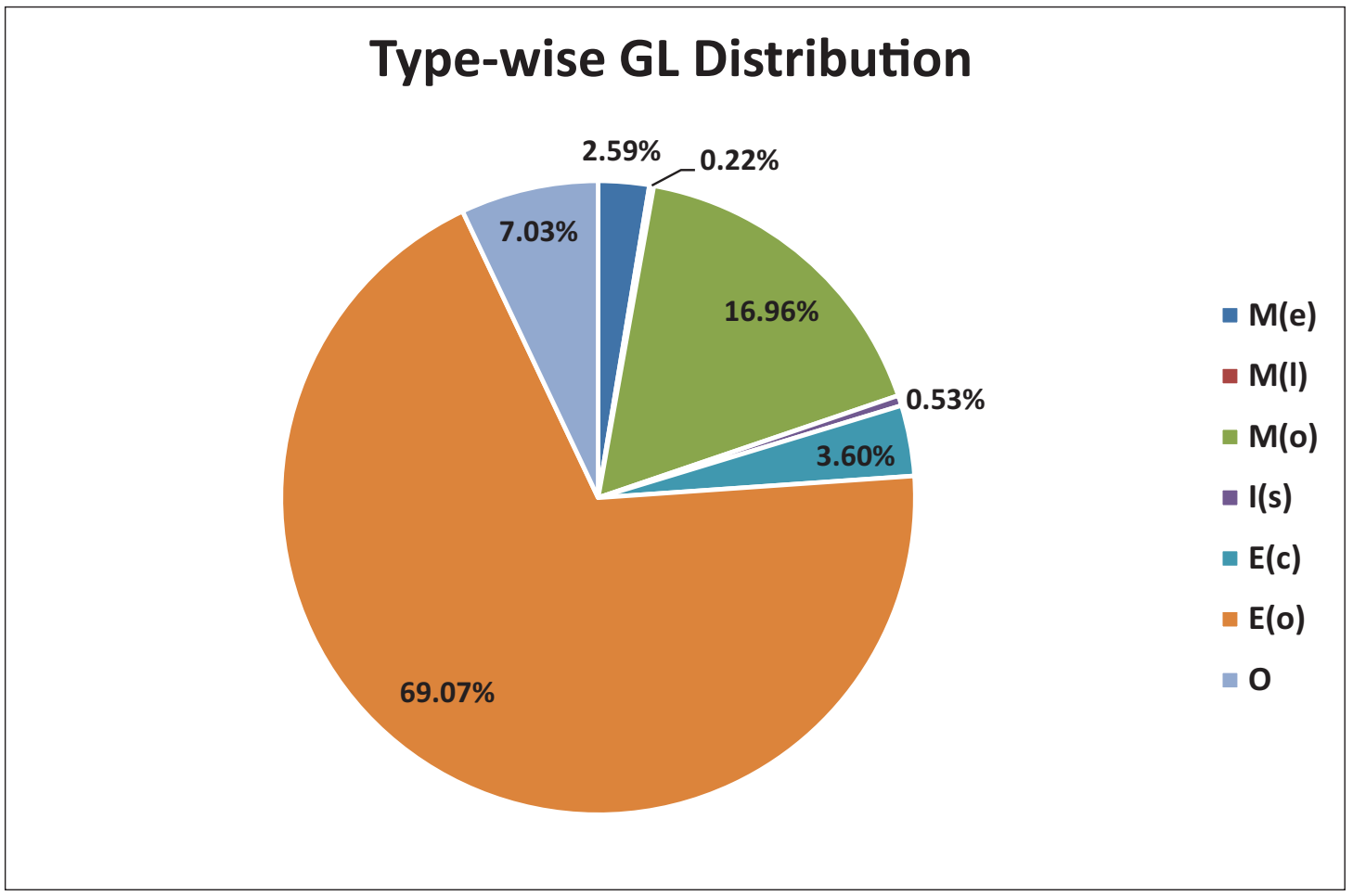


Figure 56: Type-wise distribution of GL in Lohit subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 44 and Figure 57. The lakes with < 5 ha in size (79.92%) are dominant with Other Glacial Erosion (70.20%) and Other Moraine Dammed lakes (17.70%). Lakes with > 5 ha (20.08%) are also dominated by Other Glacial Erosion lakes (64.55%). All types of Glacier Erosion lakes, which constitute about 72.67% are predominantly with < 5 ha in water spread.

Table 44: Area range-wise vs. Type-wise distribution of GL in Lohit subbasin

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(o)	E(o)	O	
1	0.25 - 0.5	3	1	0	92	5	0	0	0	310	55	466
2	0.5 - 1	2	0	0	102	3	0	1	0	348	40	496
3	1 - 5	24	3	0	128	4	0	27	0	619	52	857
4	5 - 10	10	0	0	36	0	0	21	0	158	4	229
5	10 - 50	18	0	0	24	0	0	33	0	127	7	209
6	> 50	2	1	0	4	0	0	0	0	10	2	19
Total		**59**	**5**	**0**	**386**	**12**	**0**	**82**	**0**	**1,572**	**160**	**2,276**

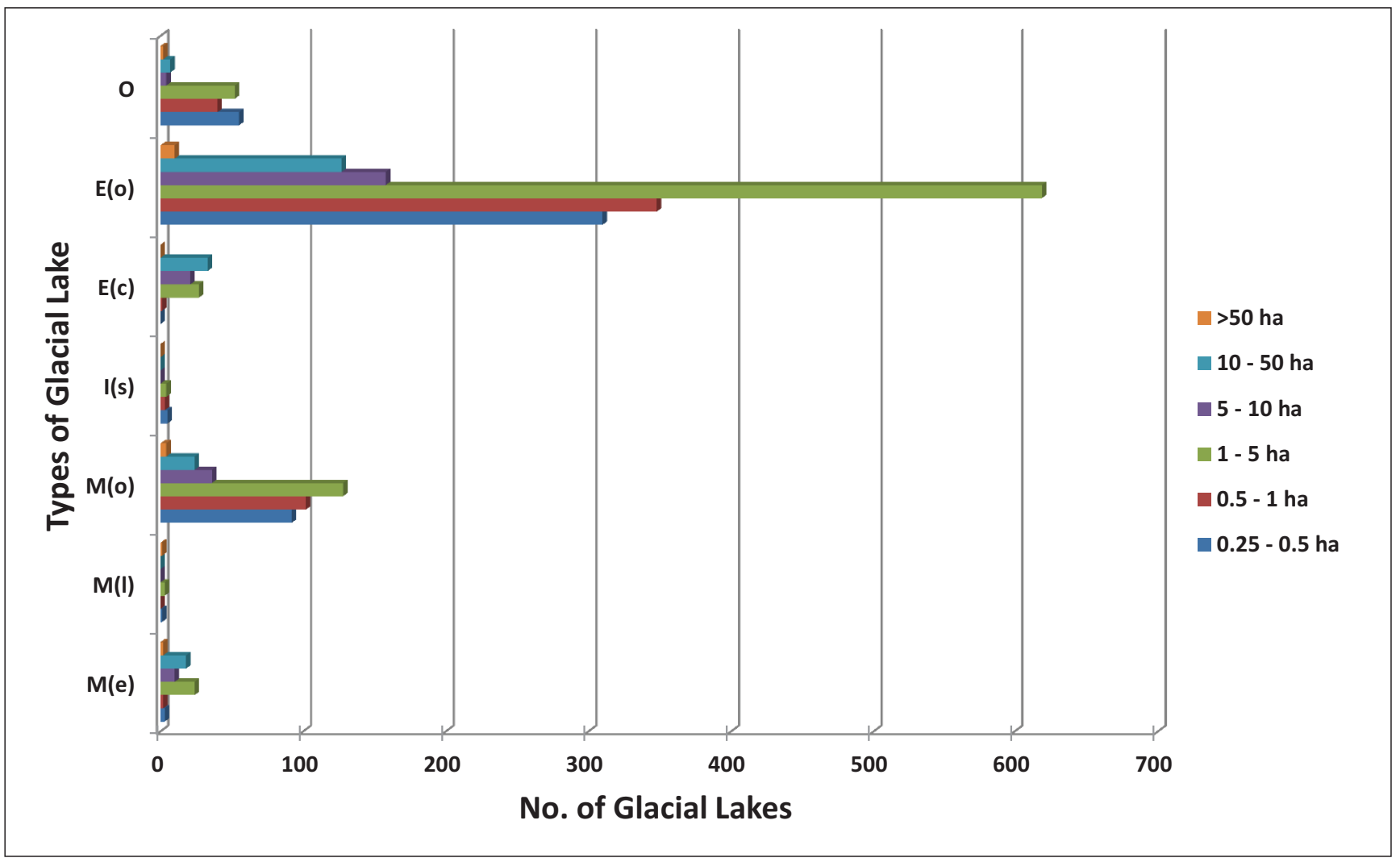


Figure 57: Area range-wise vs. Type-wise distribution of GL in Lohit subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Lohit subbasin has been shown in Table 45 and Figure 58. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 1,990 (87.43%) with total lake area of 7,575.13 ha (65.70%) and remaining 12.57% glacial lakes are below 4,000 m elevation.

Table 45: Elevation range-wise distribution of GL in Lohit subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	5	58.10	0.50
2	3,001 - 4,000	281	3,896.04	33.79
3	4,001 - 5,000	1,735	7,025.16	60.93
4	> 5,000	255	549.93	4.77
Total		**2,276**	**11,529.23**	**100.00**

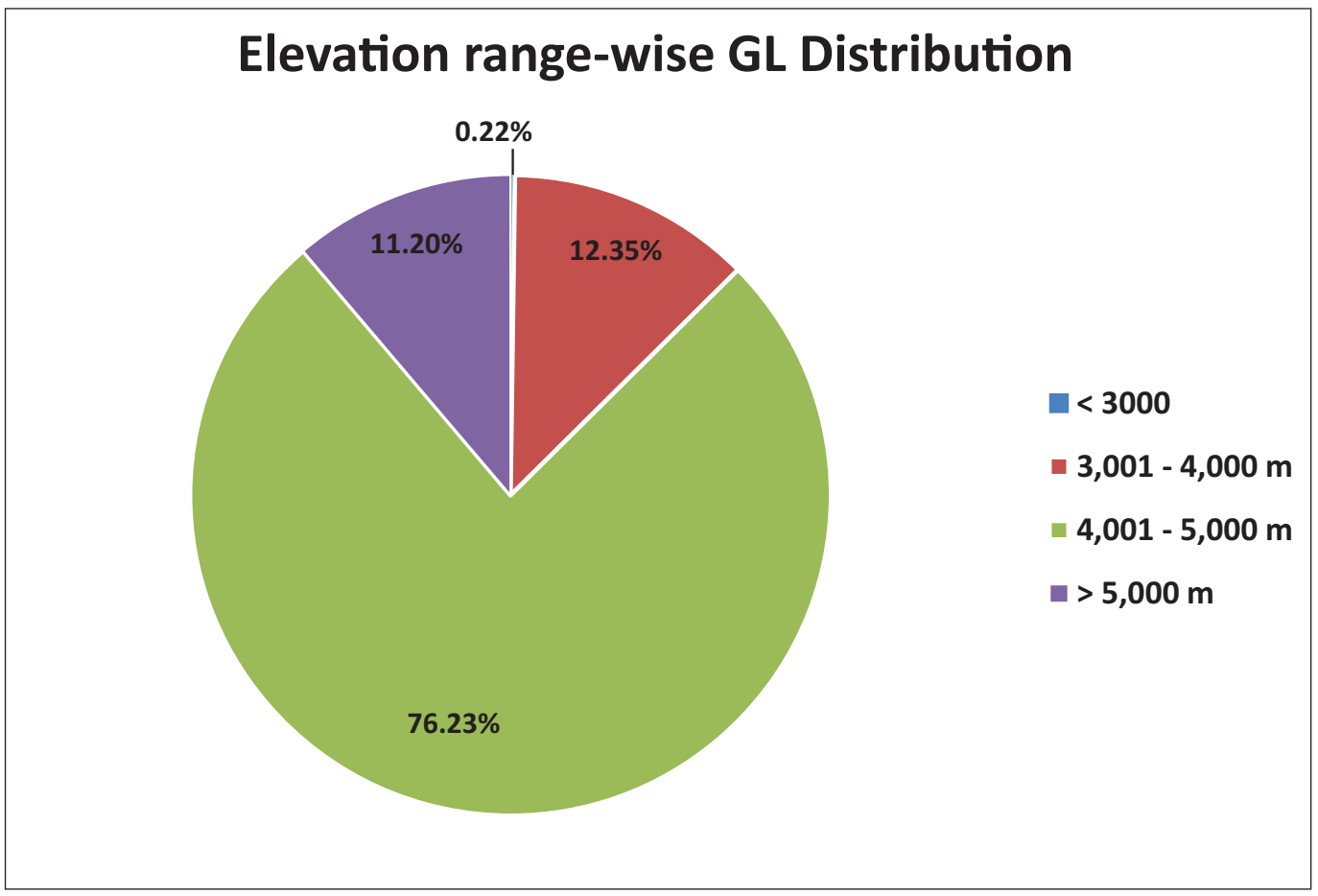


Figure 58: Elevation range-wise distribution of GL in Lohit subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 46 and Figure 59. It is noted that, 76.20% of glacial lakes (1,735) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 60.91%. It has been further noticed that, 71.49% of lakes > 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, 5 glacial lakes lie below 3,000 m and 255 lakes above 5,000 m elevation range.

Table 46: Area range-wise vs. Elevation range-wise distribution of GL in Lohit subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	29	10.75	365	129.20	72	25.10	466	165.05
2	0.5 - 1	1	0.62	34	25.47	395	286.49	66	47.82	496	360.40
3	1 - 5	2	6.01	118	275.41	648	1,559.14	89	202.87	857	2,043.43
4	5 - 10	0	0.00	49	355.34	162	1,139.26	18	120.87	229	1,615.47
5	10 - 50	2	51.47	43	904.24	154	2,880.58	10	153.27	209	3,989.56
6	> 50	0	0.00	8	2,325.00	11	1,030.00	0	0.00	19	3,355.32
	Total	**5**	**58.10**	**281**	**3,896.04**	**1,735**	**7,025.16**	**255**	**549.93**	**2,276**	**11,529.23**

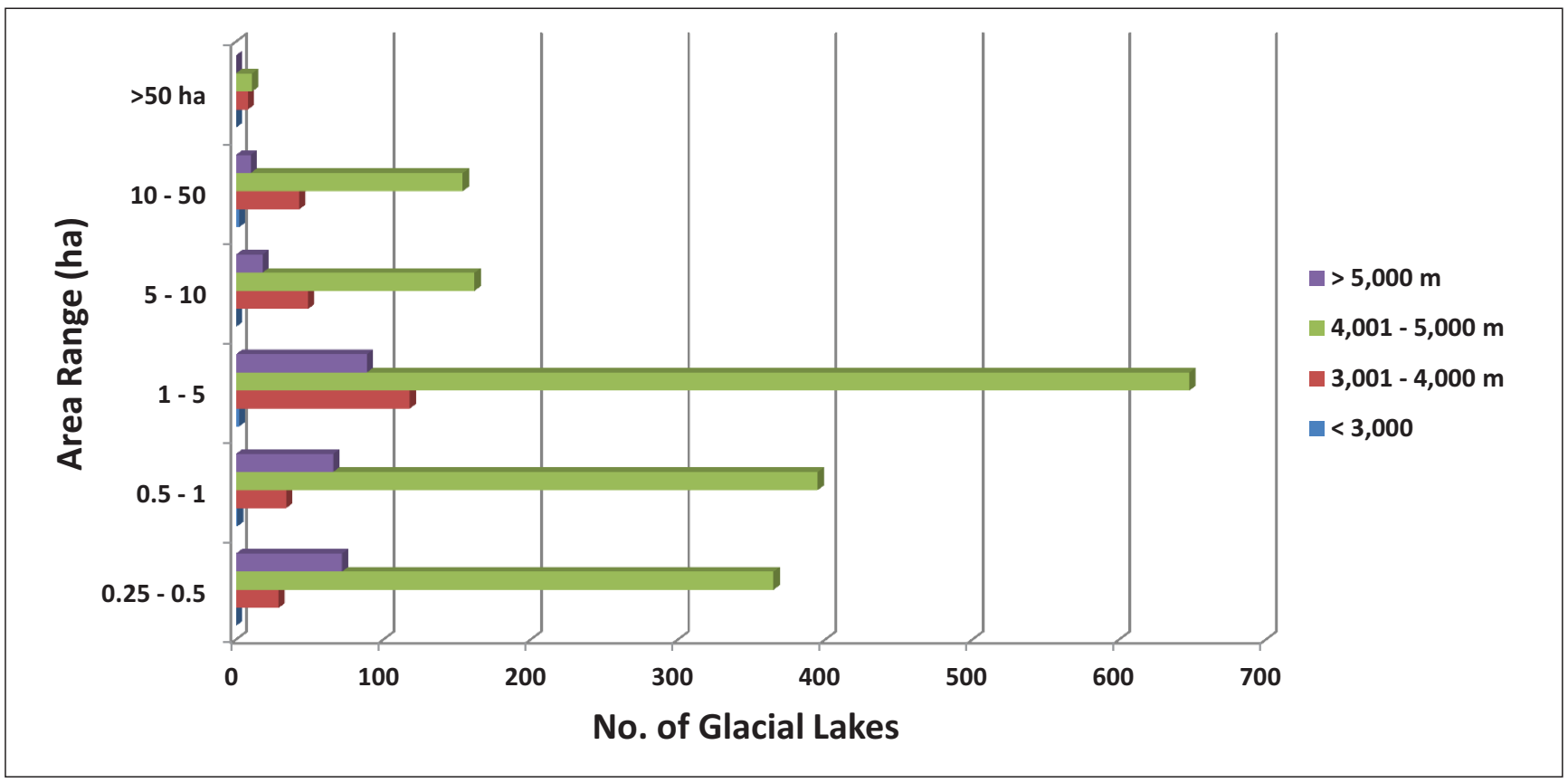


Figure 59: Area range-wise vs. Elevation range-wise distribution of GL in Lohit subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 47 and Figure 60. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (69.06%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Supra-glacial lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 16.95% and 0.52%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 61.

Table 47: Type-wise vs. Elevation range-wise distribution of GL in Lohit subbasin

S. No.	Elevation Range (m)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	3	0	0	0	0	1	1	5
2	3,001 - 4,000	3	0	0	3	4	0	16	0	205	50	281
3	4,001 - 5,000	29	3	0	176	8	0	65	0	1,345	109	1,735
4	> 5,000	27	2	0	204	0	0	1	0	21	0	255
Total		**59**	**5**	**0**	**386**	**12**	**0**	**82**	**0**	**1,572**	**160**	**2,276**

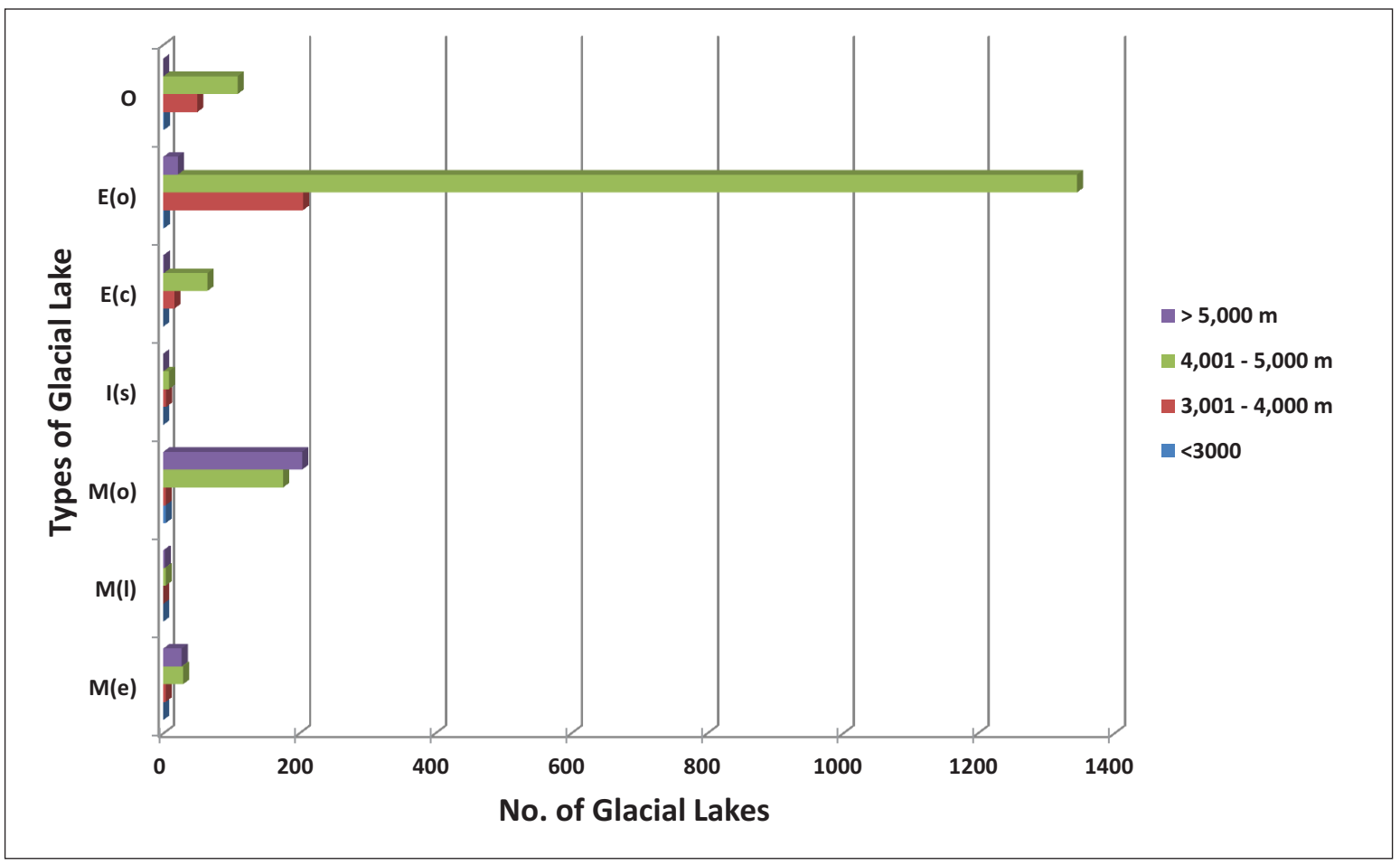


Figure 60: Type-wise vs. Elevation range-wise distribution of GL in Lohit subbasin

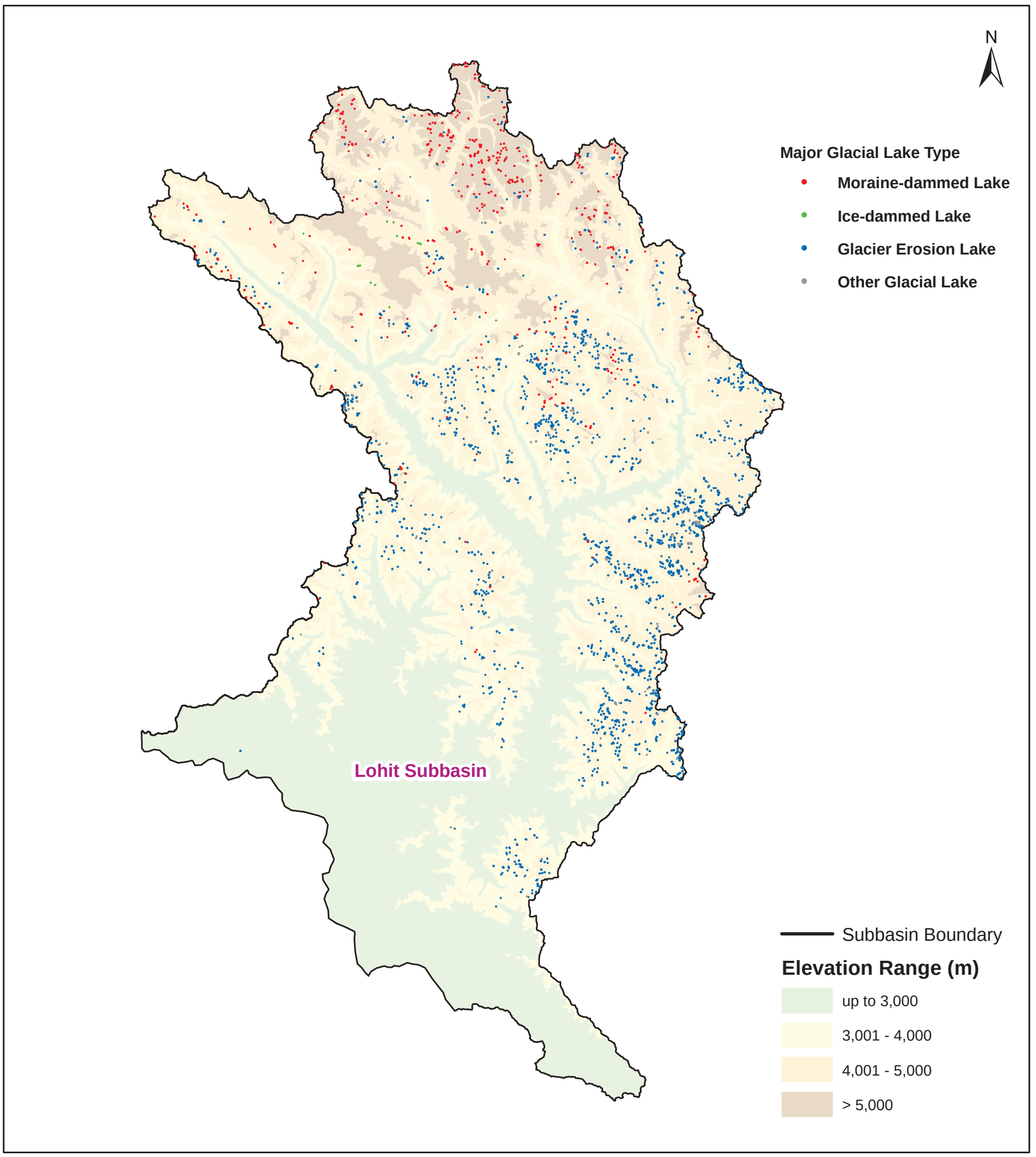


Figure 61: Elevation range-Type-wise spatial distribution of GL in Lohit subbasin

5.2.7 Lower Yarlung Tsangpo Subbasin

The Lower Yarlung Tsangpo subbasin is the second largest subbasin of the Brahmaputra River basin covering a total area of 74,334 Km^2 i.e. 18.59% of the total basin area (Figure 62). Major tributaries of Yarlung Tsangpo include Nyangchu River, Lhasa River, Nyang River, and Parlung Tsangpo. It originates at Angsi Glacier in western Tibet, southeast of Mount Kailash and Lake Manasarovar, it later forms the South Tibet Valley and Yarlung Tsangpo Grand Canyon before passing into the state of Arunachal Pradesh, India. A total of 4,979 glacial lakes has been mapped, covering a total area of 26,371.81 ha i.e. 0.35% of the total area of the subbasin.

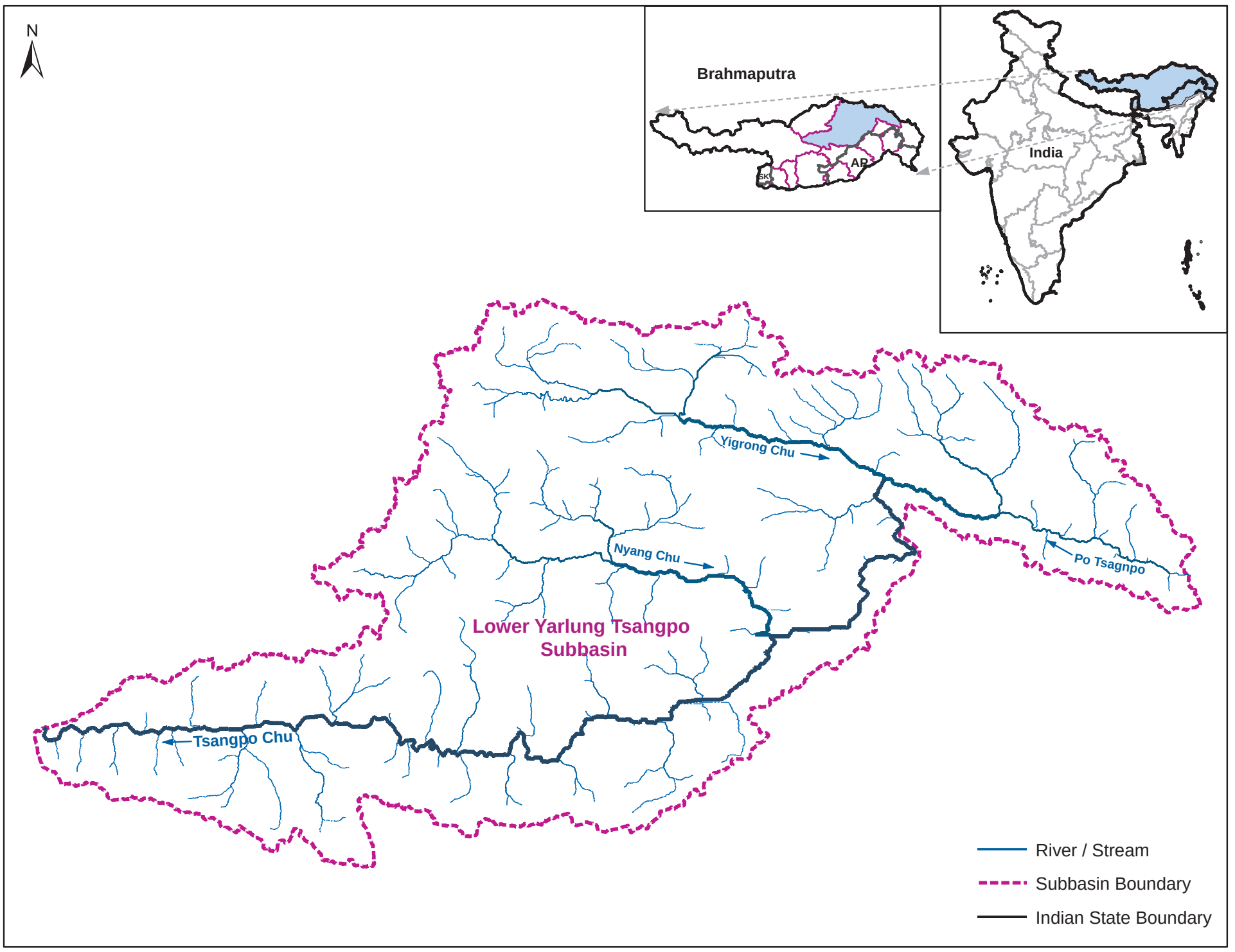


Figure 62: Location map of the Lower Yarlung Tsangpo subbasin

Area range-wise Distribution

In Lower Yarlung Tsangpo subbasin, glacial lakes have been distributed in all area ranges. Table 48 and Figure 63 shows the area range-wise distribution of glacial lakes for the Lower Yarlung Tsangpo subbasin. About 3,967 (79.67%) lakes are with < 5 ha lake area contributing to 22.12% of total lake area. The remaining lakes with > 5 ha in size are 1,012 (20.33%) contributing to 77.88% of total lake area in the subbasin.

Table 48: Area range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Subbasin	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	904	328.04	1.24
2	0.5 - 1	1,024	735.02	2.79
3	1 - 5	2,039	4,769.34	18.08
4	5 - 10	529	3,724.79	14.12
5	10 - 50	429	8,081.12	30.64
6	> 50	54	8,733.50	33.12
Total		**4,979**	**26,371.81**	**100.00**

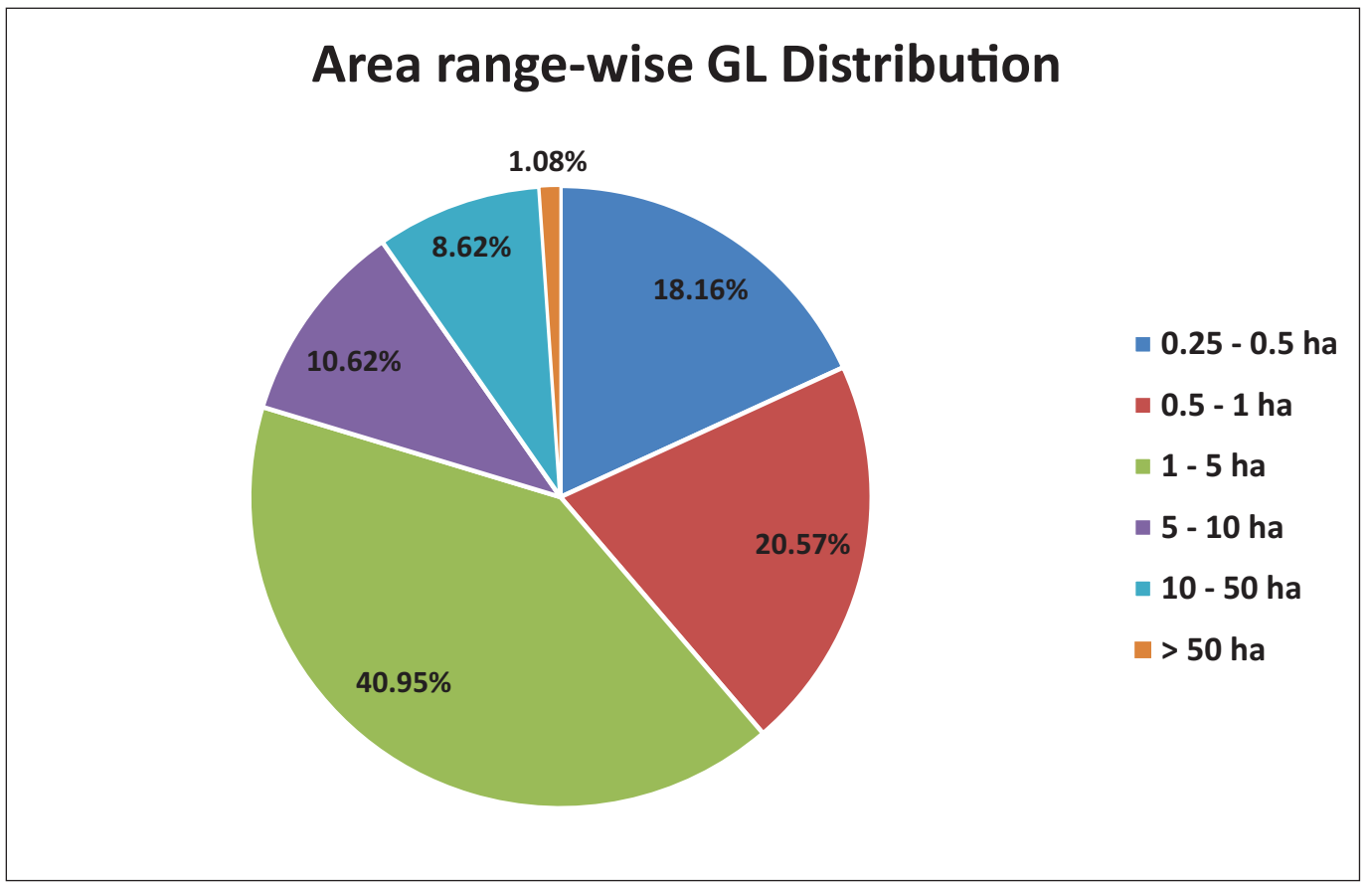


Figure 63: Area range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Lower Yarlung Tsangpo subbasin is given in Table 49 and Figure 64. Out of 10 types of glacial lakes, 9 types of lake are present in the Lower Yarlung Tsangpo subbasin, where Other Glacial Erosion lakes are found to be the maximum with 3,832 (76.96%) occupying a total lake extent of 15,111.18 ha at 57.30% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 694 (13.93%) and extend over a total area of 2,362.46 ha at 8.96% in the subbasin.

Table 49: Type-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	96	2,355.92	8.93
2	M(l)	Lateral Moraine Dammed Lake	11	27.05	0.10
3	M(lg)	Lateral Moraine Dammed Lake with Ice	1	0.33	0.00
4	M(o)	Other Moraine Dammed Lake	694	2,362.46	8.96
5	I(s)	Supra-glacial Lake	25	13.59	0.05
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	114	1,294.92	4.91
8	E(v)	Glacier Trough Valley Erosion Lake	6	3,375.74	12.80
9	E(o)	Other Glacial Erosion Lake	3,832	15,111.18	57.30
10	O	Other Glacial Lake	200	1,830.62	6.94
Total			**4,979**	**26,371.81**	**100.00**

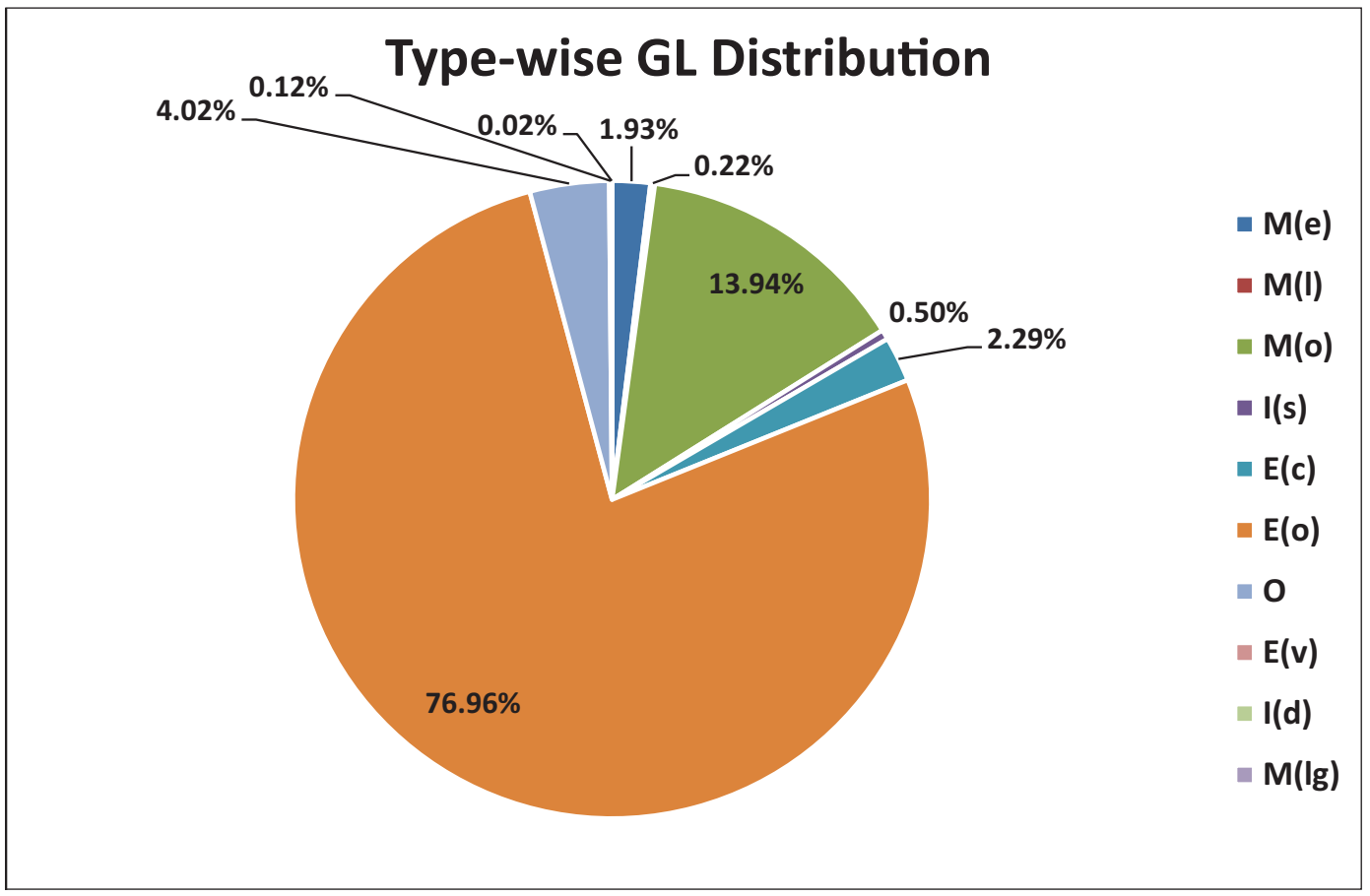


Figure 64: Type-wise distribution of GL in Lower Yarlung Tsangpo subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 50 and Figure 65. The lakes with < 5 ha in size (79.67%) are dominant with Other Glacial Erosion (78.32%) and Other Moraine Dammed lakes (14.99%). Lakes with > 5 ha (20.33%) are also dominated by Other Glacial Erosion lakes (71.64%). All types of Glacier Erosion lakes, which constitute about 79.37% are predominantly with < 5 ha in water spread.

Table 50: Area range-wise vs. Type-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	3	3	1	137	14	0	2	0	700	44	904
2	0.5 - 1	6	4	0	164	8	0	6	0	798	38	1,024
3	1 - 5	23	2	0	294	3	0	38	0	1,609	70	2,039
4	5 - 10	21	1	0	56	0	0	33	0	396	22	529
5	10 - 50	32	1	0	38	0	0	32	0	305	21	429
6	> 50	11	0	0	5	0	0	3	6	24	5	54
Total		**96**	**11**	**1**	**694**	**25**	**0**	**114**	**6**	**3,832**	**200**	**4,979**

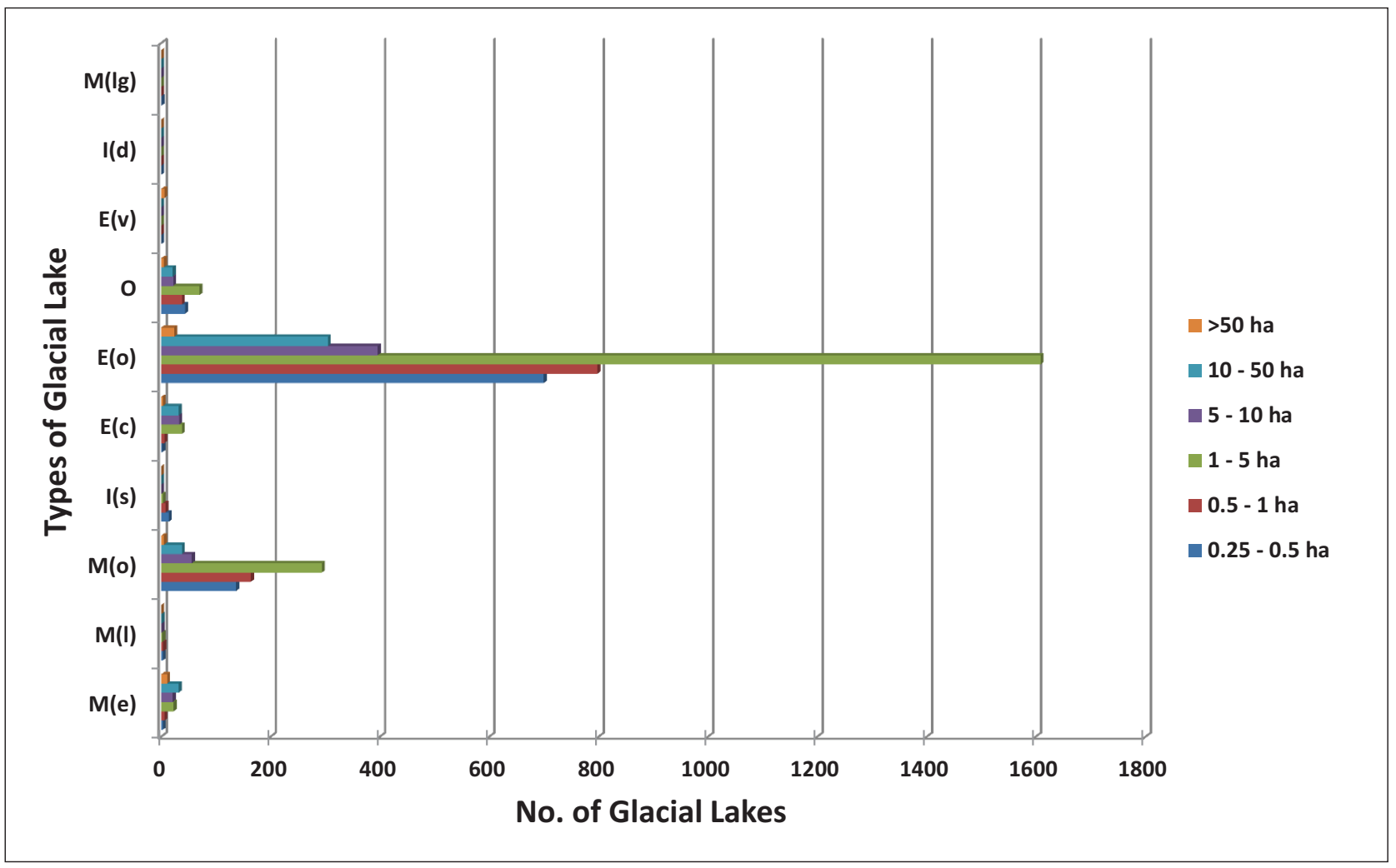


Figure 65: Area range-wise vs. Type-wise distribution of GL in Lower Yarlung Tsangpo subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Lower Yarlung Tsangpo subbasin has been shown in Table 51 and Figure 66. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 4,878 (97.97%) with total lake area of 24,875.68 ha (94.32%) and remaining 2.03% glacial lakes are below 4,000 m elevation.

Table 51: Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	2	40.11	0.15
2	3,001 - 4,000	99	1,456.03	5.52
3	4,001 - 5,000	3,056	16,552.09	62.76
4	> 5,000	1,822	8,323.58	31.56
Total		**4,979**	**26,371.81**	**100.00**

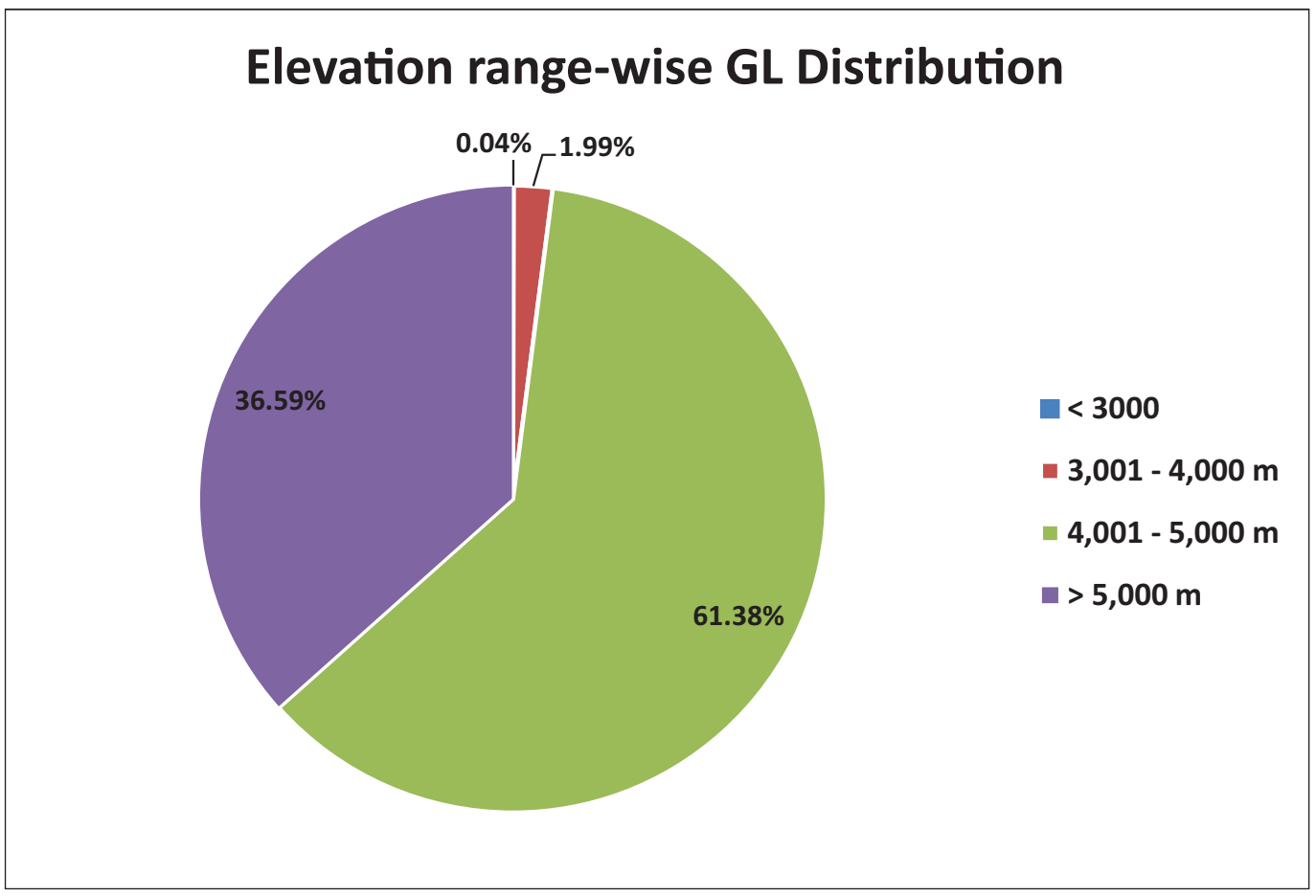


Figure 66: Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 52 and Figure 67. It is noted that, 61.37% of glacial lakes (3,056) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 62.76%. It has been further noticed that, 58.85% of lakes > 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, 2 glacial lakes lie below 3,000 m and 1,822 lakes above 5,000 m elevation range.

Table 52: Area range-wise vs. Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	20	7.64	514	188.22	370	132.18	904	328.04
2	0.5 - 1	0	0.00	17	11.67	600	433.46	407	289.89	1,024	735.02
3	1 - 5	1	4.04	36	77.62	1,220	2,890.09	782	1,797.59	2,039	4,769.34
4	5 - 10	0	0.00	9	66.53	369	2,592.23	151	1,066.03	529	3,724.79
5	10 - 50	1	36.07	11	223.71	312	6,017.32	105	1,804.01	429	8,081.11
6	> 50	0	0.00	6	1,069.00	41	4,431.00	7	3,233.88	54	8,733.51
Total		**2**	**40.11**	**99**	**1,456.03**	**3,056**	**16,552.09**	**1,822**	**8,323.58**	**4,979**	**26,371.81**

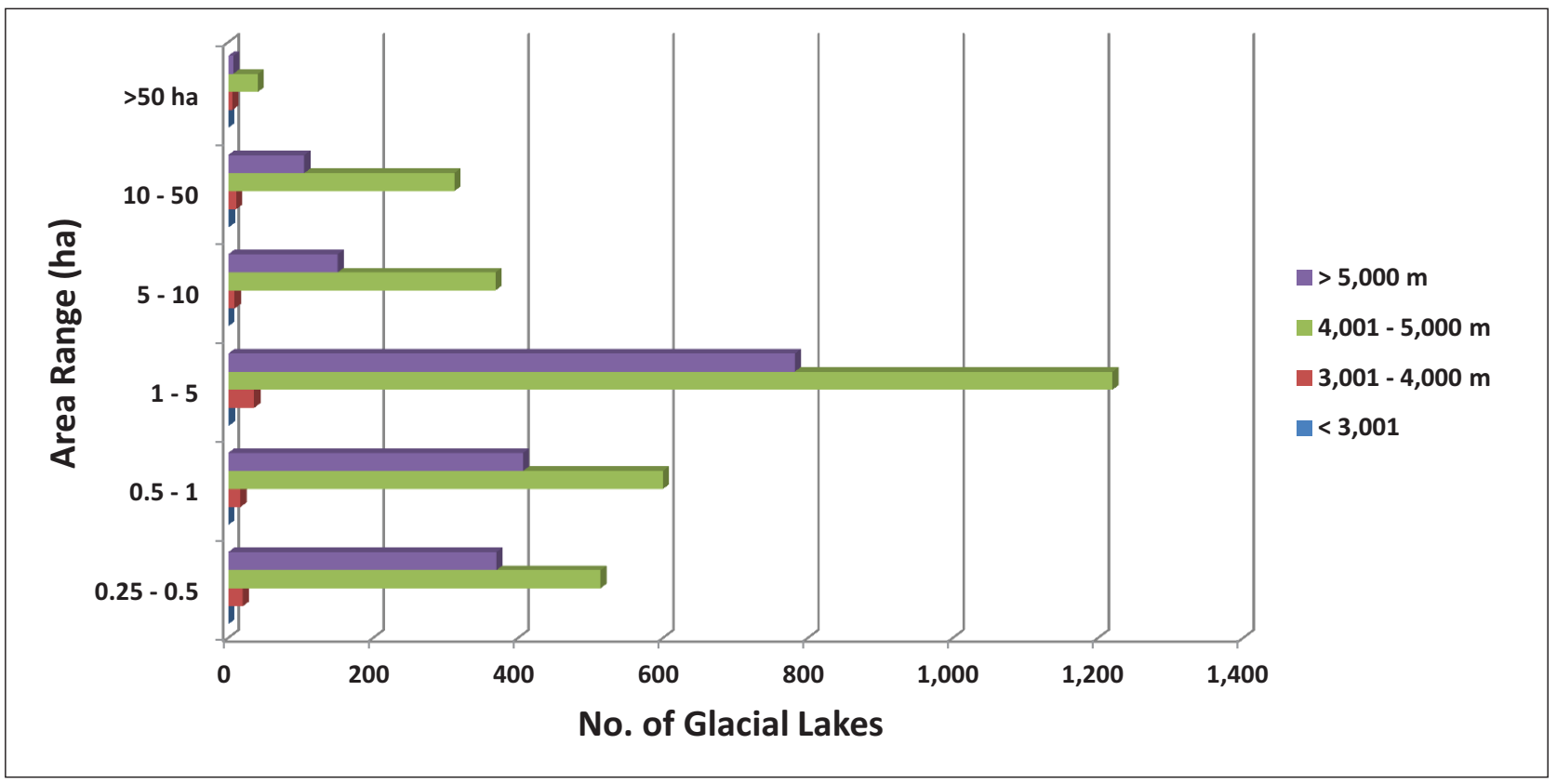


Figure 67: Area range-wise vs. Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

Type-Elevation range wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 53 and Figure 68. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (76.96%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Cirque Erosion Lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 48.70% and 77.19%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 69.

Table 53: Type-wise vs. Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	1	0	0	0	0	1	0	2
2	3,001 - 4,000	7	0	0	22	8	0	1	1	40	20	99
3	4,001 - 5,000	57	9	1	338	11	0	88	4	2,411	137	3,056
4	> 5,000	32	2	0	333	6	0	25	1	1,380	43	1,822
Total		**96**	**11**	**1**	**694**	**25**	**0**	**114**	**6**	**3,832**	**200**	**4,979**

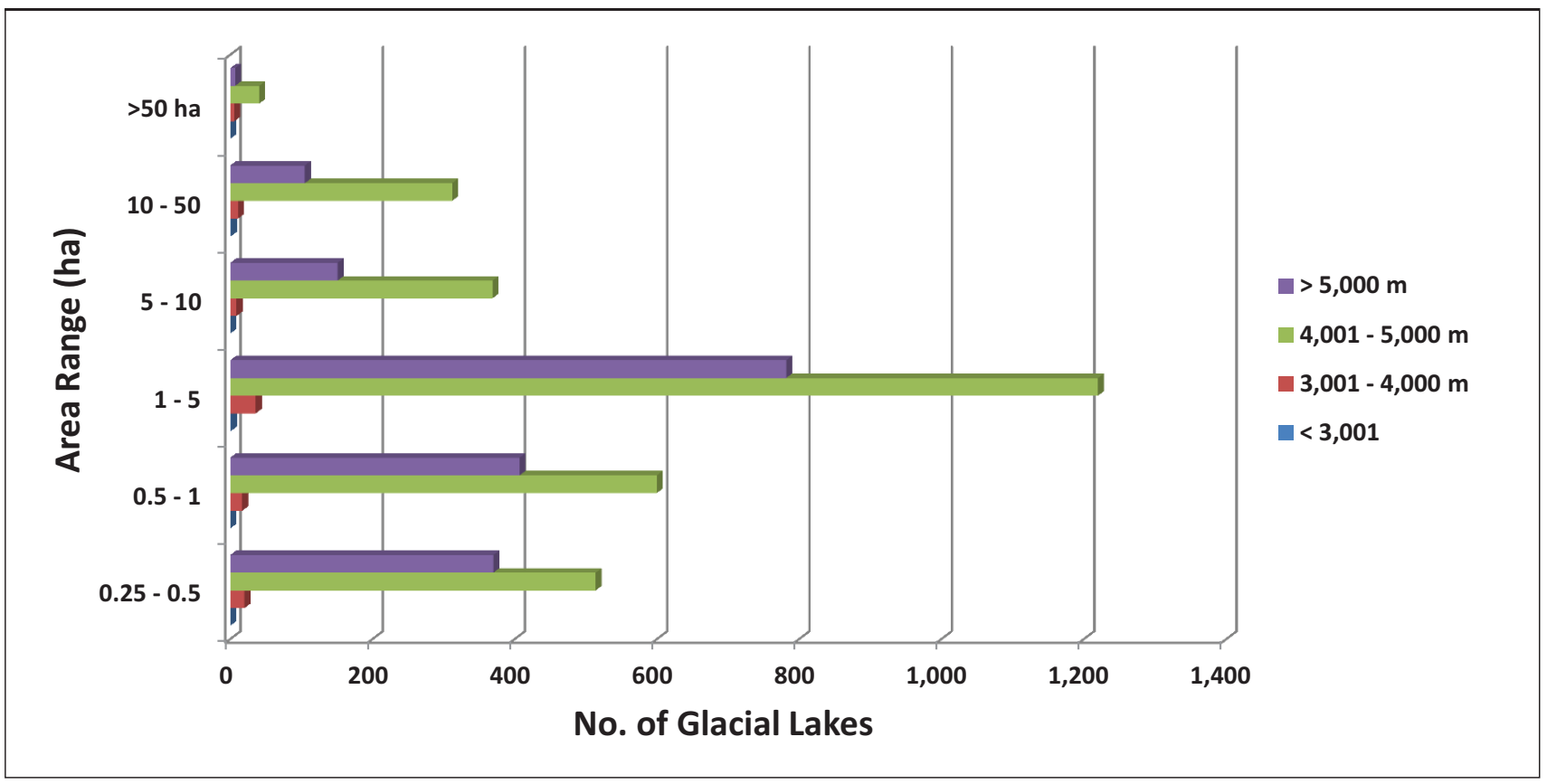


Figure 68: Type-wise vs. Elevation range-wise distribution of GL in Lower Yarlung Tsangpo subbasin

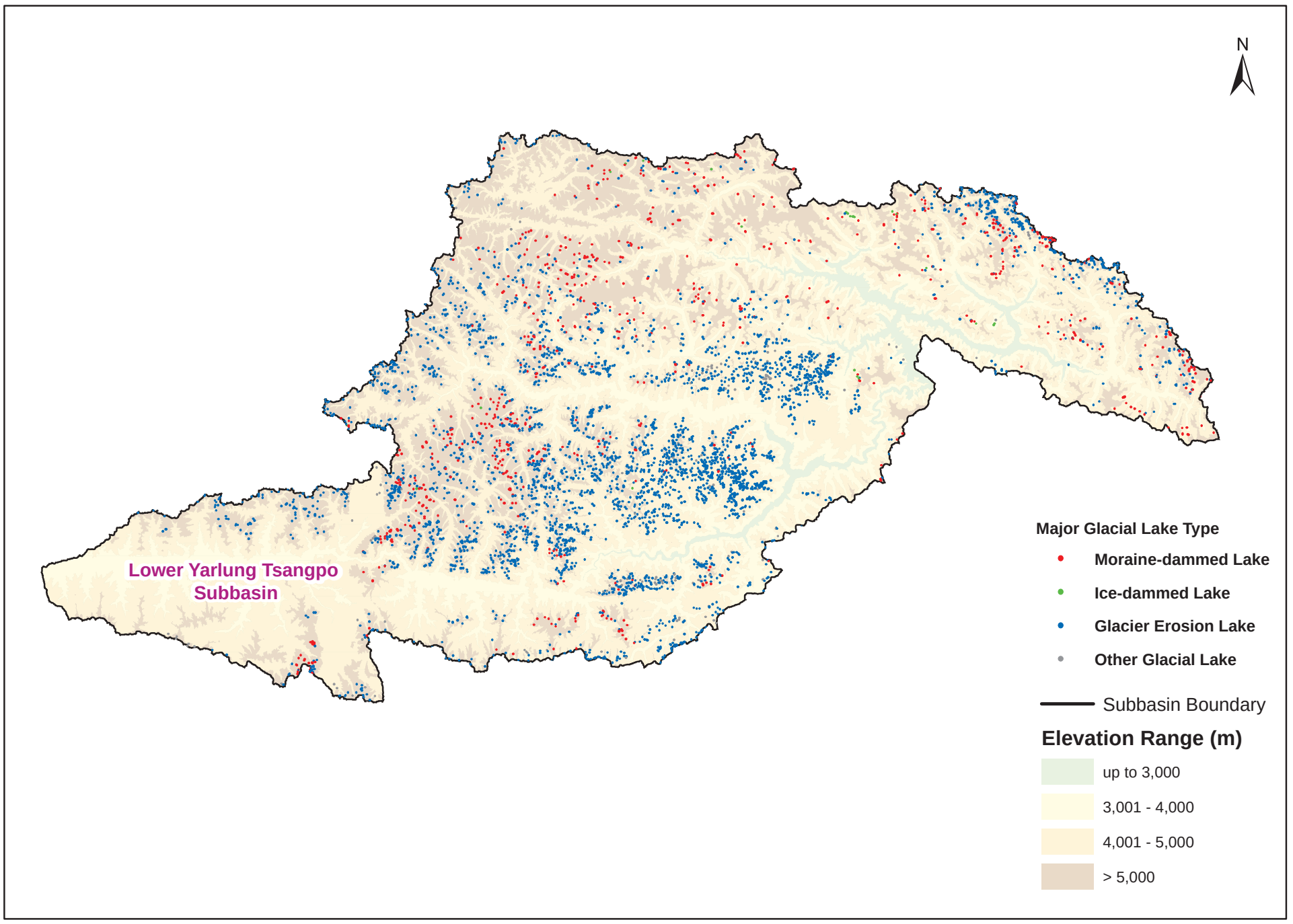


Figure 69: Elevation range-Type-wise spatial distribution of GL in Lower Yarlung Tsangpo subbasin

5.2.8 Manas Subbasin

The Manas subbasin is the fourth largest subbasin of the Brahmaputra River basin covering a total area of 32,166 Km^2 i.e. 8.04% of the total basin area (Figure 70). The Manas River is formed by the joining of two rivers of similar catchment area, the Mangde Chu and the Dangme Chu. It is a transboundary river in the Himalayan foothills between southern Bhutan and India. Kuru Chu, Bumtang, and Mangde Chu are the main tributaries of Manas River. A total of 2,526 glacial lakes has been mapped, covering a total area of 11,318.96 ha i.e. 0.35% of the total area of the subbasin.

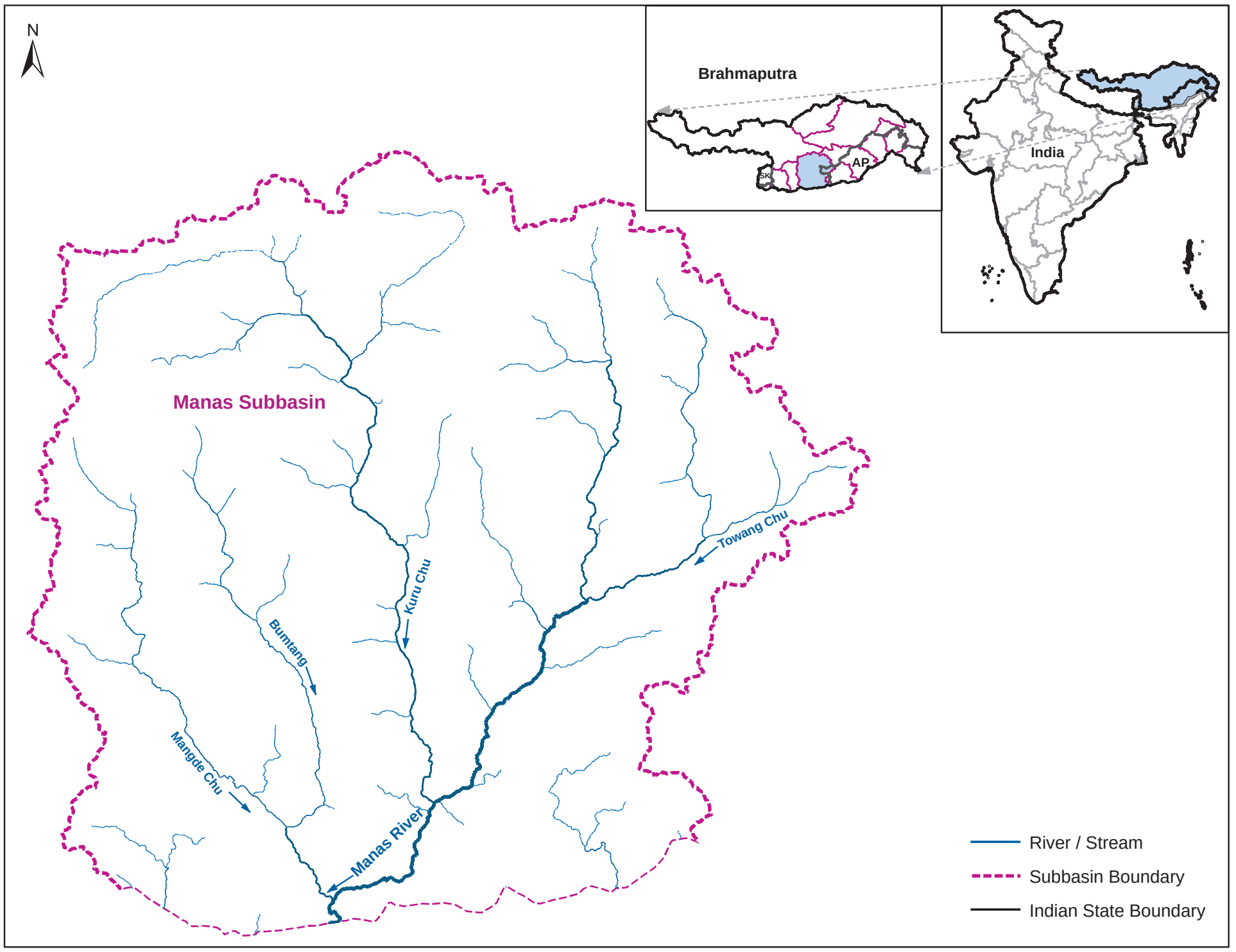


Figure 70: Location map of the Manas subbasin

Area-range-wise Distribution

In Manas subbasin, glacial lakes have been distributed in all area ranges. Table 54 and Figure 71 shows the area range-wise distribution of glacial lakes for the Manas subbasin. About 2,037 (80.64%) lakes are with < 5 ha lake area contributing to 24.85% of total lake area. The remaining lakes with > 5 ha in size are 489 (19.36%) contributing to 75.15% of total lake area in the subbasin.

Table 54: Area range-wise distribution of GL in Manas subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	582	204.74	1.81
2	0.5 - 1	492	352.31	3.11
3	1 - 5	963	2,256.31	19.93
4	5 - 10	239	1,694.77	15.03
5	10 - 50	224	4,221.54	37.26
6	> 50	26	2,589.31	22.85
Total		**2,526**	**11,318.96**	**100.00**

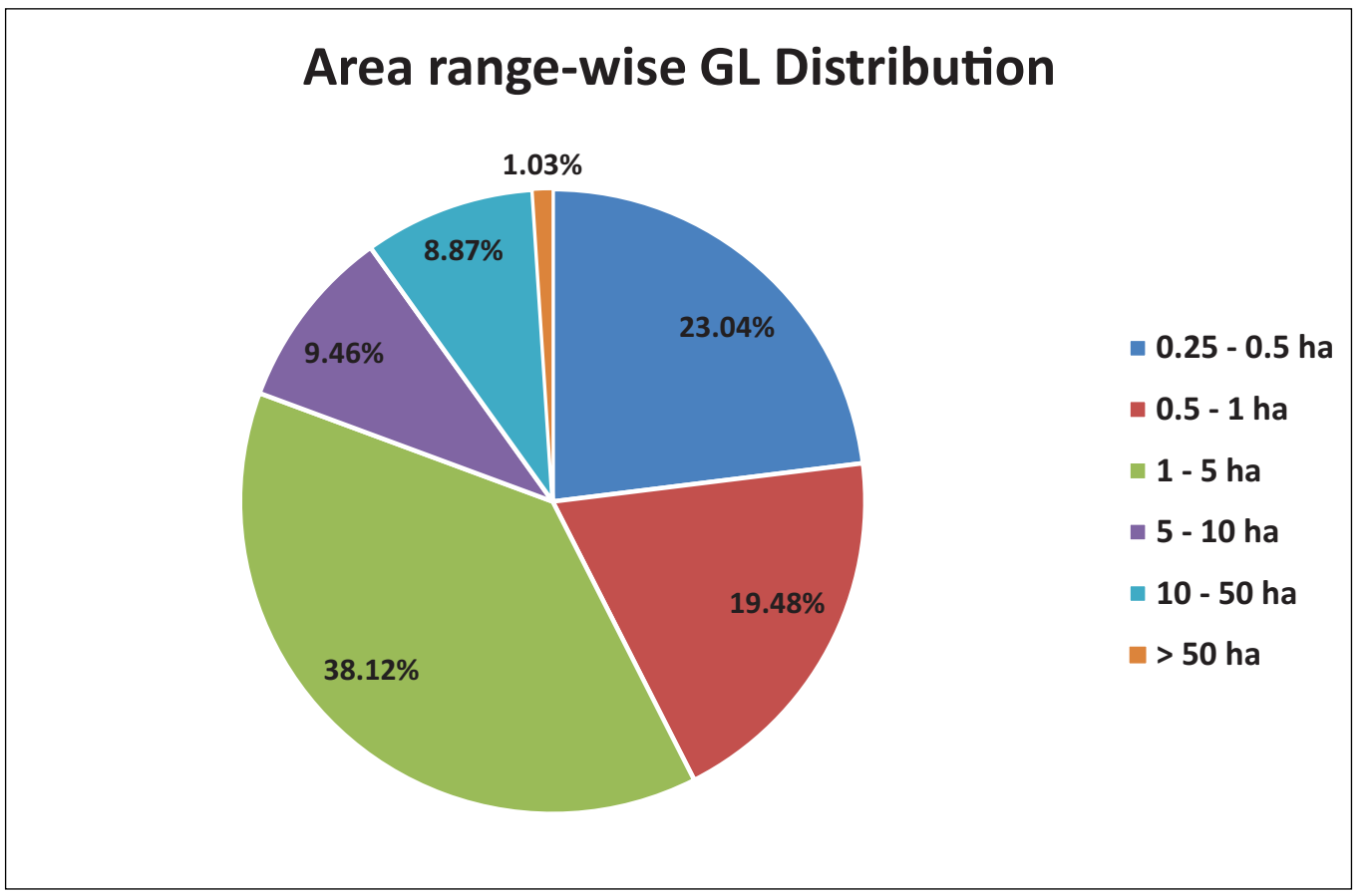


Figure 71: Area range-wise distribution of GL in Manas subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Manas subbasin is given in Table 55 and Figure 72. Out of 10 types of glacial lakes, 7 types of lake are present in the Manas subbasin, where Other Glacial Erosion lakes are found to be the maximum with 1,719 (68.05%) occupying a total lake extent of 5,554.27 ha at 49.07% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 410 (16.23%) and extend over a total area of 1,430.07 ha at 12.63% in the subbasin.

Table 55: Type-wise distribution of GL in Manas subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	47	1,674.77	14.80
2	M(l)	Lateral Moraine Dammed Lake	3	56.95	0.50
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	410	1,430.07	12.63
5	I(s)	Supra-glacial Lake	67	64.47	0.57
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	243	1,976.10	17.46
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	1,719	5,554.27	49.07
10	O	Other Glacial Lake	37	562.33	4.97
Total			**2,526**	**11,318.96**	**100.00**

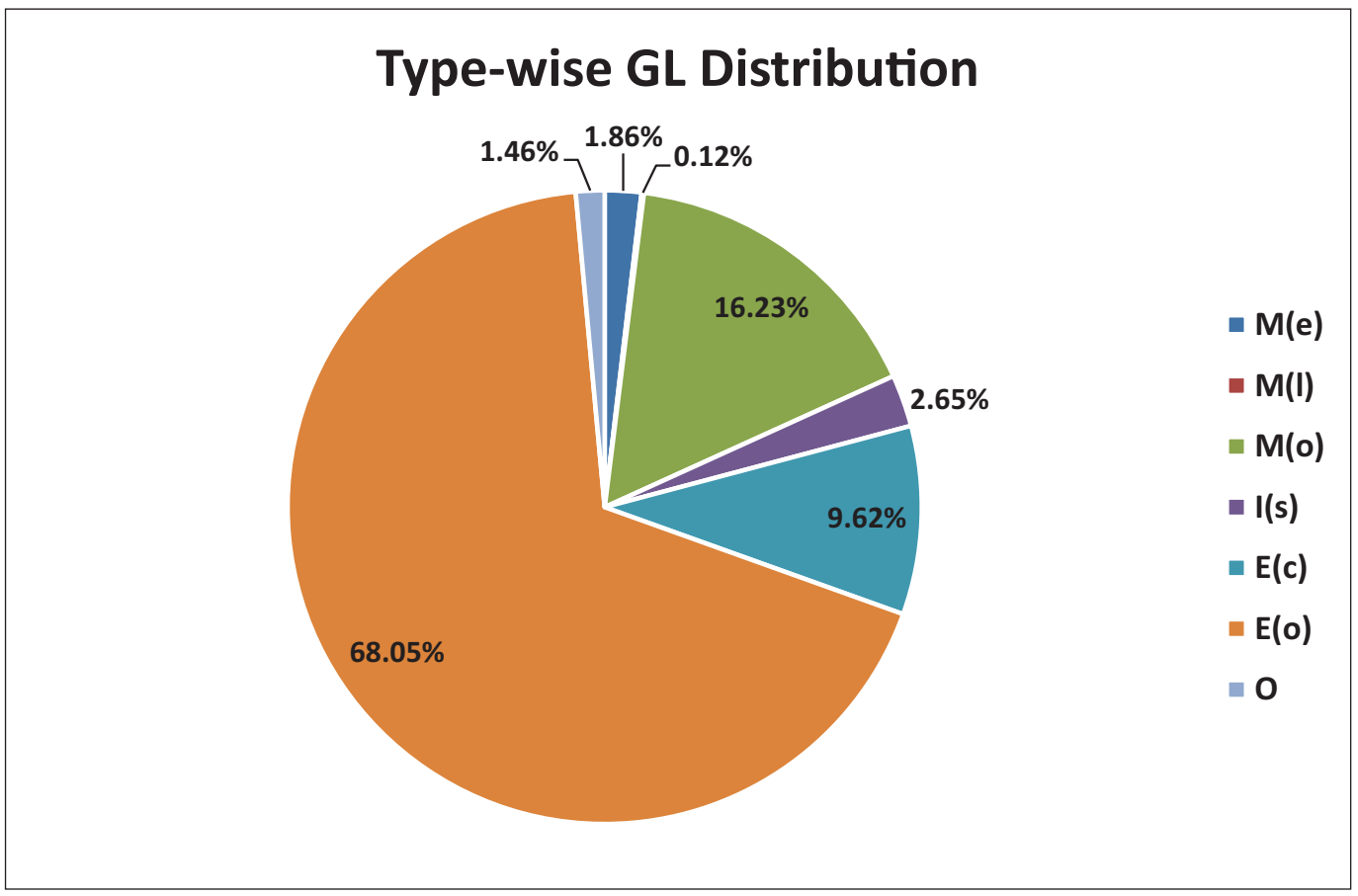


Figure 72: Type-wise distribution of GL in Manas subbasin

Area range-type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 56 and Figure 73. The lakes with < 5 ha in size (80.64%) are dominant with Other Glacial Erosion (71.91%) and Other Moraine Dammed lakes (16.93%). Lakes with > 5 ha (19.36%) are also dominated by Other Glacial Erosion lakes (51.94%). All types of Glacier Erosion lakes, which constitute about 77.76% are predominantly with < 5 ha in water spread.

Table 56: Area range-wise vs. Type-wise distribution of GL in Manas subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	114	43	0	2	0	416	7	582
2	0.5 - 1	0	0	0	91	20	0	9	0	364	8	492
3	1 - 5	7	1	0	140	2	0	113	0	685	15	963
4	5 - 10	8	0	0	29	1	0	61	0	139	1	239
5	10 - 50	22	2	0	34	1	0	56	0	106	3	224
6	> 50	10	0	0	2	0	0	2	0	9	3	26
Total		**47**	**3**	**0**	**410**	**67**	**0**	**243**	**0**	**1,719**	**37**	**2,526**

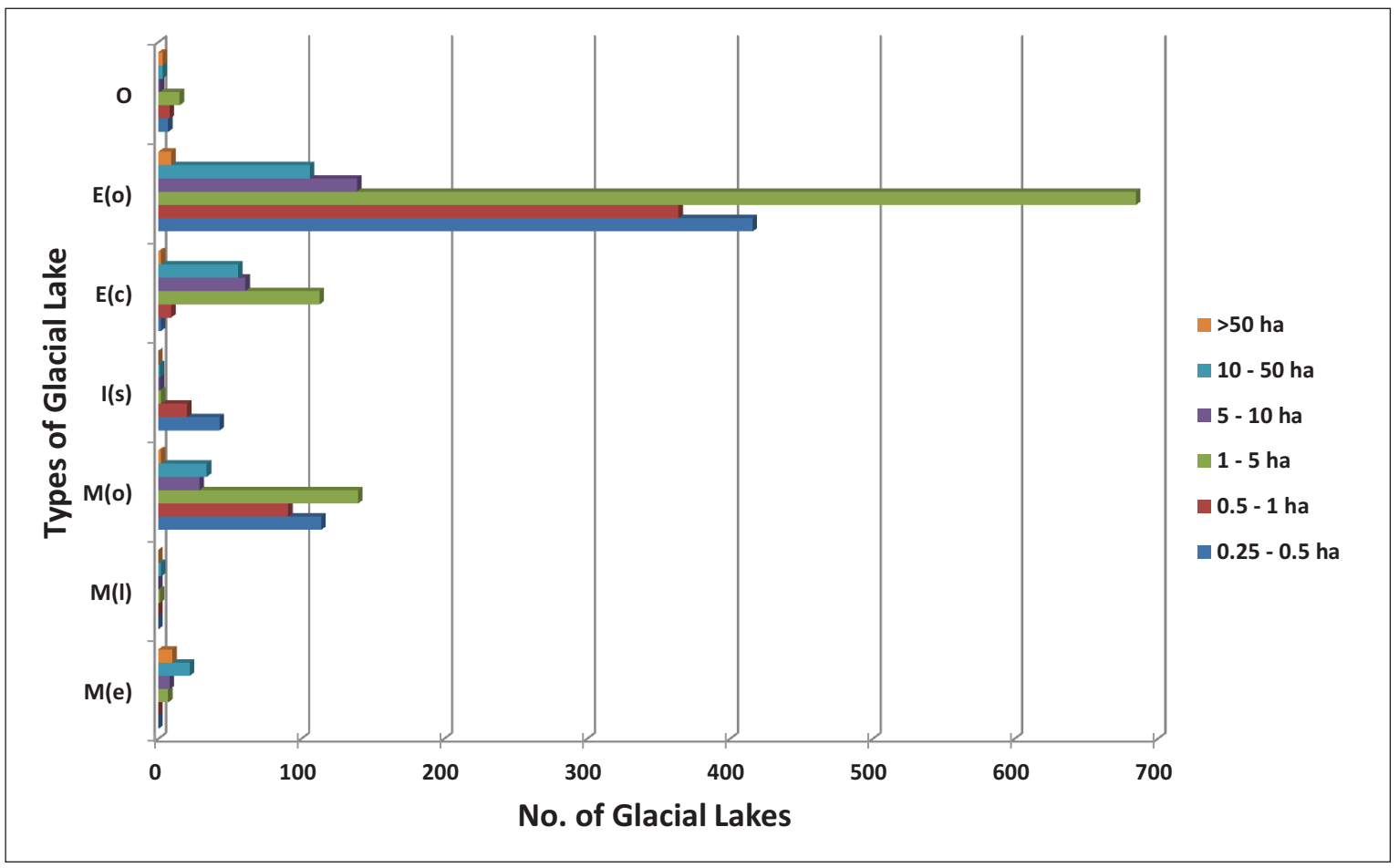


Figure 73: Area range-wise vs. Type-wise distribution of GL in Manas subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Manas subbasin has been shown in Table 57 and Figure 74. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 2,474 (97.94%) with total lake area of 11,087.29 ha (97.95%) and remaining 2.05% glacial lakes are below 4,000 m elevation.

Table 57: Elevation range-wise distribution of GL in Manas subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	52	231.67	2.05
3	4,001 - 5,000	1,656	8,137.45	71.89
4	> 5,000	818	2,949.84	26.06
Total		**2,526**	**11,318.96**	**100.00**

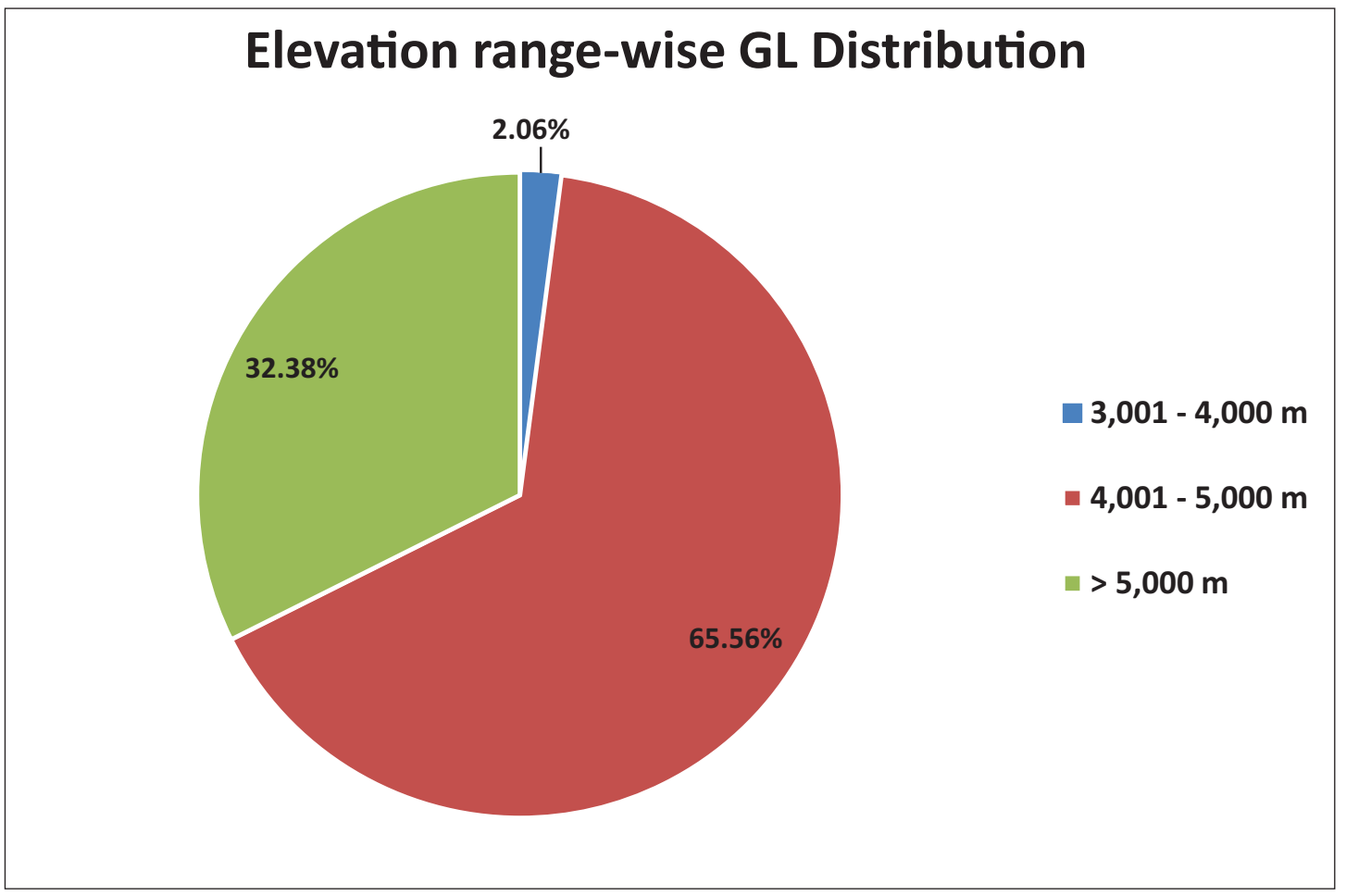


Figure 74: Elevation range-wise distribution of GL in Manas subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 58 and Figure 75. It is noted that, 65.55% of glacial lakes (1,656) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 71.89%. It has been further noticed that, 63.32% of lakes < 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, no glacial lakes lie below 3,000 m and 818 lakes above 5,000 m elevation range.

Table 58: Area range-wise vs. Elevation range-wise distribution of GL in Manas subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	5	2.12	337	119.12	240	83.50	582	204.74
2	0.5 - 1	0	0.00	3	2.20	282	201.74	207	148.37	492	352.31
3	1 - 5	0	0.00	28	71.57	671	1,584.98	264	599.76	963	2,256.31
4	5 - 10	0	0.00	10	74.33	182	1,291.23	47	329.20	239	1,694.77
5	10 - 50	0	0.00	6	81.45	166	3,089.22	52	1,050.86	224	4,221.54
6	> 50	0	0.00	0	0.00	18	1,851	8	738.15	26	2,589.31
Total		**0**	**0.00**	**52**	**231.67**	**1,656**	**8,137.45**	**818**	**2,949.84**	**2,526**	**11,318.96**

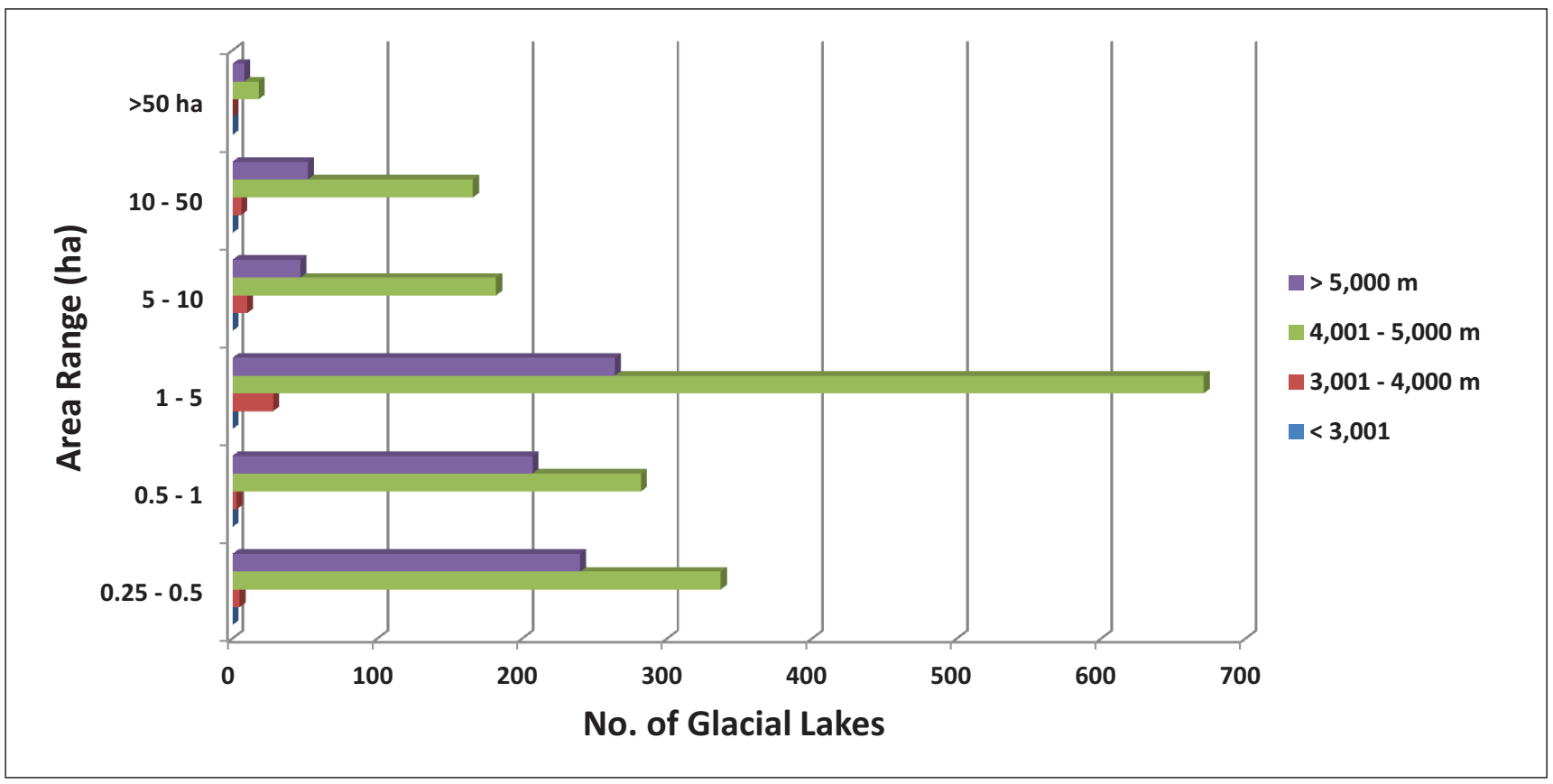


Figure 75: Area range-wise vs. Elevation range-wise distribution of GL in Manas subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 59 and Figure 76. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (68.05%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Cirque Erosion Lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 17.07% and 90.94%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 77.

Table 59: Type-wise vs. Elevation range-wise distribution of GL in Manas subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	12	0	38	2	52
3	4,001 - 5,000	15	1	0	70	35	0	221	0	1,280	34	1,656
4	> 5,000	32	2	0	340	32	0	10	0	401	1	818
Total		**47**	**3**	**0**	**410**	**67**	**0**	**243**	**0**	**1,719**	**37**	**2,526**

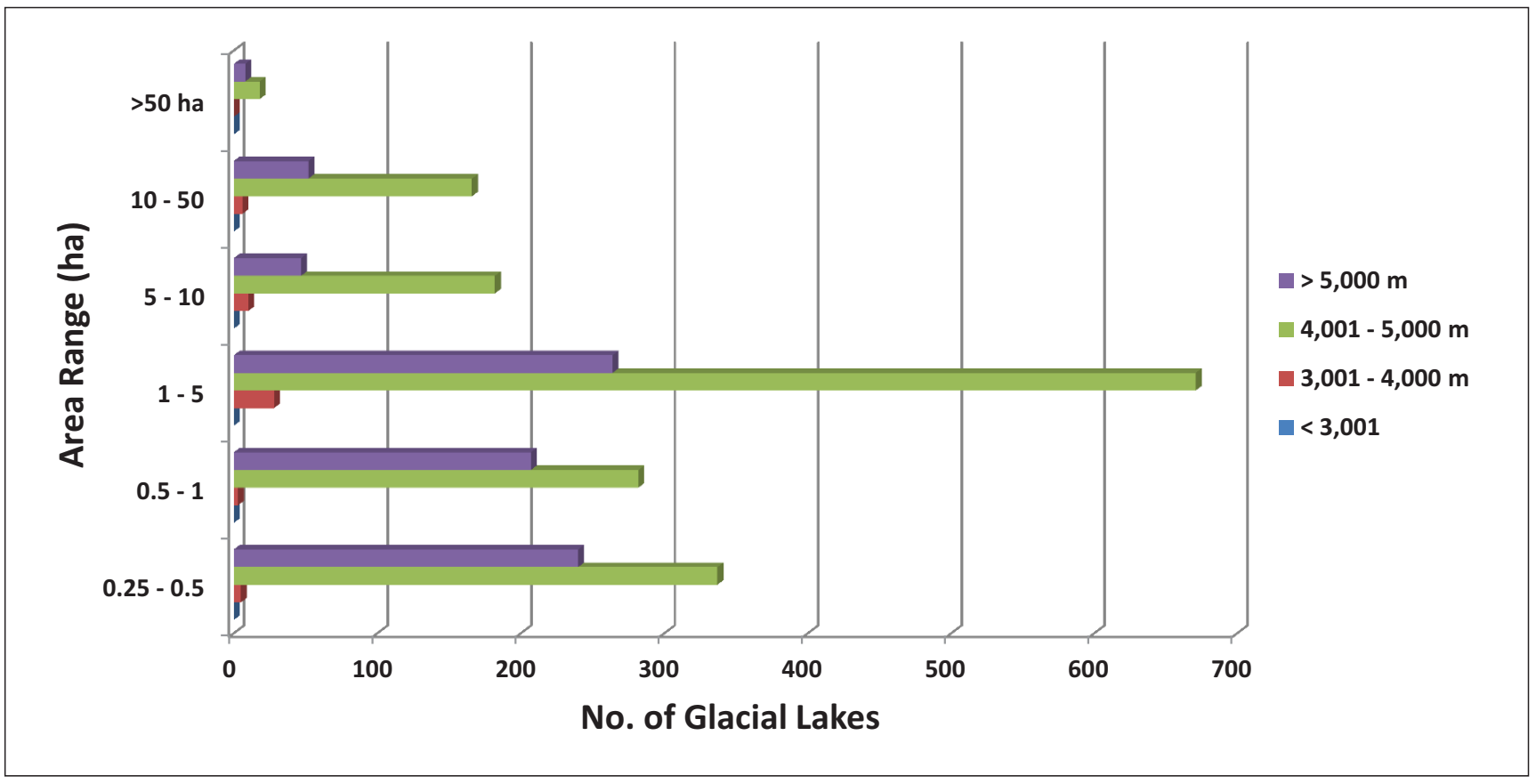


Figure 76: Type-wise vs. Elevation range-wise distribution of GL in Manas subbasin

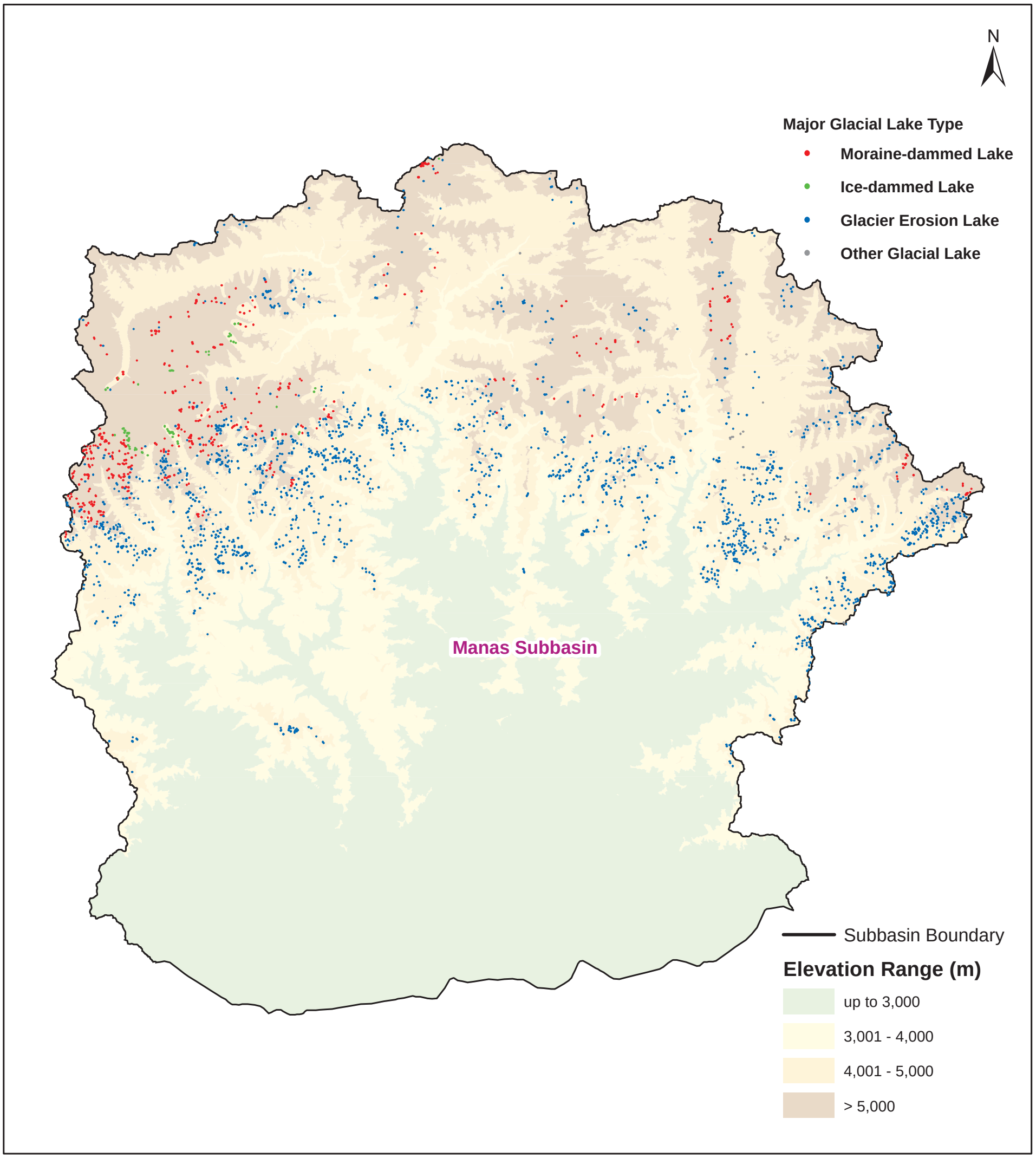


Figure 77: Elevation range-Type-wise spatial distribution of GL in Manas subbasin

5.2.9 Puna Tsang Chu Subbasin

The Puna Tsang Chu subbasin is the tenth largest subbasin of the Brahmaputra River basin covering a total area of 10,204 Km^2 i.e. 2.55% of the total basin area (Figure 78). The Puna Tshang Chu Basin has been formed by the joining of the Mo Chu and Pho Chu Rivers. The Mo Chu originates from the northeastern slope of Chomolhari and the Pho Chu from the western slope of Kula Gangri. Mo Chu and Pho Chu are the two main tributaries of Sankosh River. A total of 921 glacial lakes has been mapped, covering a total area of 3,880.79 ha i.e. 0.38% of the total area of the subbasin.

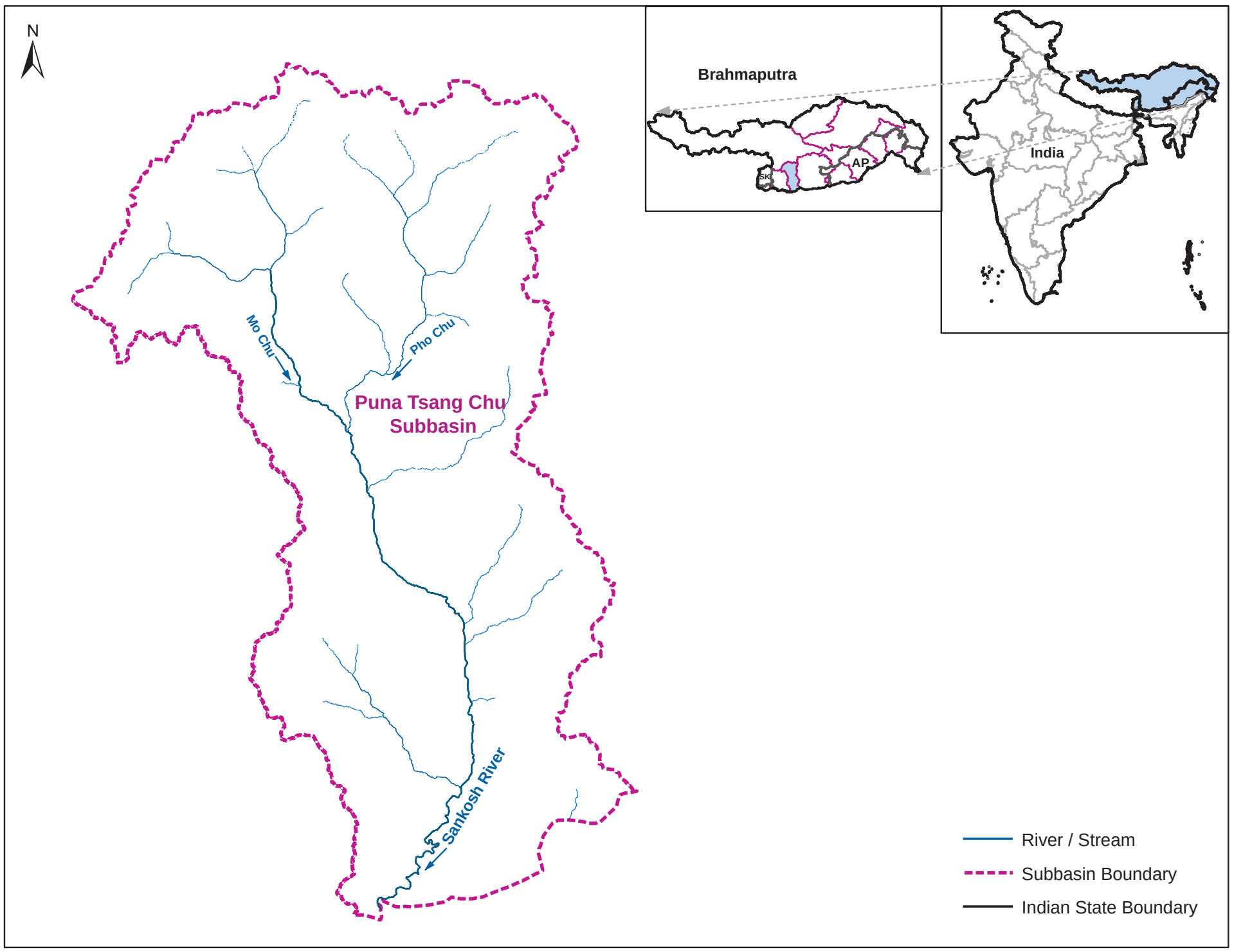


Figure 78: Location map of the Puna Tsang Chu subbasin

Area range-wise Distribution

In Puna Tsang Chu subbasin, glacial lakes have been distributed in all area ranges. Table 60 and Figure 79 shows the area range-wise distribution of glacial lakes for the Puna Tsang Chu subbasin. About 737 (80.02%) lakes are with < 5 ha lake area contributing to 26.70% of total lake area. The remaining lakes with > 5 ha in size are 184 (19.98%) contributing to 73.30% of total lake area in the subbasin.

Table 60: Area range-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	180	64.82	1.67
2	0.5 - 1	187	134.37	3.46
3	1 - 5	370	836.81	21.56
4	5 - 10	93	668.05	17.21
5	10 - 50	84	1,556.92	40.12
6	> 50	7	619.82	15.97
Total		**921**	**3,880.79**	**100.00**

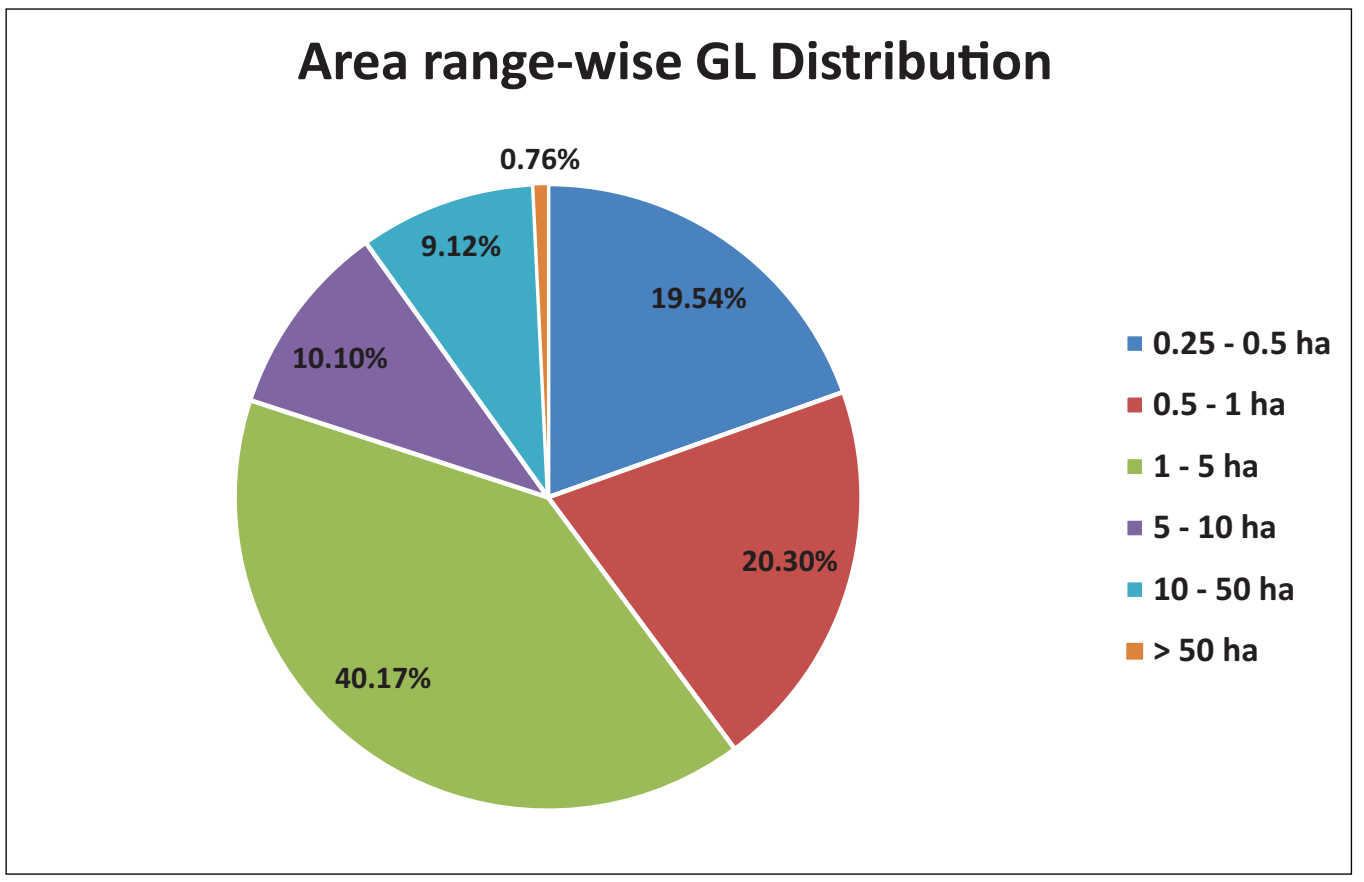


Figure 79: Area range-wise distribution of GL in Puna Tsang Chu subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Puna Tsang Chu subbasin is given in Table 61 and Figure 80. Out of 10 types of glacial lakes, 6 types of lake are present in the Puna Tsang Chu subbasin, where Other Glacial Erosion lakes are found to be the maximum with 590 (64.06%) occupying a total lake extent of 1,845.71 ha at 47.56% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 172 (18.68%) and extend over a total area of 641.47 ha at 16.53%. in the subbasin.

Table 61: Type-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	34	802.08	20.67
2	M(l)	Lateral Moraine Dammed Lake	2	10.66	0.27
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	172	641.47	16.53
5	I(s)	Supra-glacial Lake	61	76.49	1.97
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	62	504.38	13.00
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	590	1,845.71	47.56
10	O	Other Glacial Lake	0	0.00	0.00
Total			**921**	**3,880.79**	**100.00**

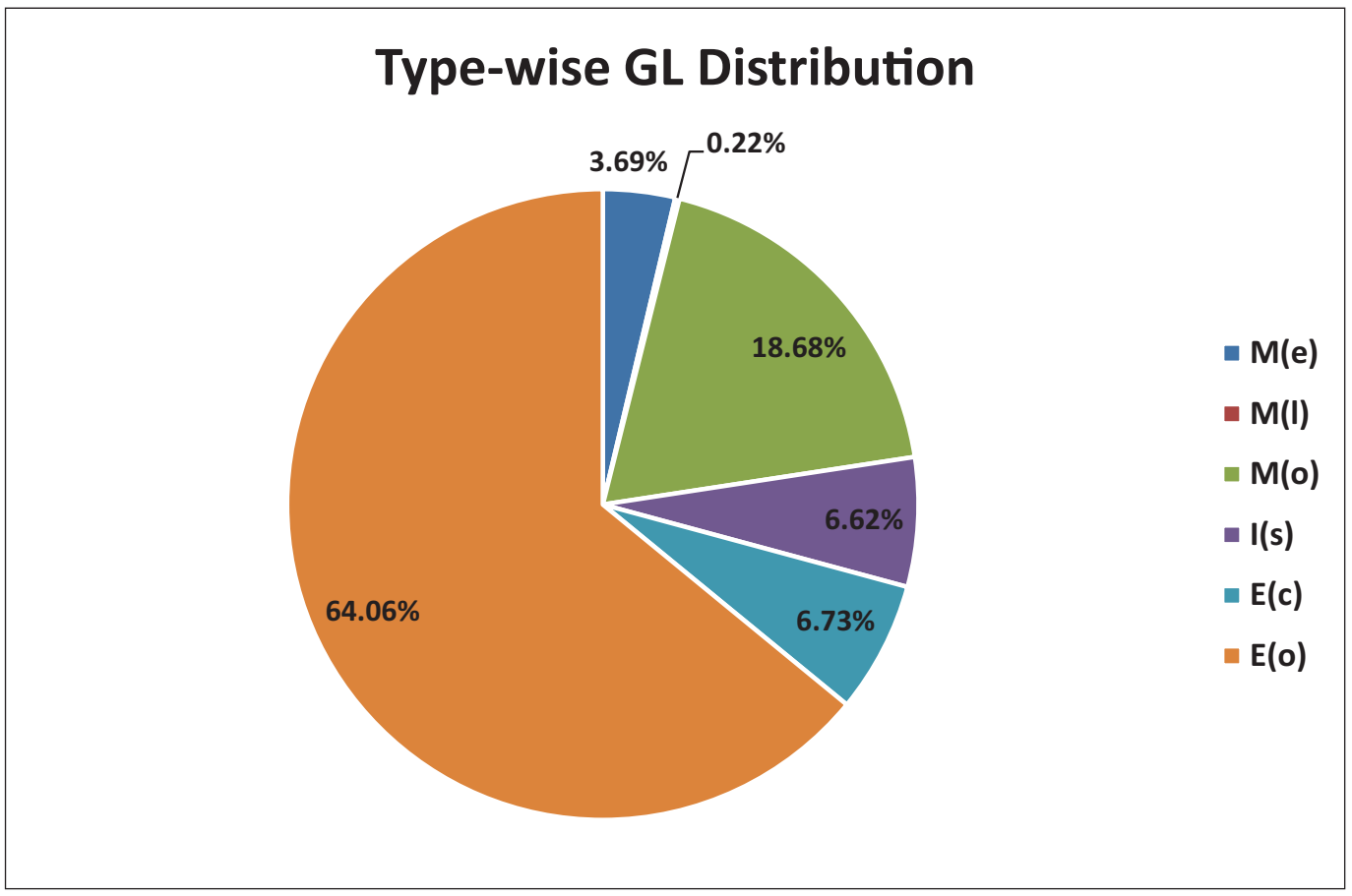


Figure 80: Type-wise distribution of GL in Puna Tsang Chu subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 62 and Figure 81. The lakes with < 5 ha in size (80.02%) are dominant with Other Glacial Erosion (68.11%) and Other Moraine Dammed lakes (19.40%). Lakes with > 5 ha (19.97%) are also dominated by Other Glacial Erosion lakes (47.82%). All types of Glacier Erosion lakes, which constitute about 70.79% are predominantly with < 5 ha in water spread.

Table 62: Area range-wise vs. Type-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	34	26	0	0	0	120	0	180
2	0.5 - 1	0	0	0	41	17	0	5	0	124	0	187
3	1 - 5	6	1	0	68	16	0	21	0	258	0	370
4	5 - 10	7	1	0	17	2	0	17	0	49	0	93
5	10 - 50	19	0	0	10	0	0	18	0	37	0	84
6	> 50	2	0	0	2	0	0	1	0	2	0	7
Total		**34**	**2**	**0**	**172**	**61**	**0**	**62**	**0**	**590**	**0**	**921**

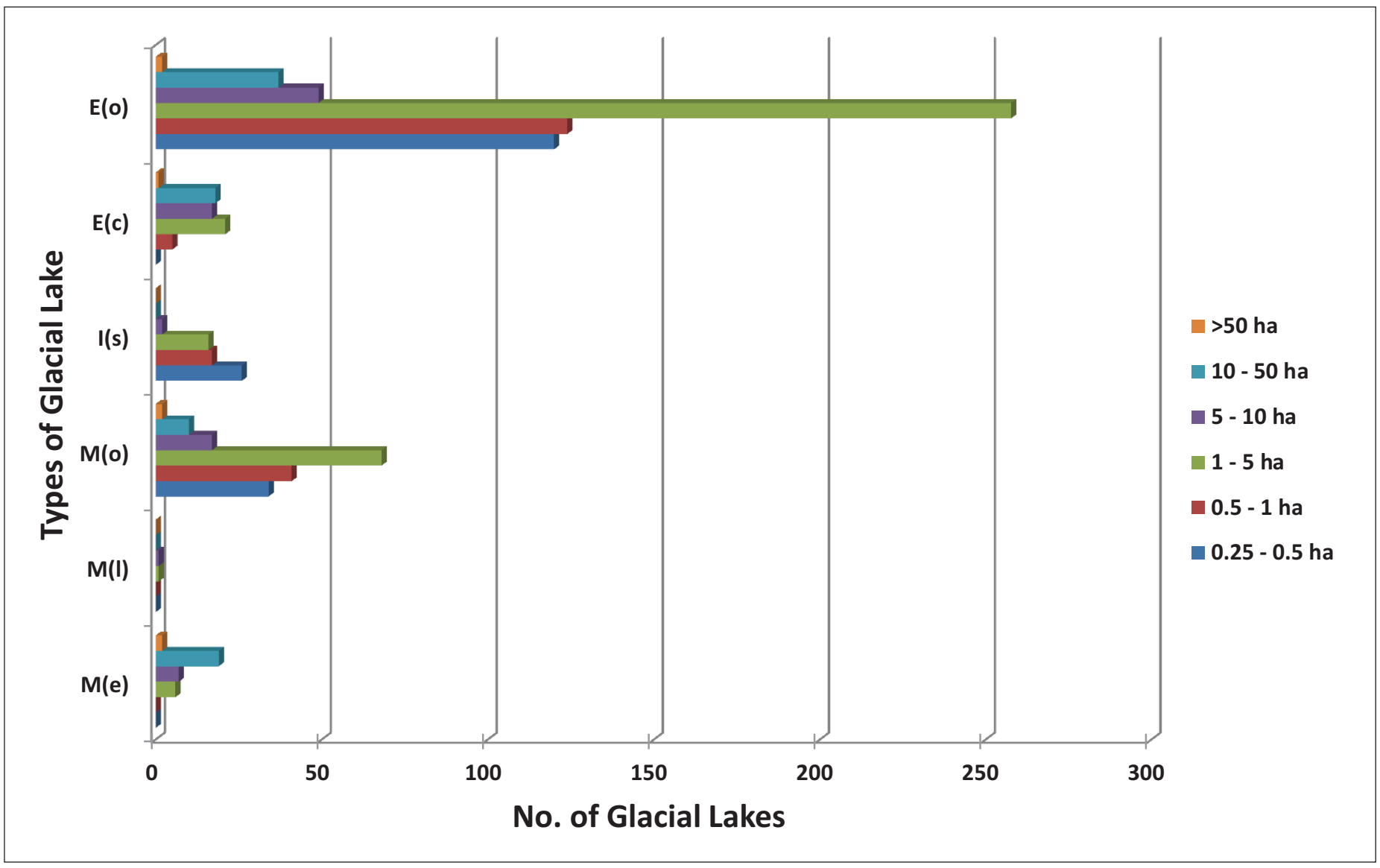


Figure 81: Area range-wise vs. Type-wise distribution of GL in Puna Tsang Chu subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Puna Tsang Chu subbasin has been shown in Table 63 and Figure 82. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 912 (99.02%) with total lake area of 3,855.93 ha (99.36%) and remaining 0.98% glacial lakes are below 4,000 m elevation.

Table 63: Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	9	24.85	0.64
3	4,001 - 5,000	668	2,720.80	70.11
4	> 5,000	244	1,135.14	29.25
Total		**921**	**3,880.79**	**100.00**

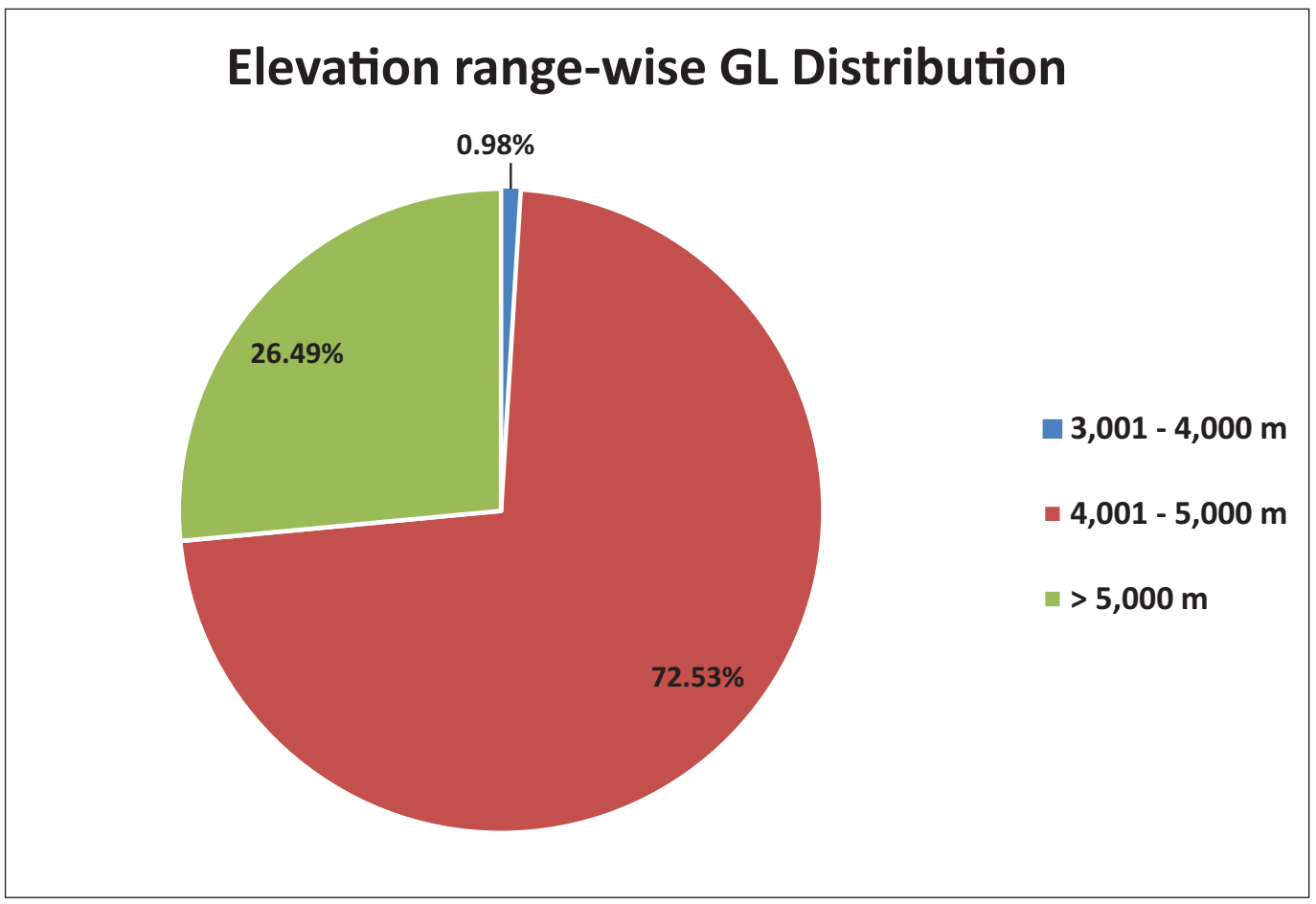


Figure 82: Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

Area-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 64 and Figure 83. It is noted that, 72.52% of glacial lakes (668) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 70.10%. It has been further noticed that, 72.72% of lakes < 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, no glacial lakes lie below 3,000 m and 244 lakes above 5,000 m elevation range

Table 64: Area range-wise vs. Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	1	0.32	132	48.00	47	16.71	180	64.82
2	0.5 - 1	0	0.00	1	0.71	132	94.00	54	39.43	187	134.37
3	1 - 5	0	0.00	6	18.01	272	608.00	92	211.29	370	836.81
4	5 - 10	0	0.00	1	5.81	69	498.00	23	164.32	93	668.05
5	10 - 50	0	0.00	0	0.00	60	1,113.00	24	444.32	84	1,556.92
6	> 50	0	0.00	0	0.00	3	361.00	4	259.07	7	619.82
Total		**0**	**0.00**	**9**	**24.85**	**668**	**2,720.80**	**244**	**1,135.14**	**921**	**3,880.79**

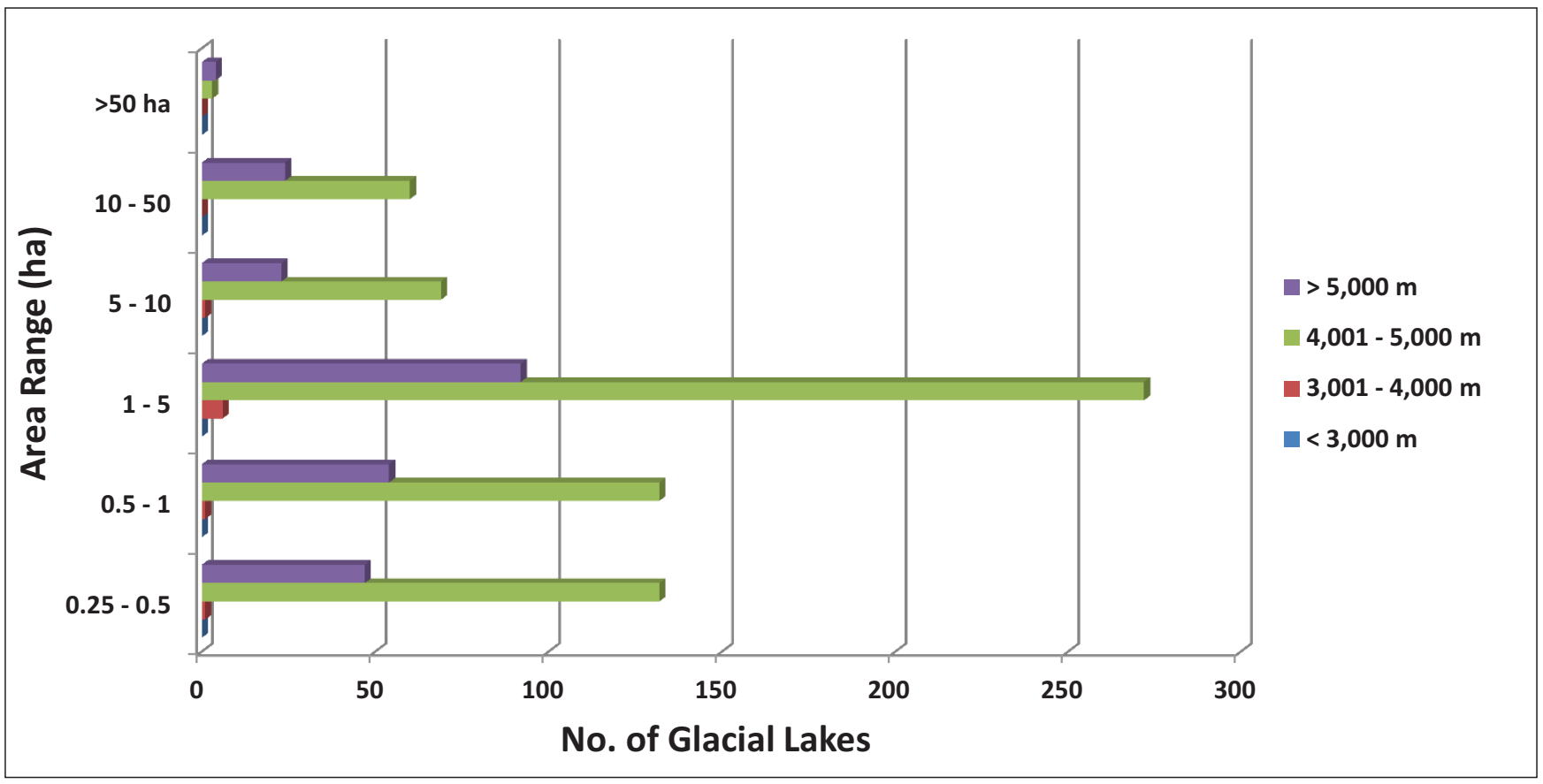


Figure 83: Area range-wise vs. Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 65 and Figure 84. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (64.06%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Cirque Erosion Lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 20.93% and 93.54%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 85.

Table 65: Type-wise vs. Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	1	0	8	0	9
3	4,001 - 5,000	17	2	0	36	60	0	58	0	495	0	668
4	> 5,000	17	0	0	136	1	0	3	0	87	0	244
Total		**34**	**2**	**0**	**172**	**61**	**0**	**62**	**0**	**590**	**0**	**921**

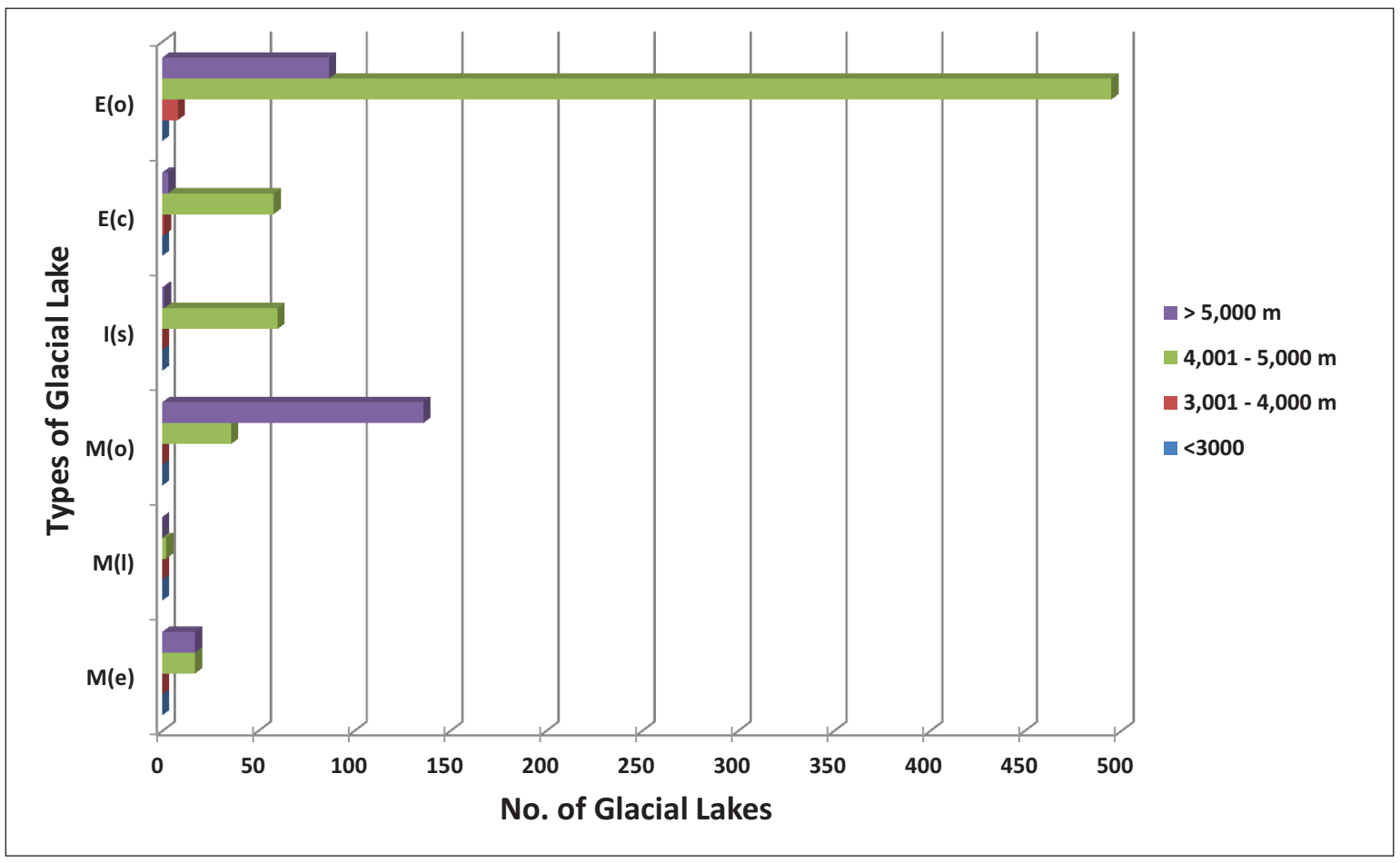


Figure 84: Type-wise vs. Elevation range-wise distribution of GL in Puna Tsang Chu subbasin

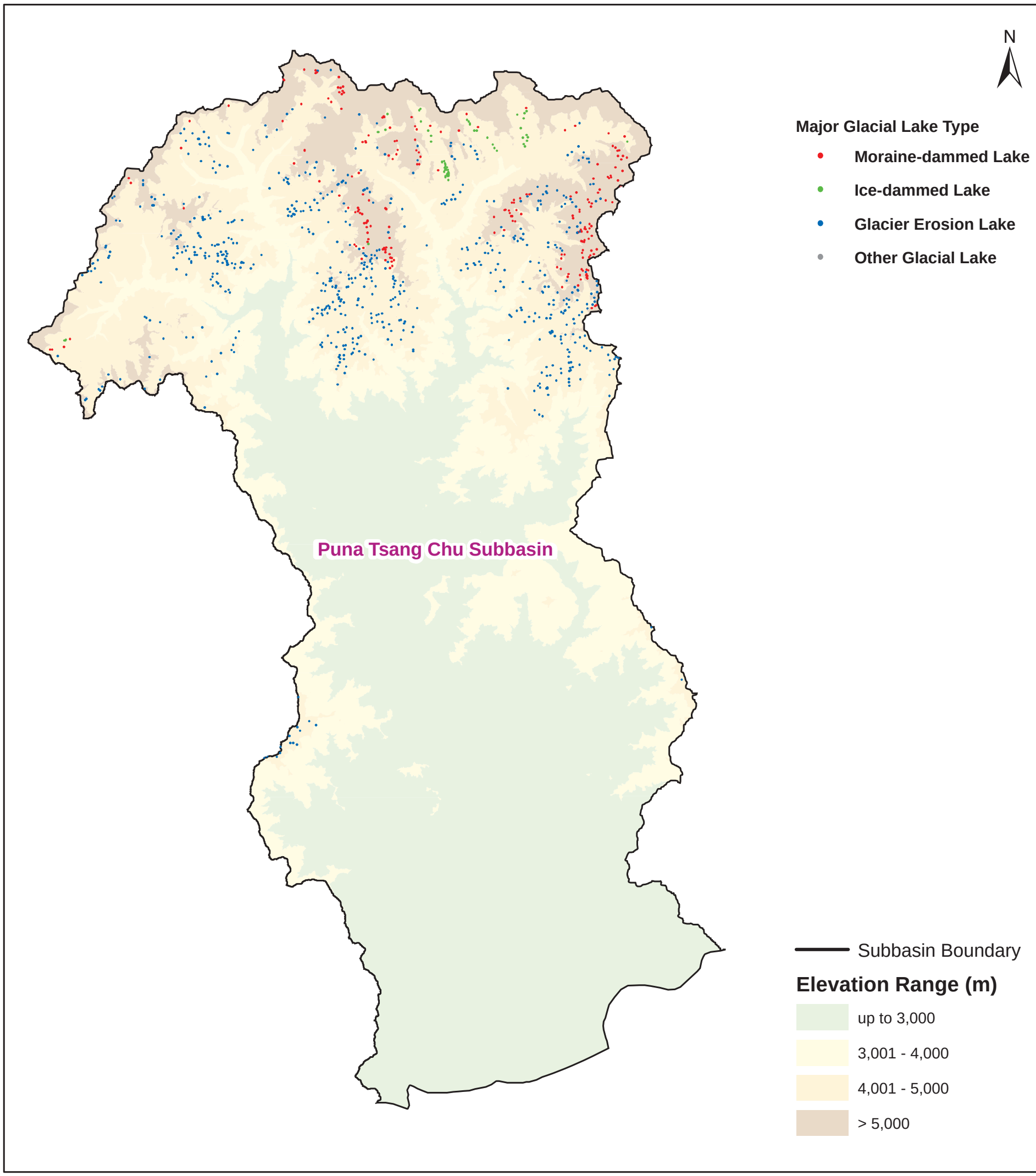


Figure 85: Elevation range-Type-wise spatial distribution of GL in Puna Tsang Chu subbasin

5.2.10 Subansiri Subbasin

The Subansiri subbasin is the fifth largest subbasin of the Brahmaputra River basin covering a total area of 30,644 Km^2 i.e. 7.66% of the total basin area (Figure 86). The Subansiri River originates in the Himalayas near Mount Porom in the Tibet. It enters India near the town of Taksing and flows east and southeast through Miri Hills, then south to the Assam Valley at Dulangmukh in Dhemaji district, where it joins the Brahmaputra River at Jamurighat in Lakhimpur district. Small tributaries of the Subansiri include Rangandi, Dikrong and Kamala. Chyumi Chu and Kamla are the two main tributaries of Subansiri River. A total of 539 glacial lakes has been mapped, covering a total area of 2,004.24 ha i.e. 0.06% of the total area of the subbasin.

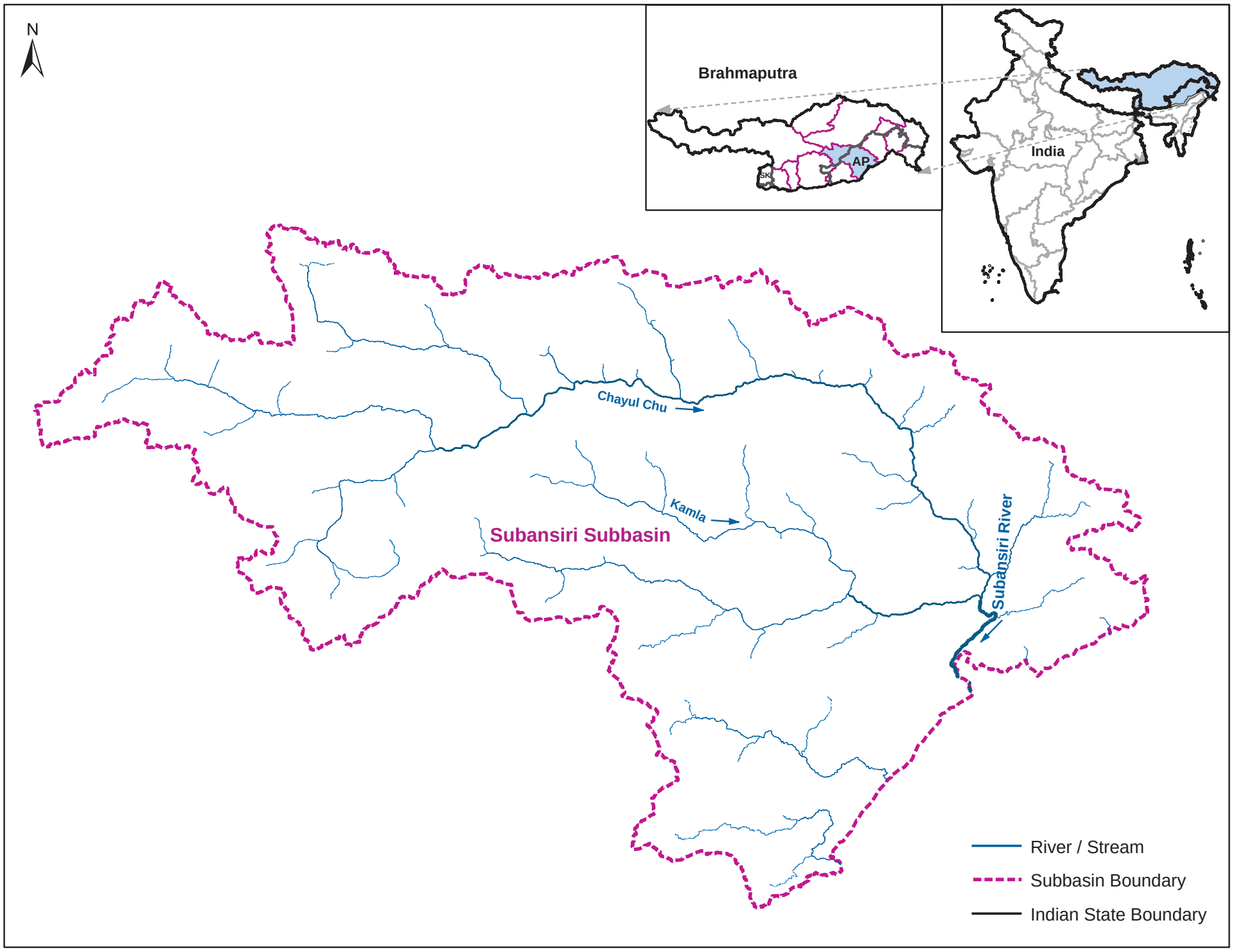


Figure 86: Location map of the Subansiri subbasin

Area-range-wise Distribution

In Subansiri subbasin, glacial lakes have been distributed in all area ranges. Table 66 and Figure 87 shows the area range-wise distribution of glacial lakes for the Subansiri subbasin. About 435 (80.71%) lakes are with < 5 ha lake area contributing to 30.93% of total lake area. The remaining lakes with > 5 ha in size are 104 (19.29%) contributing to 69.07% of total lake area in the subbasin.

Table 66: Area range-wise distribution of GL in Subansiri subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	96	34.94	1.74
2	0.5 - 1	121	88.12	4.40
3	1 - 5	218	496.80	24.79
4	5 - 10	62	445.09	22.21
5	10 - 50	38	696.38	34.75
6	> 50	4	242.91	12.12
Total		**539**	**2,004.24**	**100.00**

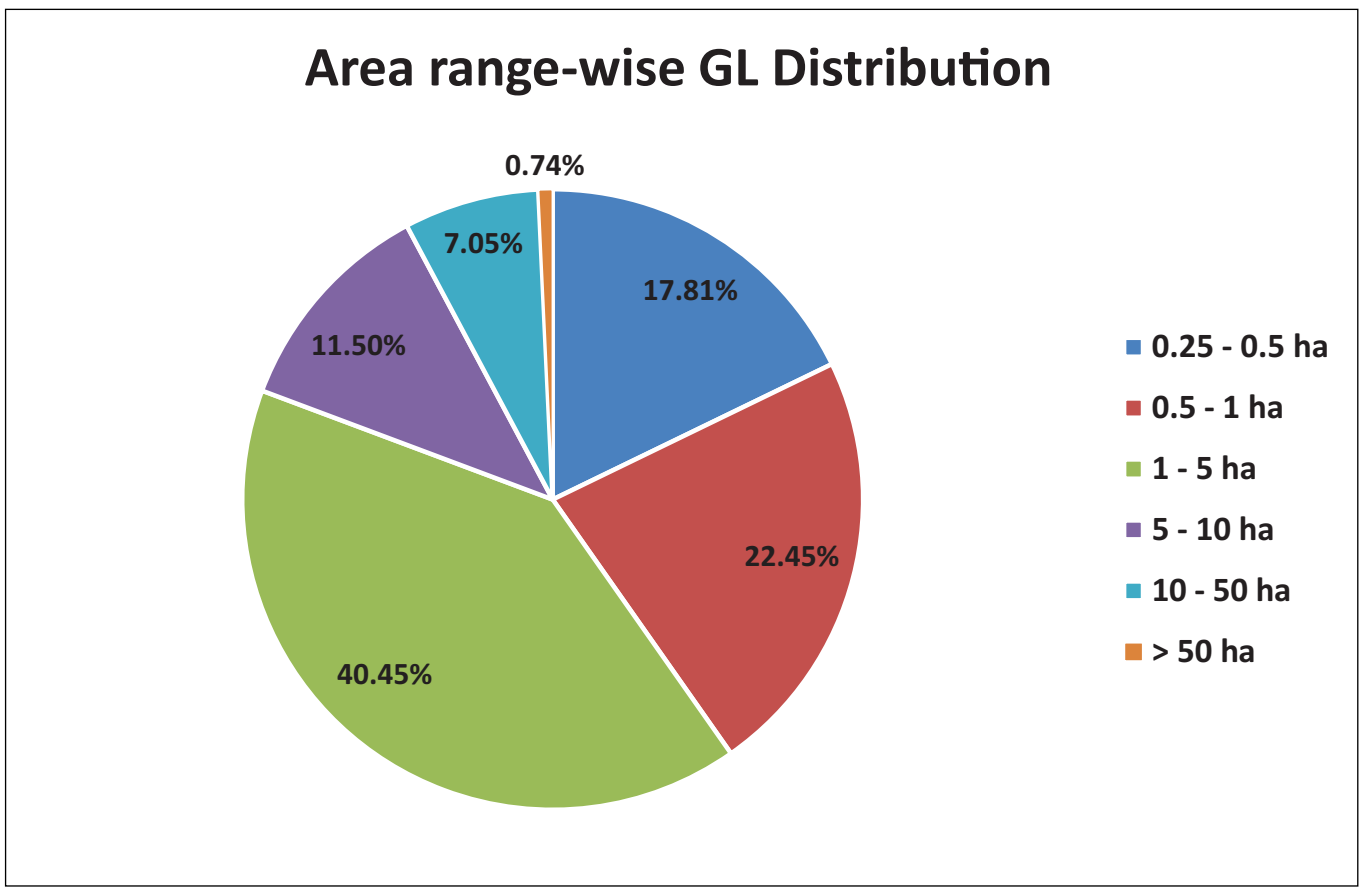


Figure 87: Area range-wise distribution of GL in Subansiri subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Subansiri subbasin is given in Table 67 and Figure 88. Out of 10 types of glacial lakes, 8 types of lake are present in the Subansiri subbasin, where Other Glacial Erosion lakes are found to be the maximum with 346 (64.19%) occupying a total lake extent of 1,232.77 ha at 61.51% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 89 (16.51%) and extend over a total area of 159.91 ha at 7.98% in the subbasin.

Table 67: Type-wise distribution of GL in Subansiri subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	33	293.18	14.63
2	M(l)	Lateral Moraine Dammed Lake	1	1.74	0.09
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	89	159.91	7.98
5	I(s)	Supra-glacial Lake	6	6.31	0.31
6	I(d)	Glacier Ice-dammed Lake	2	2.50	0.12
7	E(c)	Cirque Erosion Lake	31	235.25	11.74
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	346	1,232.77	61.51
10	O	Other Glacial Lake	31	72.58	3.62
Total			**539**	**2,004.24**	**100.00**

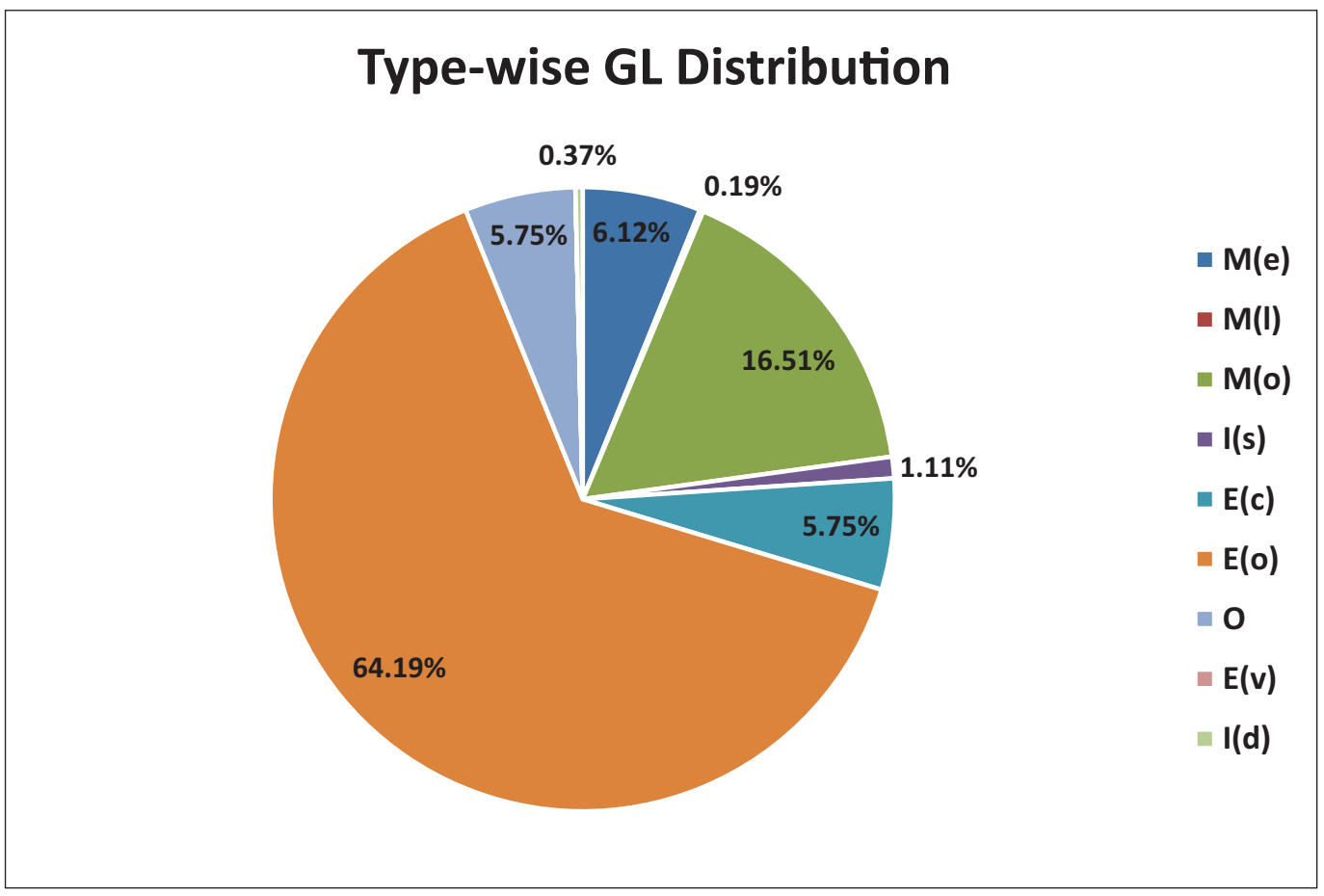


Figure 88: Type-wise distribution of GL in Subansiri subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 68 and Figure 89. The lakes with < 5 ha in size (80.71%) are dominant with Other Glacial Erosion (65.05%) and Other Moraine Dammed lakes (19.31%). Lakes with > 5 ha (19.29%) are also dominated by Other Glacial Erosion lakes (60.57%). All types of Glacier Erosion lakes, which constitute about 69.94% are predominantly with < 5 ha in water spread.

Table 68: Area range-wise vs. Type-wise distribution of GL in Subansiri subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	23	2	0	1	0	58	12	96
2	0.5 - 1	1	0	0	23	3	1	2	0	81	10	121
3	1 - 5	12	1	0	38	1	1	15	0	144	6	218
4	5 - 10	13	0	0	3	0	0	8	0	36	2	62
5	10 - 50	6	0	0	2	0	0	4	0	25	1	38
6	> 50	1	0	0	0	0	0	1	0	2	0	4
Total		**33**	**1**	**0**	**89**	**6**	**2**	**31**	**0**	**346**	**31**	**539**

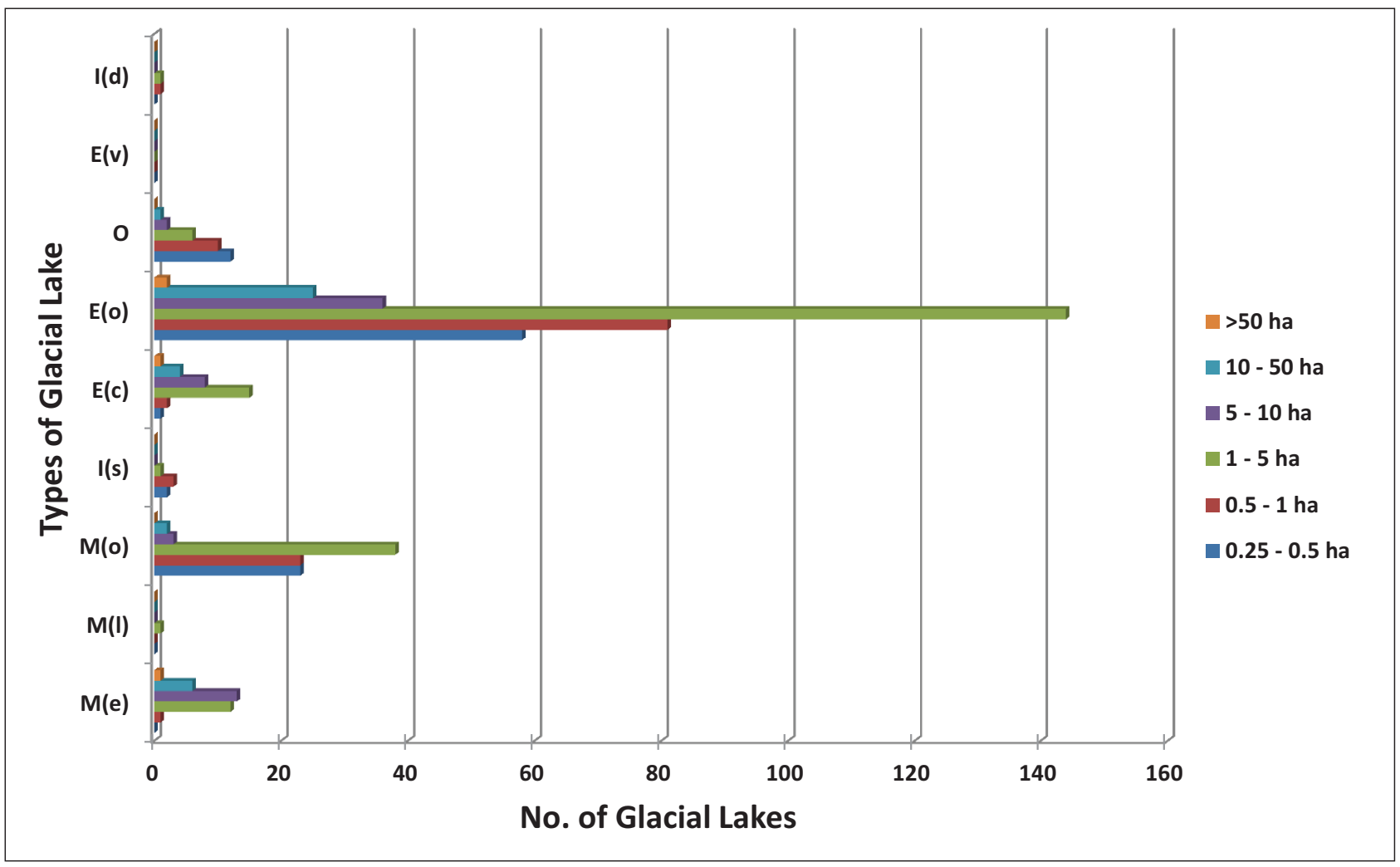


Figure 89: Area range-wise vs. Type-wise distribution of GL in Subansiri subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Subansiri subbasin has been shown in Table 69 and Figure 90. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 482 (89.42%) with total lake area of 1,580.4 ha (78.85%) and remaining 10.58% glacial lakes are below 4,000 m elevation.

Table 69: Elevation range-wise distribution of GL in Subansiri subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	57	423.83	21.15
3	4,001 - 5,000	279	1,131.38	56.45
4	> 5,000	203	449.02	22.40
Total		**539**	**2,004.24**	**100.00**

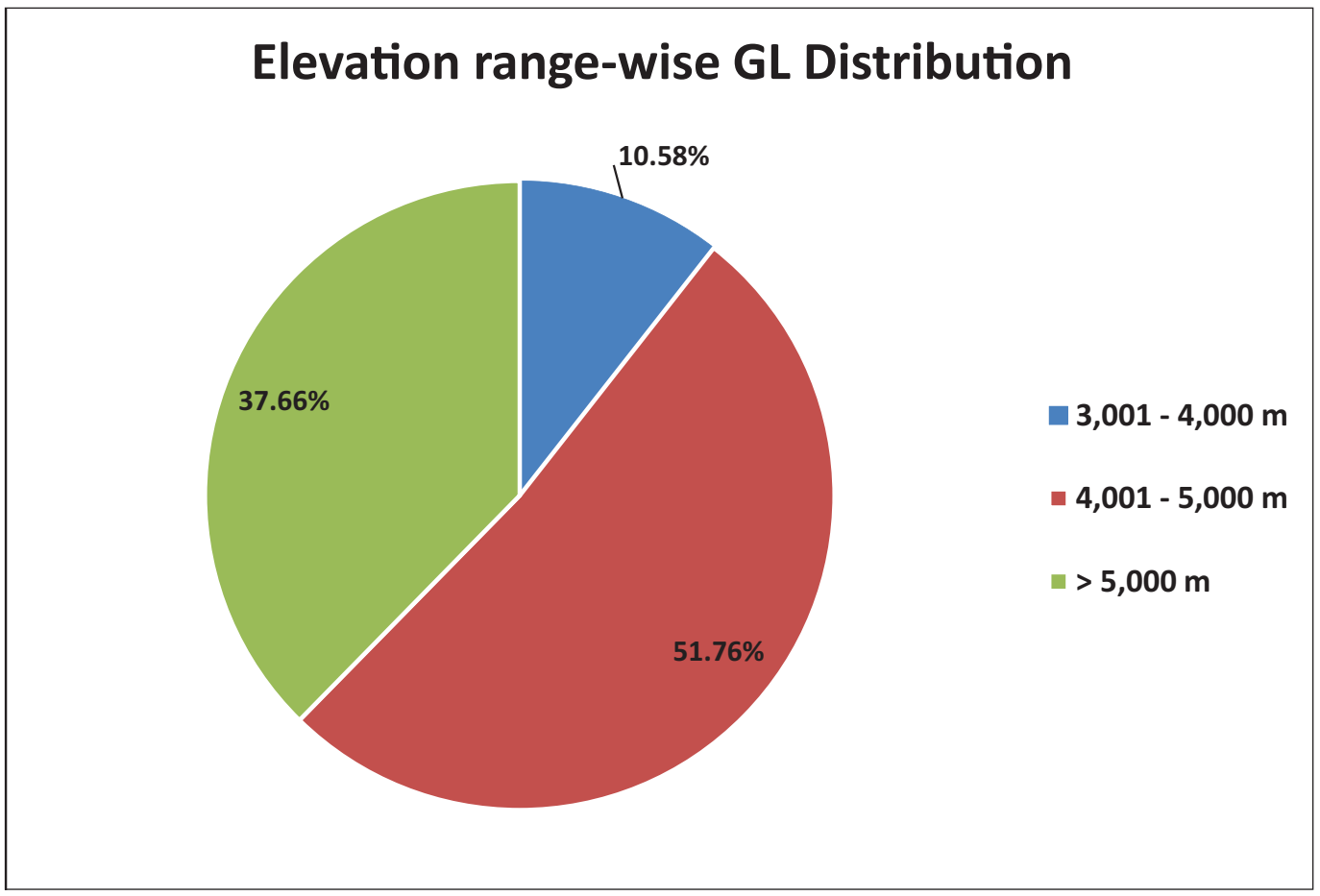


Figure 90: Elevation range-wise distribution of GL in Subansiri subbasin

Area Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 70 and Figure 91. It is noted that, 51.76% of glacial lakes (279) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 56.44%. It has been further noticed that, 51.26% of lakes < 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, no glacial lakes lie below 3,000 m and 203 lakes above 5,000 m elevation range.

Table 70: Area range-wise vs. Elevation range-wise distribution of GL in Subansiri subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	3	0.78	43	16.27	50	17.89	96	34.94
2	0.5 - 1	0	0.00	6	4.69	61	44.19	54	39.24	121	88.12
3	1 - 5	0	0.00	23	56.46	119	277.90	76	162.44	218	496.80
4	5 - 10	0	0.00	13	91.55	33	238.06	16	115.48	62	445.09
5	10 - 50	0	0.00	12	270.35	19	312.05	7	113.98	38	696.38
6	> 50	0	0.00	0	0.00	4	243.00	0	0.00	4	242.91
Total		**0**	**0.00**	**57**	**423.83**	**279**	**1,131.38**	**203**	**449.02**	**539**	**2,004.24**

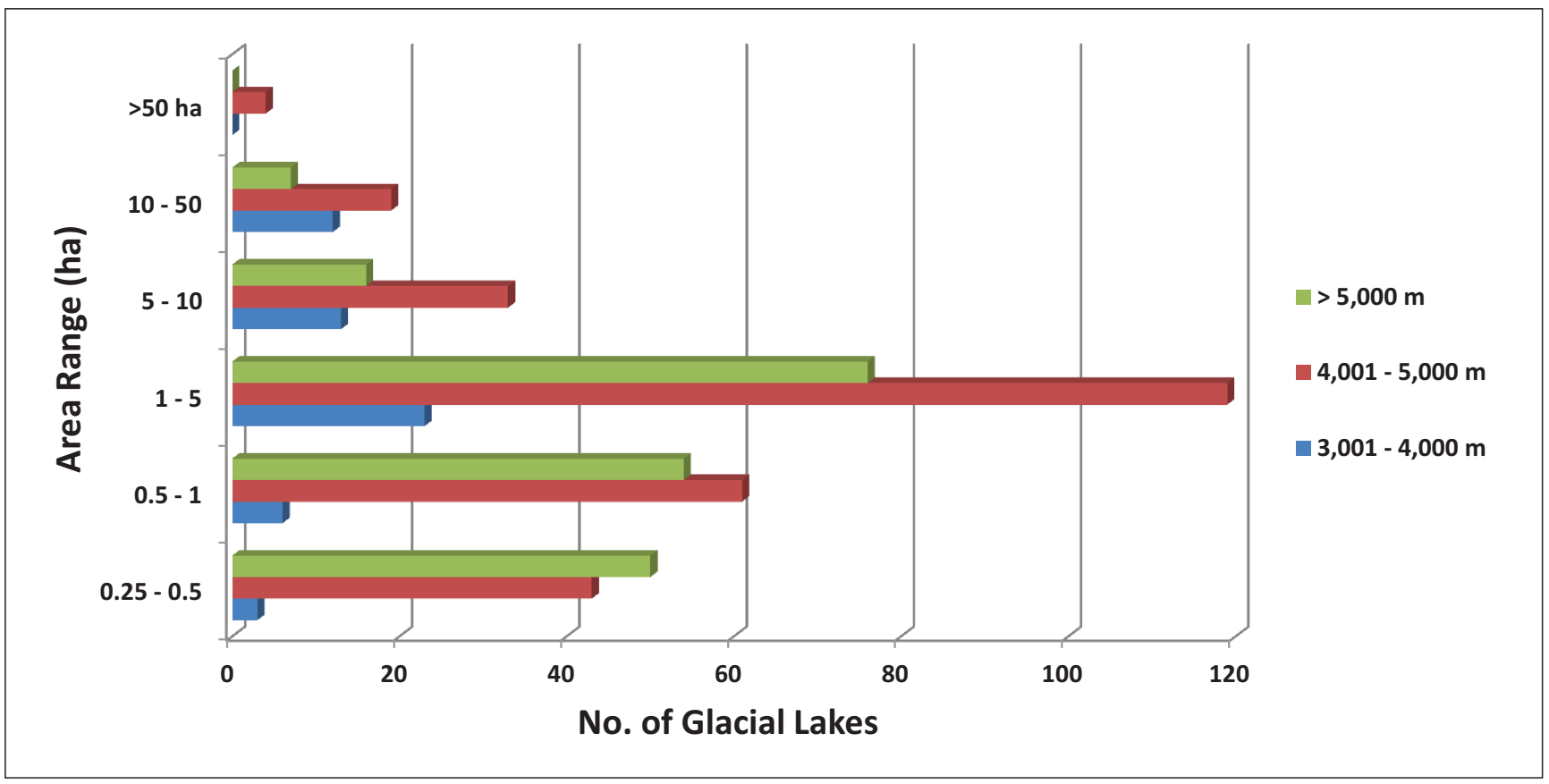


Figure 91: Area range-wise vs. Elevation range-wise distribution of GL in Subansiri subbasin

Type-Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 71 and Figure 92. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (64.19%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Cirque Erosion Lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 12.35% and 67.74%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 93.

Table 71: Type-wise vs. Elevation range-wise distribution of GL in Subansiri subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	9	0	43	5	57
3	4,001 - 5,000	7	0	0	11	0	0	21	0	222	18	279
4	> 5,000	26	1	0	78	6	2	1	0	81	8	203
Total		**33**	**1**	**0**	**89**	**6**	**2**	**31**	**0**	**346**	**31**	**539**

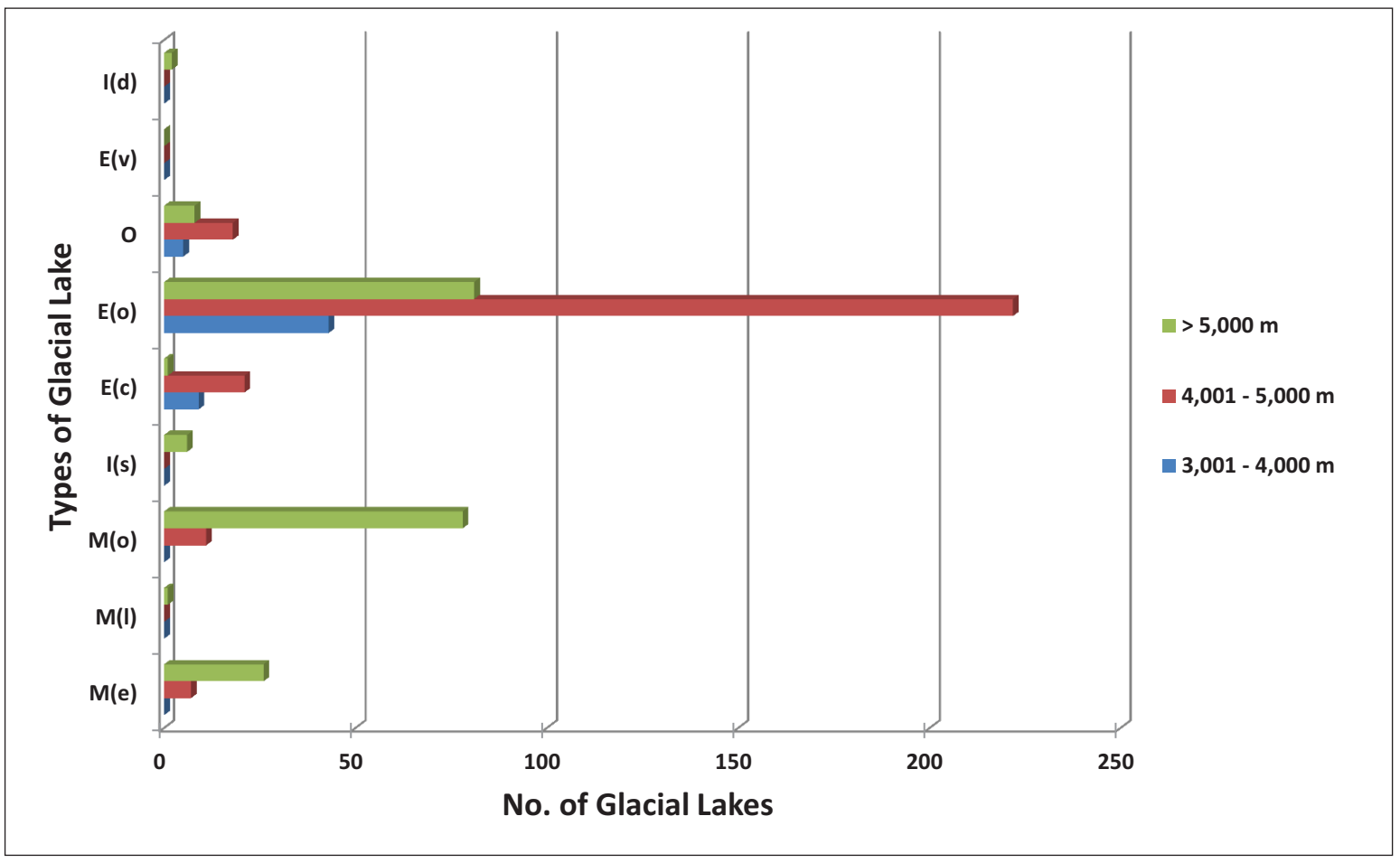


Figure 92: Type-wise vs. Elevation range-wise distribution of GL in Subansiri subbasin

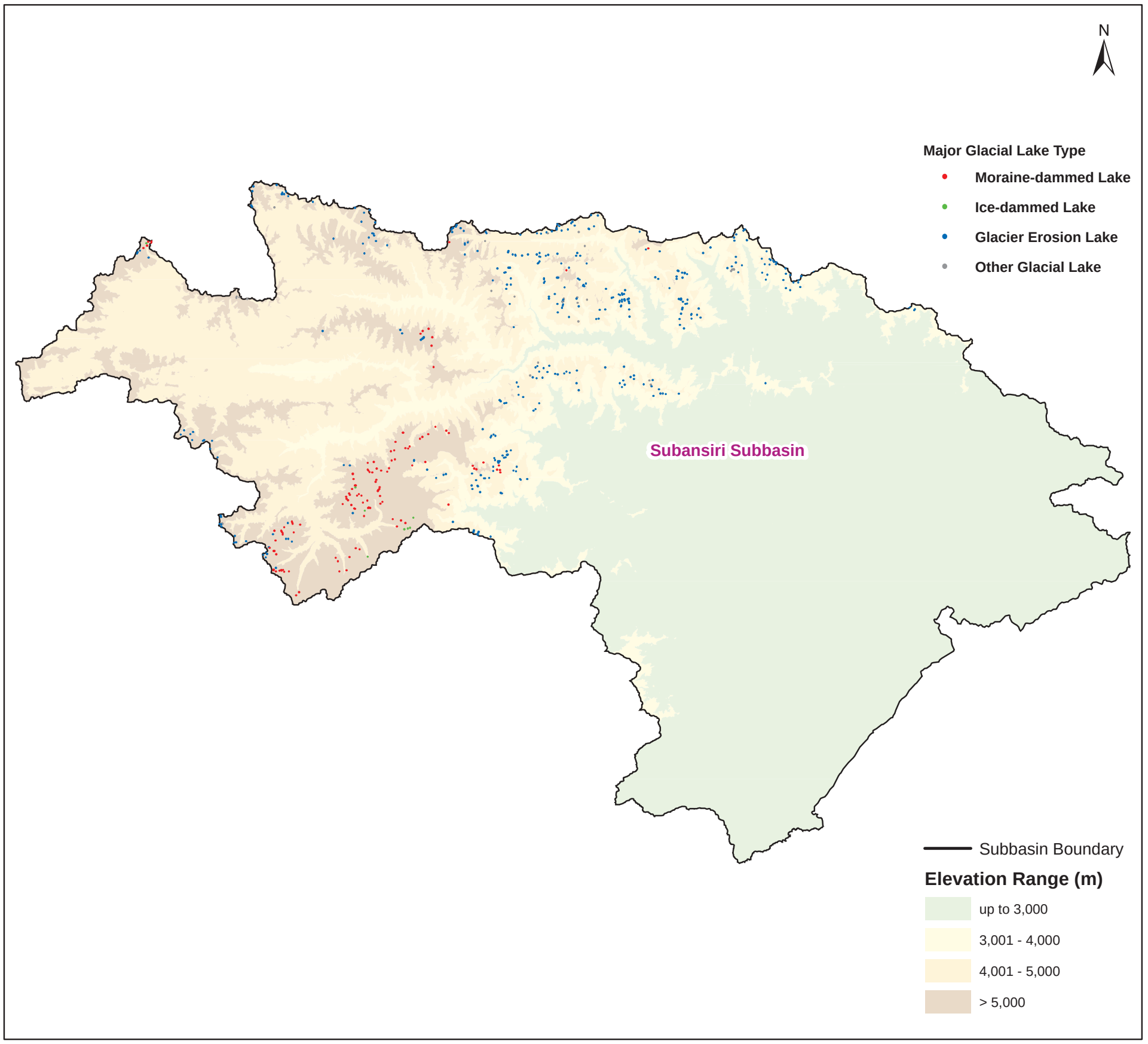


Figure 93: Elevation range-Type-wise spatial distribution of GL in Subansiri subbasin

5.2.11 Teesta Subbasin

The Teesta subbasin is the smallest subbasin of the Brahmaputra River basin covering a total area of 8,555 Km^2 i.e. 2.14% of the total basin area (Figure 94). The river originates from Cholamo Lake at an elevation of 5,330 m above sea level in the Himalayas. It is fed by the glaciers viz. Zemu, Changame Khanpu, Talung etc. Zenu Chu and Rangit are the two main tributaries of the Teesta River. A total of 683 glacial lakes has been mapped, covering a total area of 3,120.76 ha i.e. 0.36% of the total area of the subbasin.

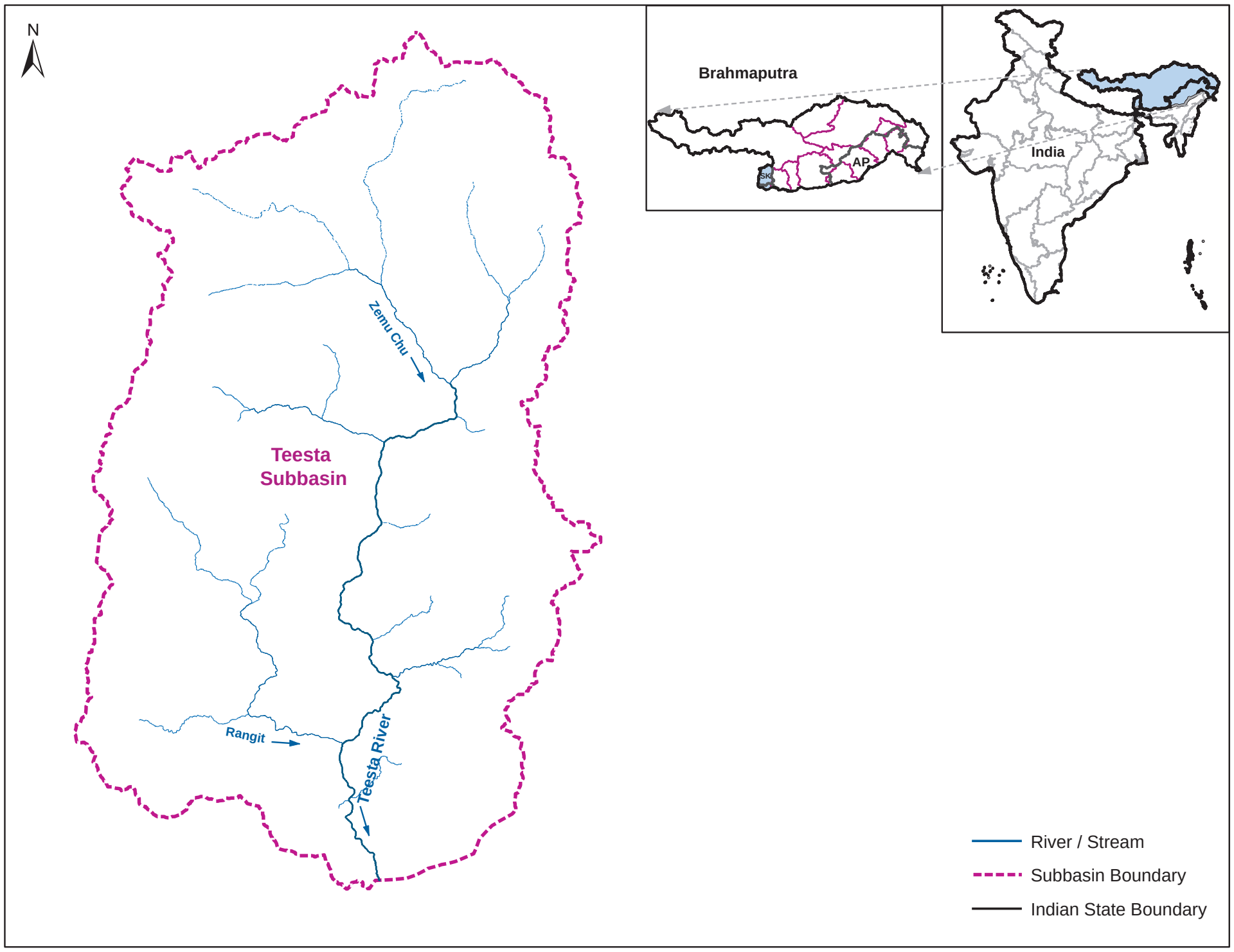


Figure 94: Location map of the Teesta subbasin

Area-range-wise Distribution

In Teesta subbasin, glacial lakes have been distributed in all area ranges. Table 72 and Figure 95 shows the area range-wise distribution of glacial lakes for the Teesta subbasin. About 575 (84.19%) lakes are with < 5 ha lake area contributing to 22.48% of total lake area. The remaining lakes with > 5 ha in size are 108 (15.81%) contributing to 77.52% of total lake area in the subbasin

Table 72: Area range-wise distribution of GL in Teesta subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	196	66.61	2.13
2	0.5 - 1	153	111.22	3.56
3	1 - 5	226	523.58	16.78
4	5 - 10	47	353.24	11.32
5	10 - 50	50	982.43	31.48
6	> 50	11	1,083.68	34.72
Total		**683**	**3,120.76**	**100.00**

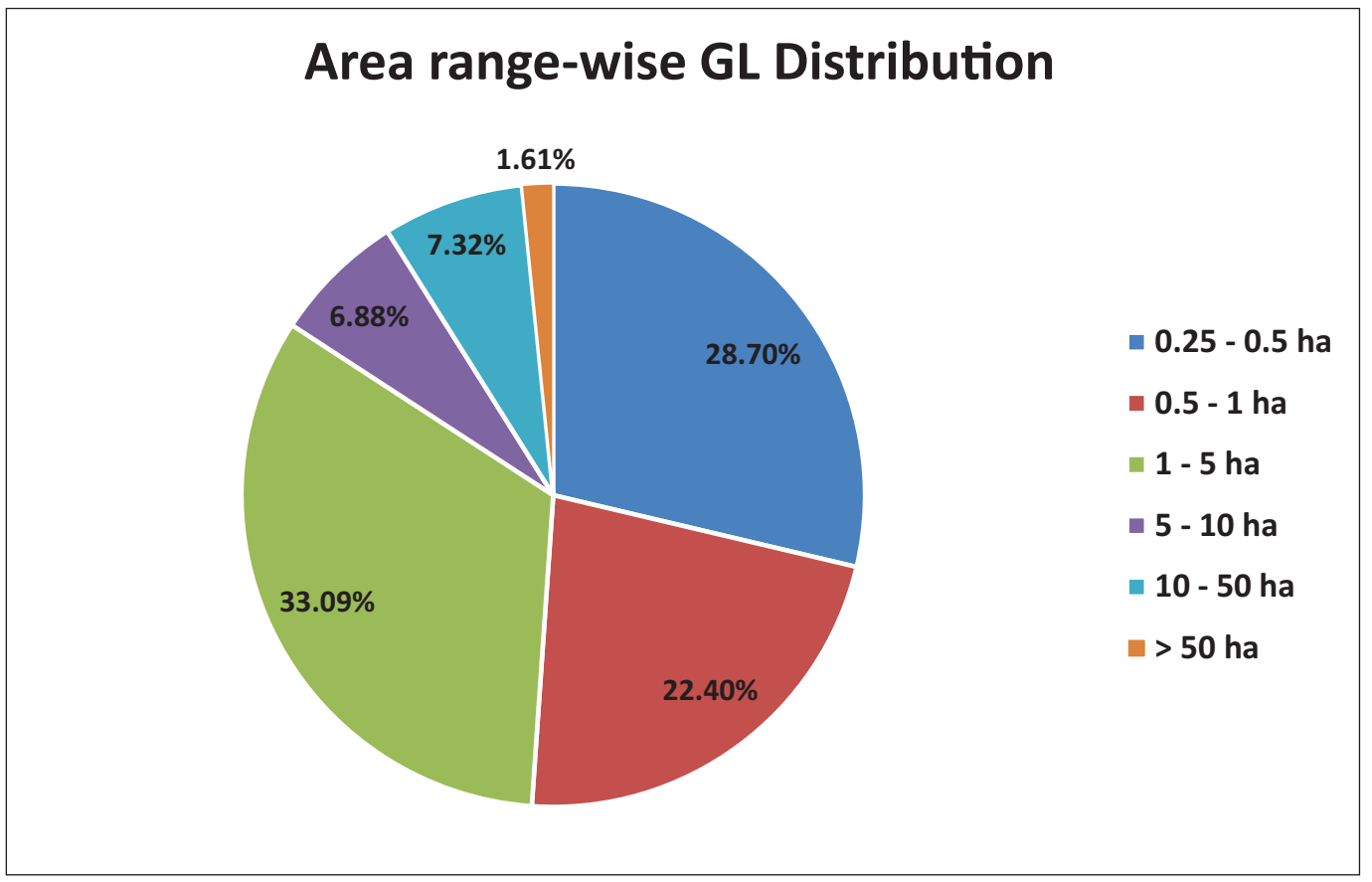


Figure 95: Area range-wise distribution of GL in Teesta subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Teesta subbasin is given in Table 73 and Figure 96. Out of 10 types of glacial lakes, 7 types of lake are present in the Teesta subbasin, where Other Glacial Erosion lakes are found to be the maximum with 382 (55.93%) occupying a total lake extent of 765.76 ha at 24.53% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 148 (21.67%) and extend over a total area of 633.39 ha at 20.29%. in the subbasin

Table 73: Type-wise distribution of GL in Teesta subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	31	1,374.46	44.03
2	M(l)	Lateral Moraine Dammed Lake	5	8.08	0.26
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	148	633.39	20.29
5	I(s)	Supra-glacial Lake	72	48.75	1.56
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	37	258.17	8.27
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	382	765.76	24.53
10	O	Other Glacial Lake	8	33.15	1.06
Total			**683**	**3,121.76**	**100.00**

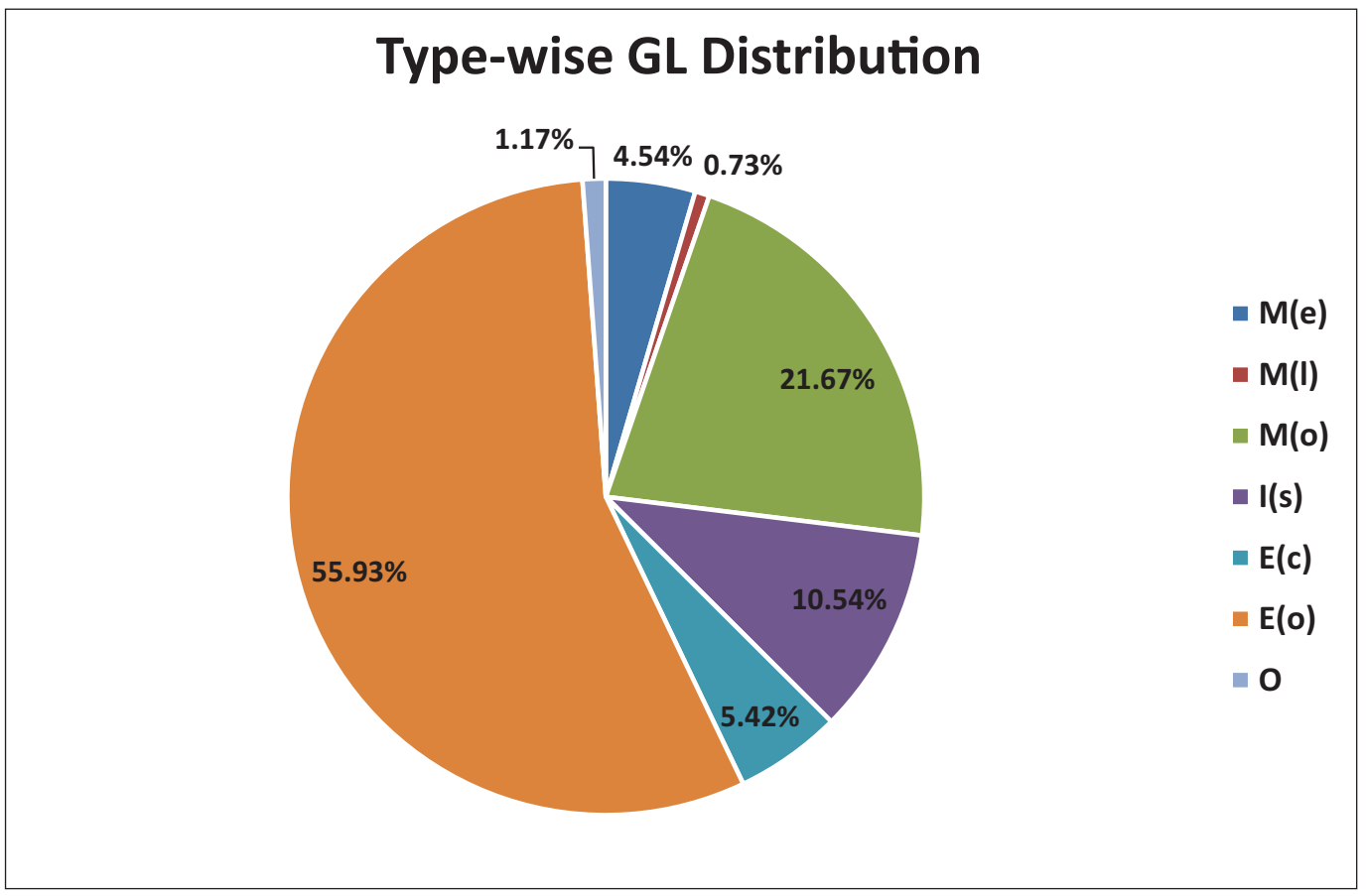


Figure 96: Type-wise distribution of GL in Teesta subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 74 and Figure 97. The lakes with < 5 ha in size (84.19%) are dominant with Other Glacial Erosion (60.34%) and Other Moraine Dammed lakes (21.39%). Lakes with > 5 ha (15.81%) are also dominated by Other Glacial Erosion lakes (32.40%). All types of Glacier Erosion lakes, which constitute about 61.34% are predominantly with < 5 ha in water spread.

Table 74: Area range-wise vs. Type-wise distribution of GL in Teesta subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	37	50	0	0	0	108	1	196
2	0.5 - 1	0	1	0	35	13	0	2	0	100	2	153
3	1 - 5	1	4	0	51	8	0	19	0	139	4	226
4	5 - 10	4	0	0	12	1	0	7	0	23	0	47
5	10 - 50	17	0	0	11	0	0	9	0	12	1	50
6	> 50	9	0	0	2	0	0	0	0	0	0	11
Total		**31**	**5**	**0**	**148**	**72**	**0**	**37**	**0**	**382**	**8**	**683**

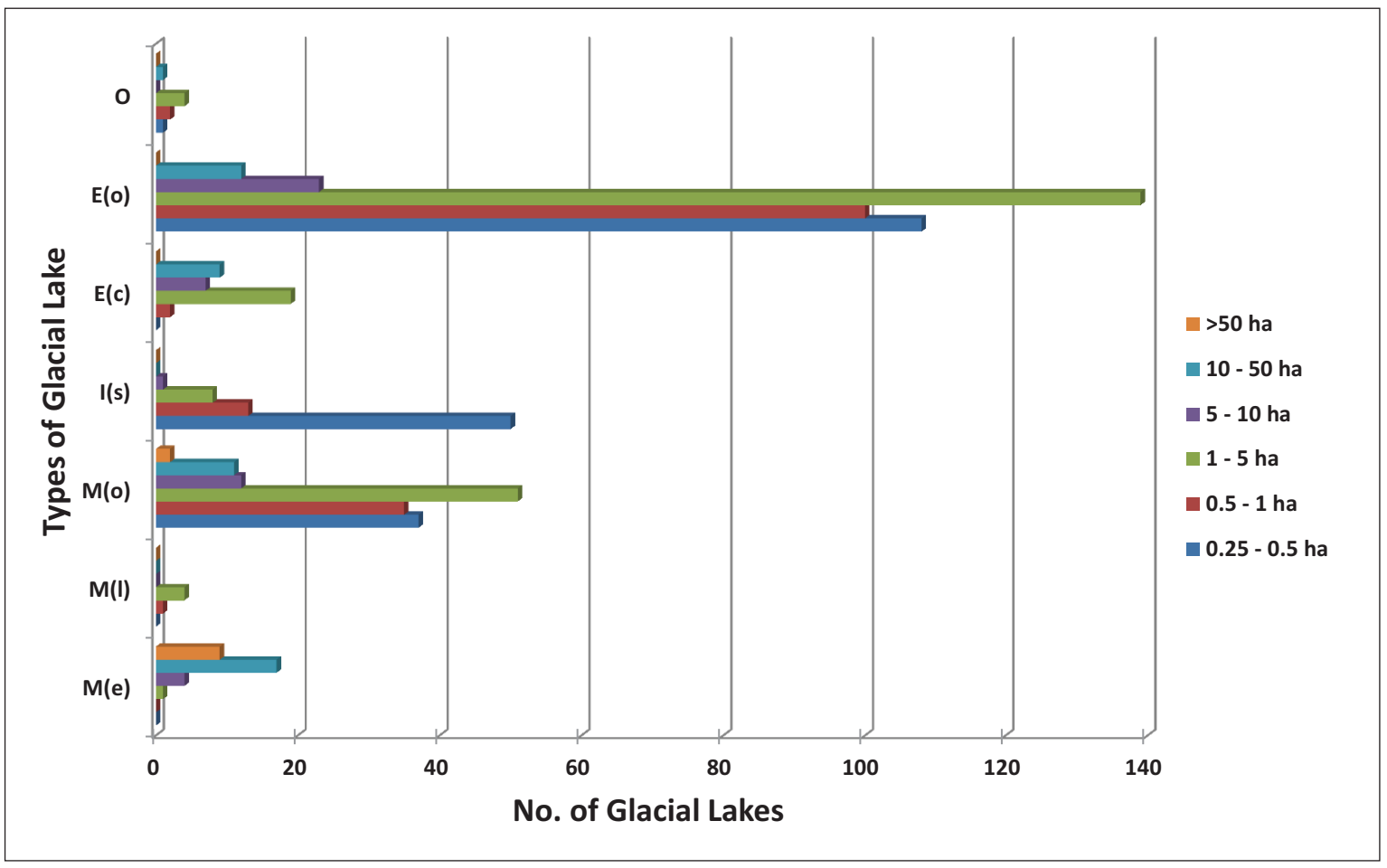


Figure 97: Area range-wise vs. Type-wise distribution of GL in Teesta subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Teesta subbasin has been shown in Table 75 and Figure 98. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 661 (96.78%) with total lake area of 3,011.61 ha (96.50%) and remaining 3.22% glacial lakes are below 4,000 m elevation.

Table 75: Elevation range-wise distribution of GL in Teesta subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	22	109.14	3.50
3	4,001 - 5,000	375	1,057.08	33.87
4	> 5,000	286	1,954.54	62.63
Total		**683**	**3,120.76**	**100.00**

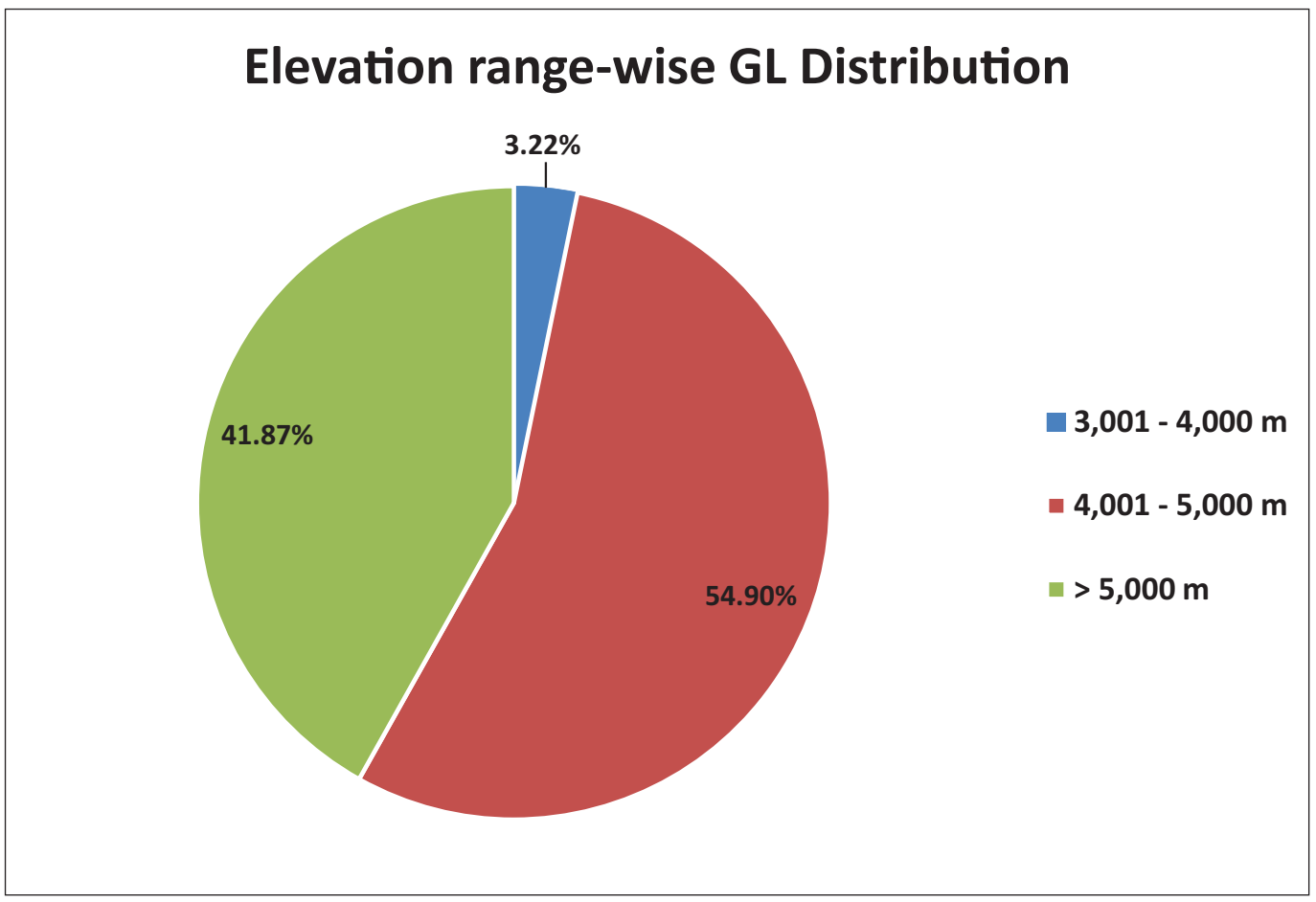


Figure 98: Elevation range-wise distribution of GL in Teesta subbasin

Area Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 76 and Figure 99. It is noted that, 54.82% of glacial lakes (375) are situated in high altitude range i.e. 4,001 - 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 33.86%. It has been further noticed that, 56.59% of lakes < 5 ha are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 5 ha. However, no glacial lakes lie below 3,000 m and 286 lakes above 5,000 m elevation range.

Table 76: Area range-wise vs. Elevation range-wise distribution of GL in Teesta subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	7	2.47	109	37.00	80	27.14	196	66.61
2	0.5 - 1	0	0.00	2	1.58	90	65.00	61	44.15	153	111.22
3	1 - 5	0	0.00	7	12.04	127	288.00	92	223.48	226	523.58
4	5 - 10	0	0.00	2	15.83	23	164.00	22	173.62	47	353.24
5	10 - 50	0	0.00	4	77.23	25	445.00	21	460.33	50	982.43
6	> 50	0	0.00	0	0.00	1	58.00	10	1,025.81	11	1,083.68
Total		**0**	**0.00**	**22**	**109.14**	**375**	**1,057.08**	**286**	**1,954.54**	**683**	**3,120.76**

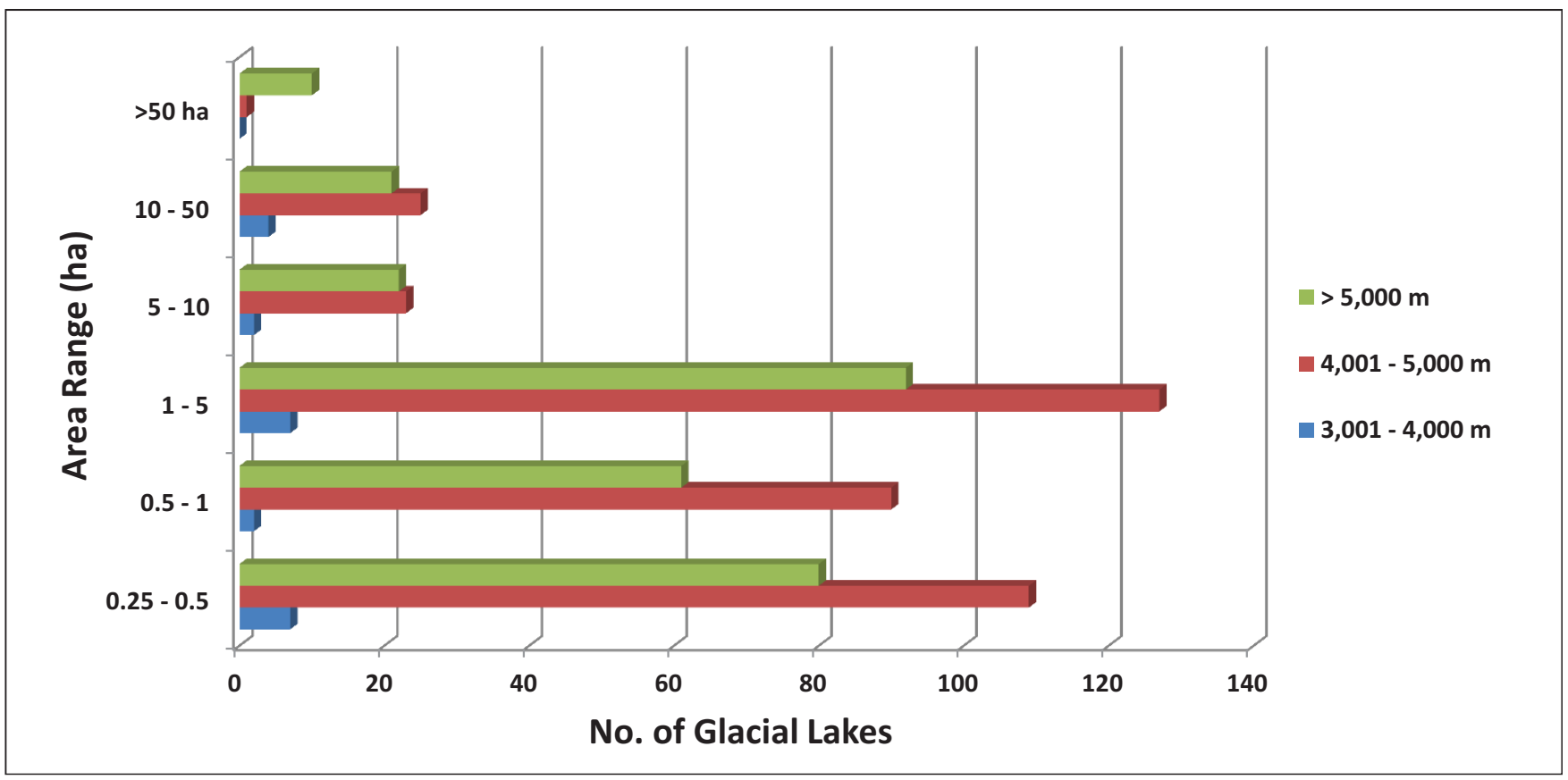


Figure 99: Area range-wise vs. Elevation range-wise distribution of GL in Teesta subbasin

Type Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 77 and Figure 100. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (55.92%) are predominantly located in the elevation range of 4,001 - 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Cirque Erosion Lakes are distributed in high altitude range (4,001 - 5,000 m), i.e. 16.89% and 83.78%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 101.

Table 77: Type-wise vs. Elevation range-wise distribution of GL in Teesta subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	1	0	0	0	1	0	0	0	19	1	22
3	4,001 - 5,000	7	5	0	25	42	0	31	0	263	2	375
4	> 5,000	23	0	0	123	29	0	6	0	100	5	286
Total		**31**	**5**	**0**	**148**	**72**	**0**	**37**	**0**	**382**	**8**	**683**

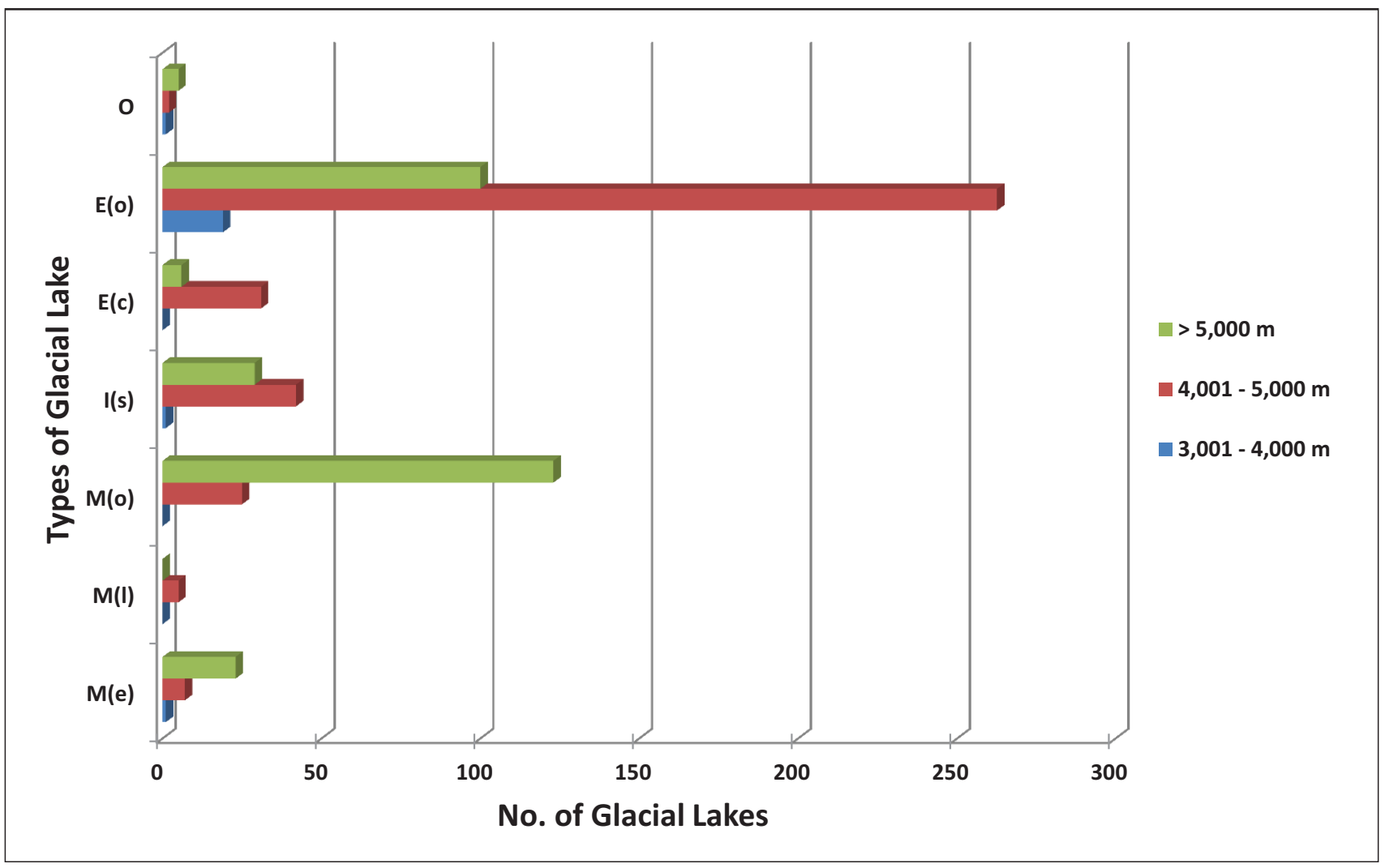


Figure 100: Type-wise vs. Elevation range-wise distribution of GL in Teesta subbasin

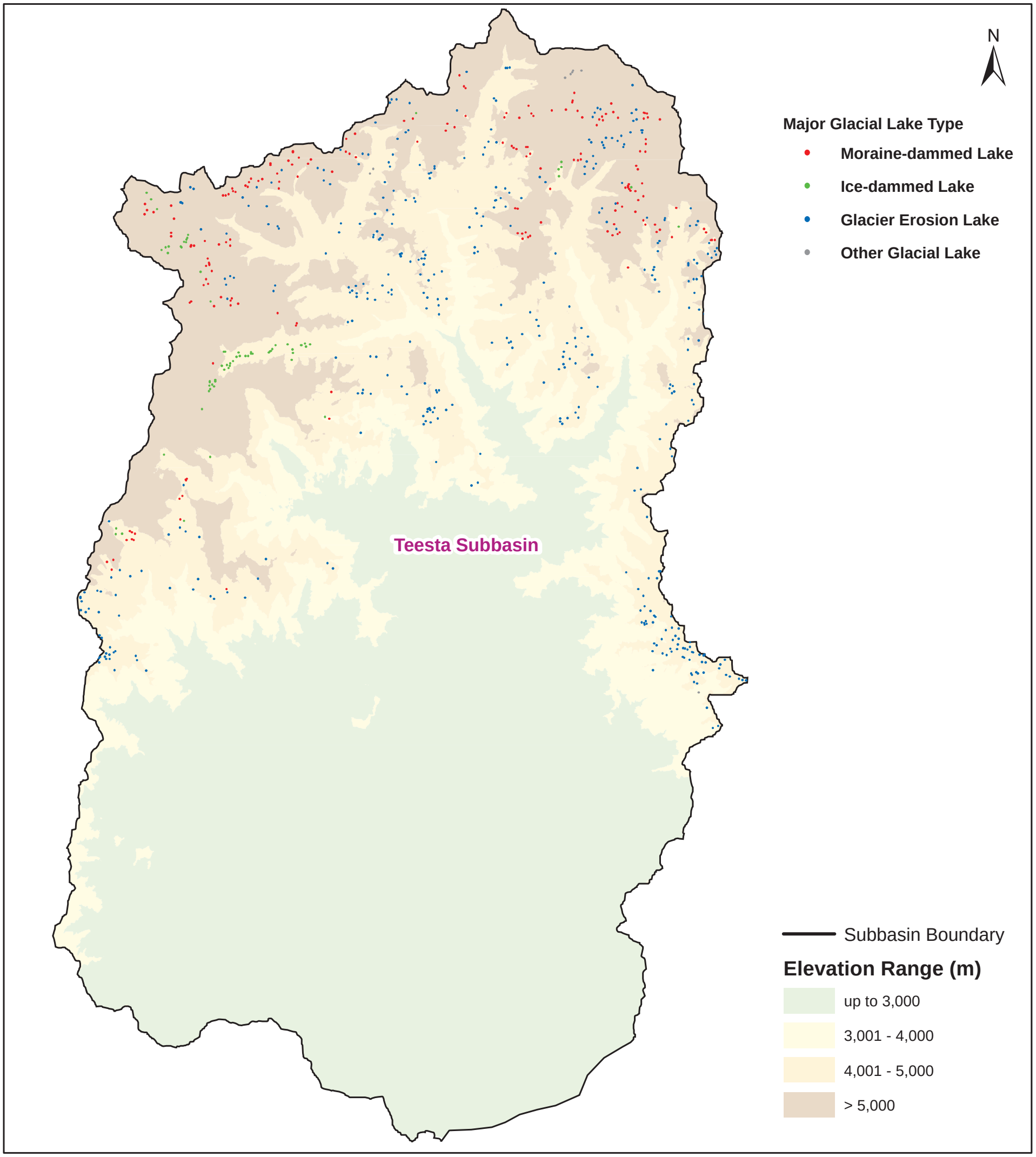


Figure 101: Elevation range-Type-wise spatial distribution of GL in Teesta subbasin

5.2.12 Upper Yarlung Tsangpo Subbasin

The Upper Yarlung Tsangpo subbasin is the largest subbasin of the Brahmaputra River basin covering a total area of 1,27,926 Km^2 i.e. 31.99% of the total basin area (Figure 102). Major tributaries of Yarlung Tsangpo include Nyang chu River, Shang Chu, Nyang River, Mu Chu, and Parlung Tsangpo. It originates at Angsi Glacier in western Tibet, southeast of Mount Kailash and Lake Manasarovar, it later forms the South Tibet Valley and Yarlung Tsangpo Grand Canyon before passing into the state of Arunachal Pradesh, India. A total of 2,900 glacial lakes has been mapped, covering a total area of 16,088.66 ha i.e. 0.12% of the total area of the subbasin.

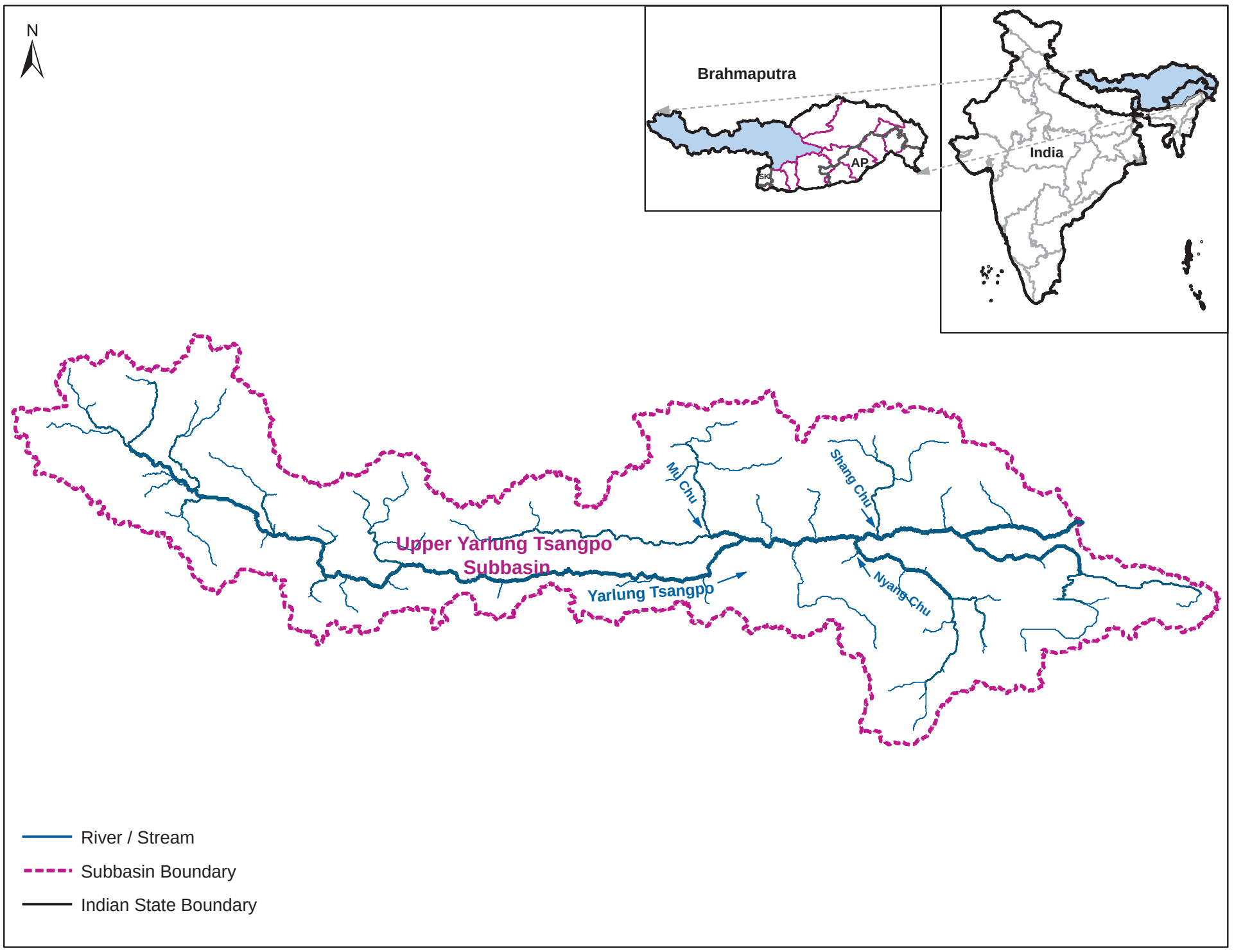


Figure 102: Location map of the Upper Yarlung Tsangpo subbasin

Area-range-wise Distribution

In Upper Yarlung Tsangpo subbasin, glacial lakes have been distributed in all area ranges. Table 78 and Figure 103 shows the area range-wise distribution of glacial lakes for the Upper Yarlung Tsangpo subbasin. About 2,529 (87.21%) lakes are with < 5 ha lake area contributing to 19.45% of total lake area. The remaining lakes with > 5 ha in size are 371 (12.79%) contributing to 80.55% of total lake area in the subbasin.

Table 78: Area range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	719	255.25	1.59
2	0.5 - 1	754	538.93	3.35
3	1 - 5	1,056	2,335.77	14.52
4	5 - 10	177	1,239.70	7.71
5	10 - 50	146	3,129.09	19.45
6	> 50	48	8,589.93	53.39
Total		**2,900**	**16,088.67**	**100.00**

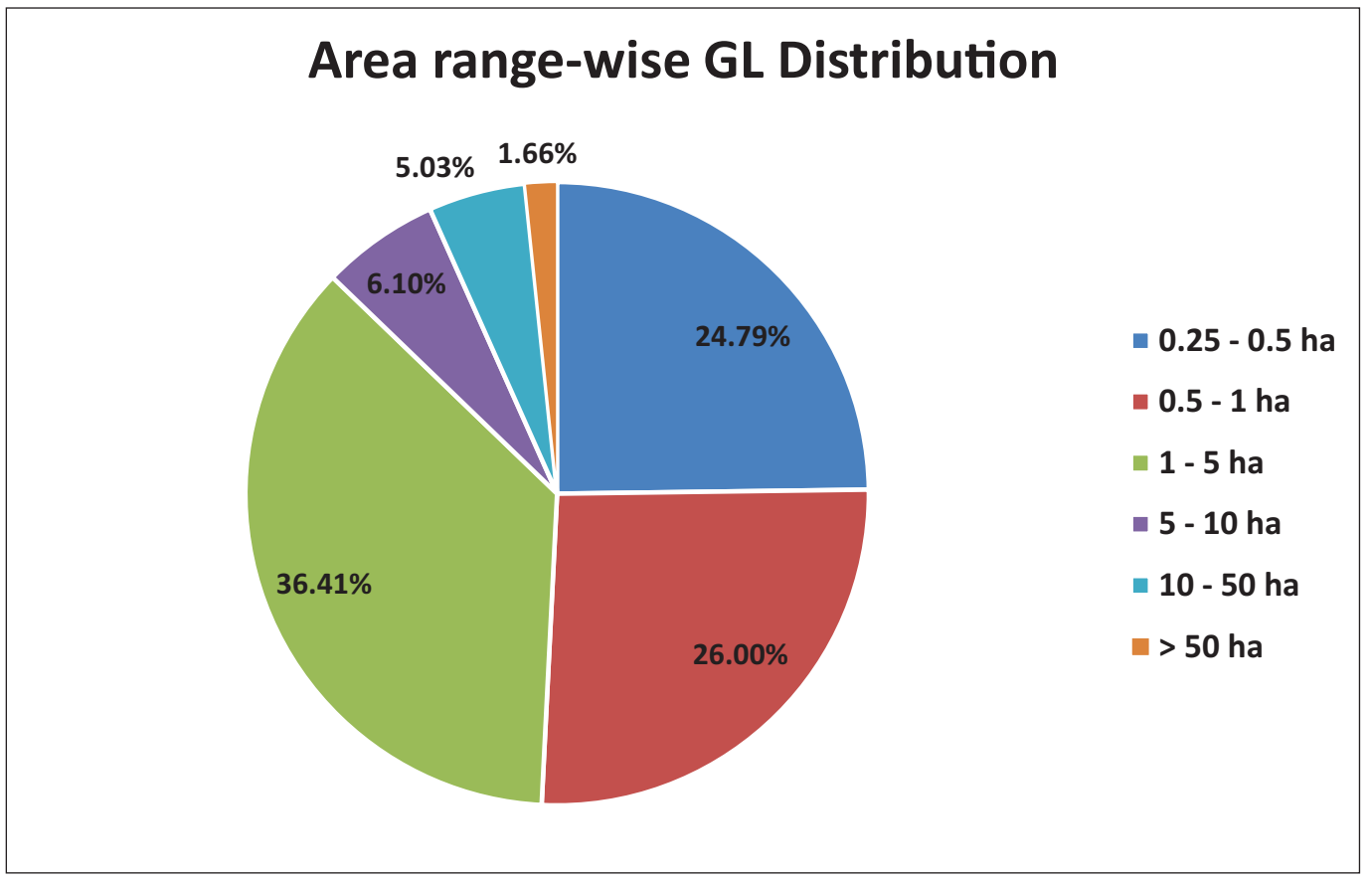


Figure 103: Area range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

Type-wise Distribution

Distribution of different types of glacial lakes in the Upper Yarlung Tsangpo subbasin is given in Table 79 and Figure 104. Out of 10 types of glacial lakes, 8 types of lake are present in the Upper Yarlung Tsangpo subbasin, where Other Glacial Erosion lakes are found to be the maximum with 1,226 (42.28%) occupying a total lake extent of 5,923.31 ha at 36.82% in the subbasin. After that, Other Moraine Dammed lakes are in majority with 922 (31.79%) and extend over a total area of 2,057.14 ha at 12.79%. in the subbasin.

Table 79: Type-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	78	3,123.41	19.41
2	M(l)	Lateral Moraine Dammed Lake	5	9.81	0.06
3	M(lg)	Lateral Moraine Dammed Lake with Ice	1	0.60	0.00
4	M(o)	Other Moraine Dammed Lake	922	2,057.14	12.79
5	I(s)	Supra-glacial Lake	17	35.73	0.22
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	28	99.22	0.62
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	1,226	5,923.31	36.82
10	O	Other Glacial Lake	623	4,839.45	30.08
Total			**2,900**	**16,088.67**	**100.00**

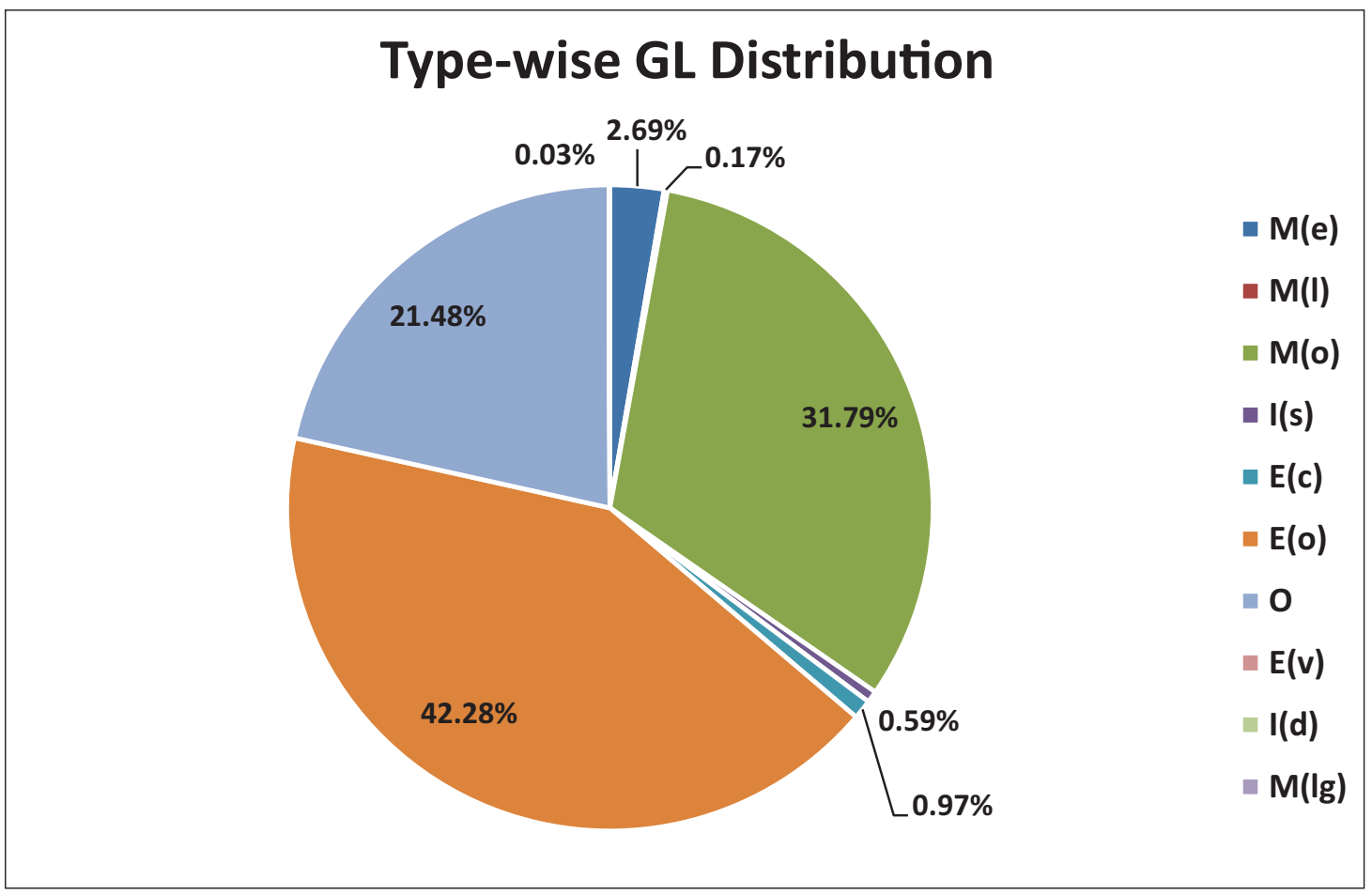


Figure 104: Type-wise distribution of GL in Upper Yarlung Tsangpo subbasin

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 80 and Figure 105. The lakes with < 5 ha in size (87.21%) are dominant with Other Glacial Erosion (43.41%) and Other Moraine Dammed lakes (32.66%). Lakes with > 5 ha (12.79%) are also dominated by Other Glacial Erosion lakes (34.50%). All types of Glacier Erosion lakes, which constitute about 43.24% are predominantly with < 5 ha in water spread.

Table 80: Area range-wise vs. Type-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	2	0	244	7	0	4	0	282	180	719
2	0.5 - 1	3	0	1	230	6	0	8	0	354	152	754
3	1 - 5	15	2	0	352	3	0	9	0	462	213	1,056
4	5 - 10	12	1	0	70	0	0	5	0	67	22	177
5	10 - 50	34	0	0	26	1	0	2	0	47	36	146
6	> 50	14	0	0	0	0	0	0	0	14	20	48
Total		**78**	**5**	**1**	**922**	**17**	**0**	**28**	**0**	**1,226**	**623**	**2,900**

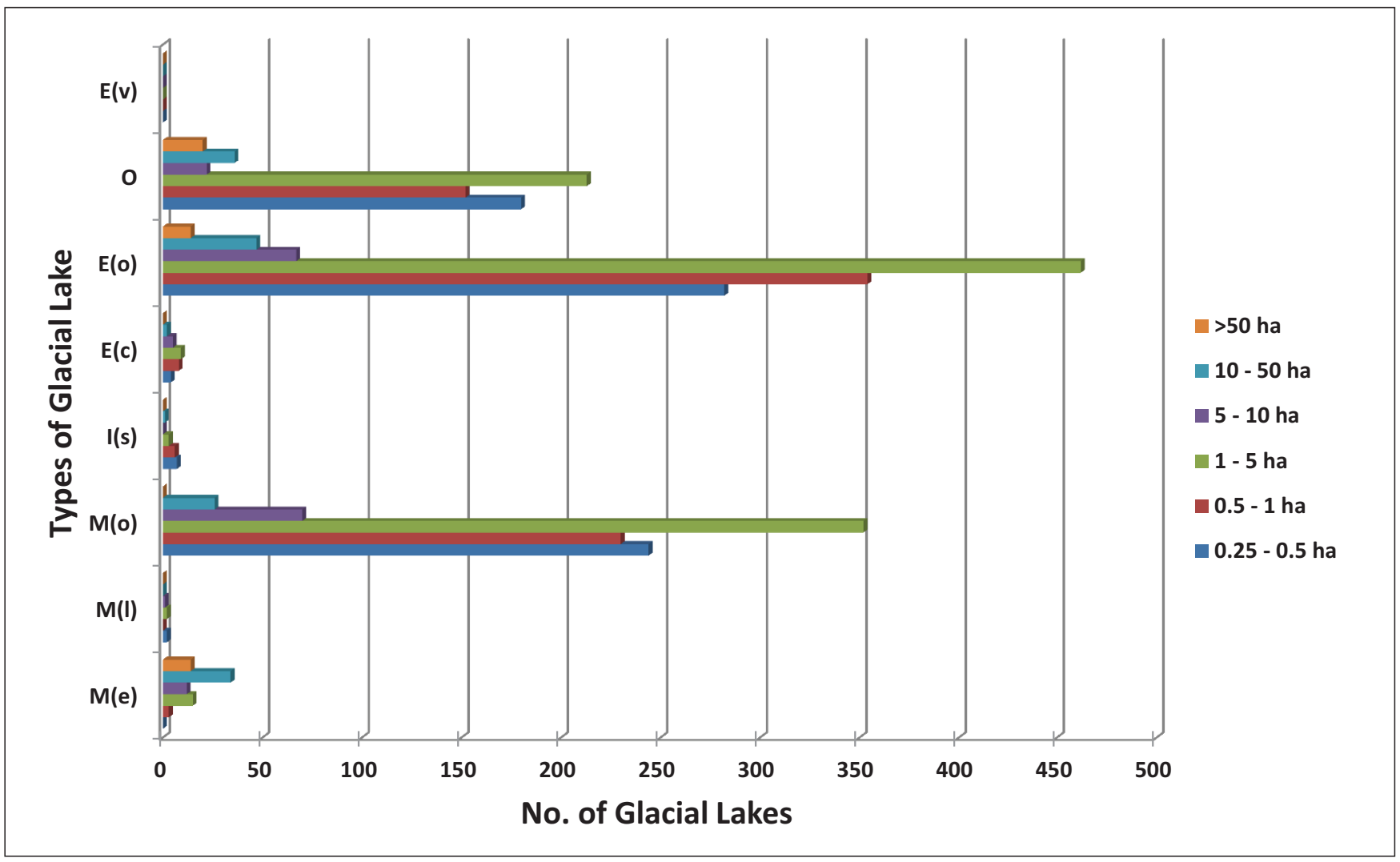


Figure 105: Area range-wise vs. Type-wise distribution of GL in Upper Yarlung Tsangpo subbasin

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Upper Yarlung Tsangpo subbasin has been shown in Table 81 and Figure 106. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 2,898 (99.93%) with total lake area of 16,083.48 ha (99.96%) and remaining 0.07% glacial lakes are below 4,000 m elevation.

Table 81: Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	0	0.00	0.00
2	3,001 - 4,000	2	5.20	0.03
3	4,001 - 5,000	299	6,130.29	38.10
4	> 5,000	2,599	9,953.18	61.86
Total		**2,900**	**16,088.67**	**100.00**

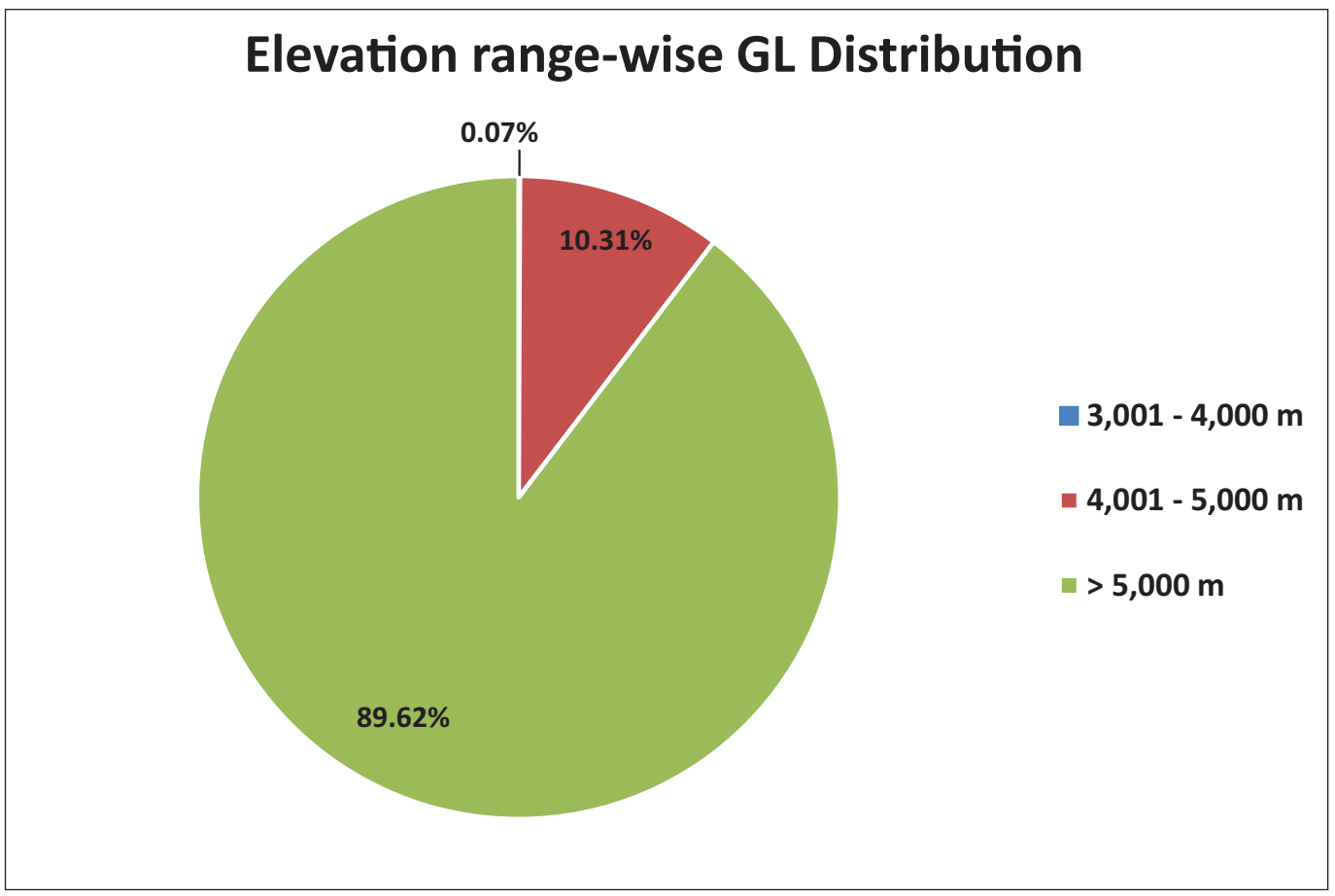


Figure 106: Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

Area Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 82 and Figure 107. It is noted that, 89.62% of glacial lakes (2,599) are situated in very high altitude range i.e. > 5,000 m amsl, which constitutes maximum share of total lake area within that range i.e. 61.86%. It has been further noticed that, 10.31% of lakes are lying within high altitude range i.e. 4,001 - 5,000 m, majority of them falling in size range of 1 - 10 ha. However, no glacial lakes lie below 3,000 m elevation range.

Table 82: Area range-wise vs. Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	0	0.00	63	22.71	656	232.54	719	255.25
2	0.5 - 1	0	0.00	0	0.00	71	49.64	683	489.29	754	538.93
3	1 - 5	0	0.00	2	5.20	90	178.89	964	2,151.68	1,056	2,335.77
4	5 - 10	0	0.00	0	0.00	22	160.15	155	1,079.55	177	1,239.70
5	10 - 50	0	0.00	0	0.00	30	754.51	116	2,374.58	146	3,129.09
6	> 50	0	0.00	0	0.00	23	4,964.39	25	3,625.54	48	8,589.93
Total		**0**	**0.00**	**2**	**5.20**	**299**	**6,130.29**	**2,599**	**9,953.18**	**2,900**	**16,088.67**

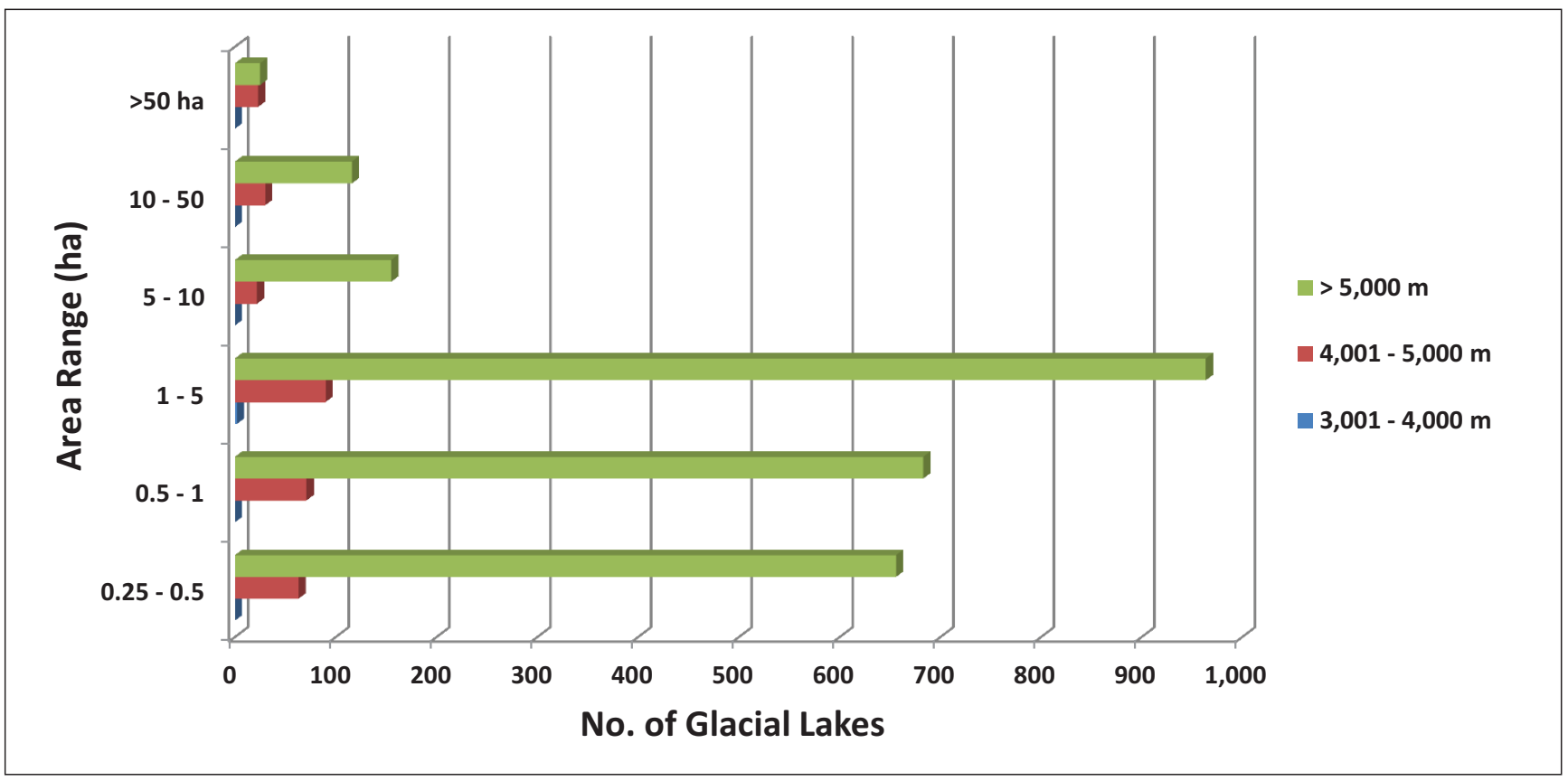


Figure 107: Area range-wise vs. Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

Type Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 83 and Figure 108. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (42.27%) are predominantly located in the elevation above 5,000 m. The other dominant lake type, namely, Other Moraine Dammed and Other Glacial Lakes are prominently seen in the elevation above 5,000 m i.e. 31.79% and 21.48%. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 109.

Table 83: Type-wise vs. Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	0	0	0
2	3,001 - 4,000	0	0	0	0	0	0	0	0	2	0	2
3	4,001 - 5,000	12	0	0	24	0	0	2	0	58	203	299
4	> 5,000	66	5	1	898	17	0	26	0	1,166	420	2,599
Total		**78**	**5**	**1**	**922**	**17**	**0**	**28**	**0**	**1,226**	**623**	**2,900**

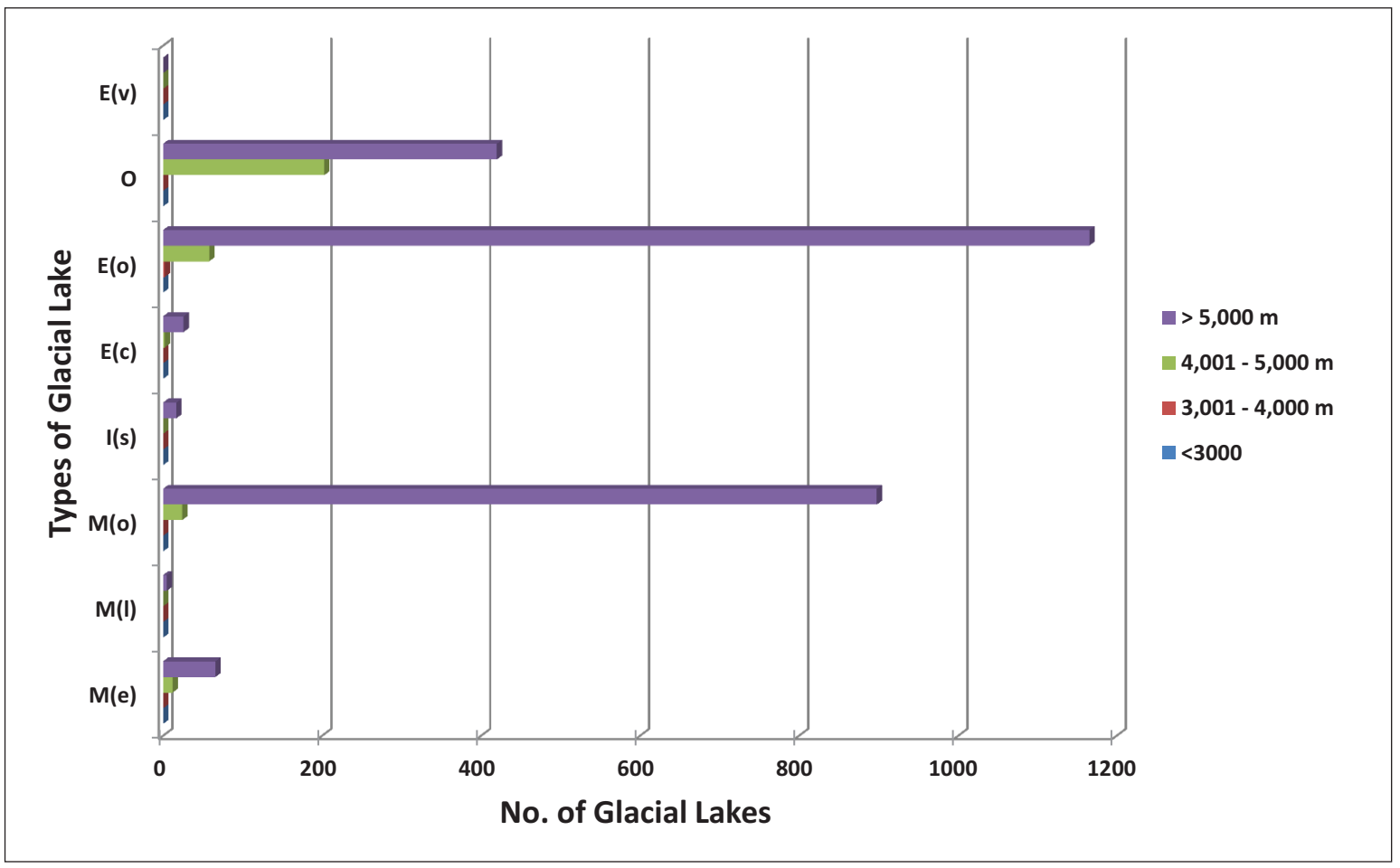


Figure 108: Type-wise vs. Elevation range-wise distribution of GL in Upper Yarlung Tsangpo subbasin

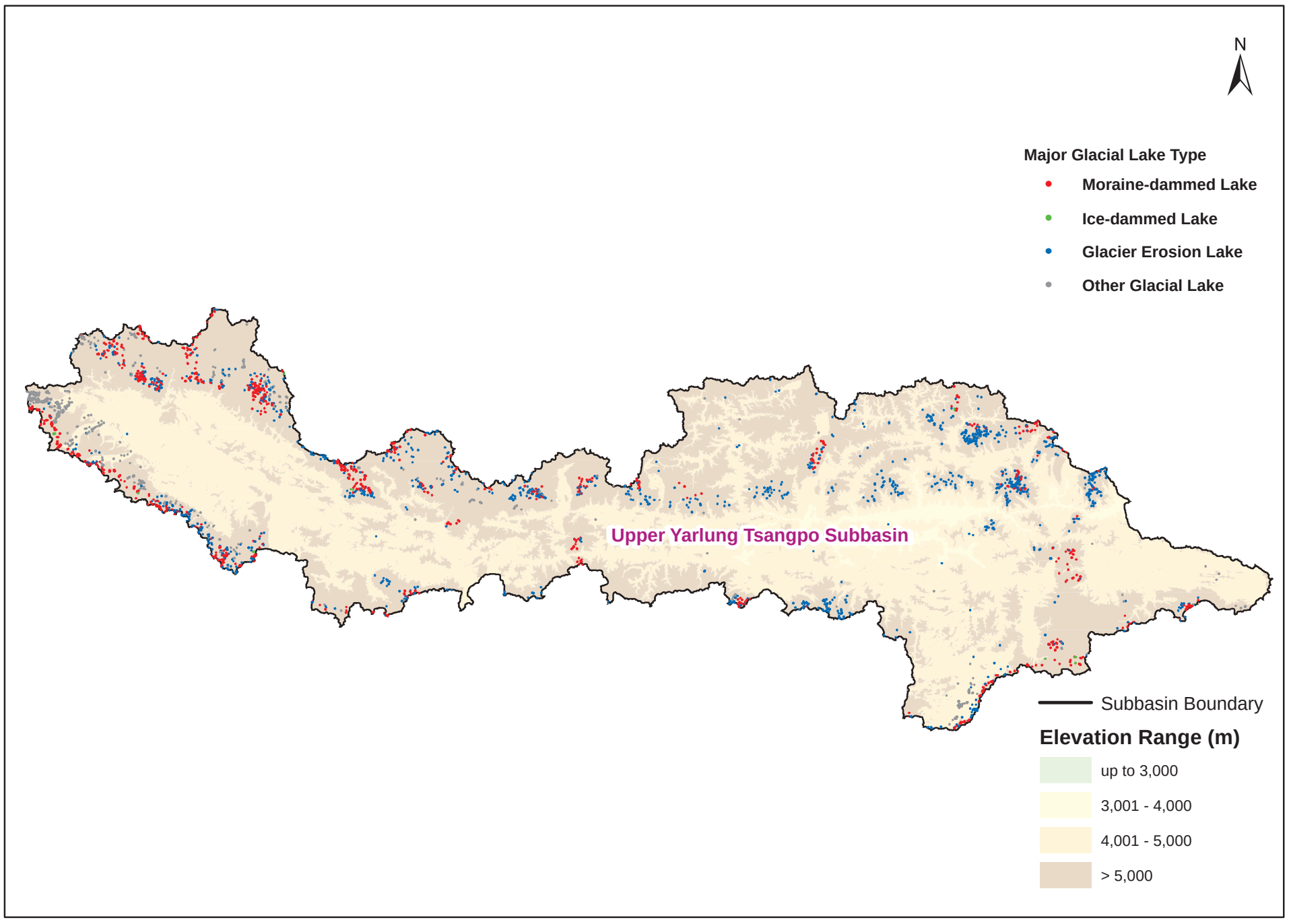


Figure 109: Elevation range-Type-wise spatial distribution of GL in Upper Yarlung Tsangpo subbasin

5.3 Inter Comparison of Subbasins

Glacial lakes in all 12 subbasins of Brahmaputra River basin are compared for number of glacial lakes, total lake area, lake types and their elevation ranges in the following sections.

Subbasin-wise Distribution

Table 84 and Figure 110 shows the subbasin-wise distribution of number of glacial lakes and their water spread area for the Brahmaputra River basin. Lakes are predominantly distributed in Lower Yarlung Tsangpo (27.66%) followed by Upper Yarlung Tsangpo subbasin (16.11%), occupying a total lake extent of 26,371.81 ha and 16,088.67 ha at 28.36% and 17.30% respectively in the entire basin. However, minimum glacial lakes are present in Jia Bharali subbasin (1.30%) followed by Dihang subbasin (2.40%), covering a total lake extent of 0.69% and 3.14% respectively.

Table 84: Subbasin-wise distribution of GL in Brahmaputra River basin

S.No.	Subbasin	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	Amo Chu	513	1,565.46	1.68
2	Dibang	772	6,566.10	7.06
3	Dihang	433	2,923.66	3.14
4	Jia Bharali	234	640.12	0.69
5	Lhasa Tsangpo	1,225	6,980.94	7.51
6	Lohit	2,276	11,529.23	12.40
7	Lower Yarlung Tsangpo	4,979	26,371.81	28.36
8	Manas	2,526	11,318.96	12.17
9	Puna Tsang Chu	921	3,880.79	4.17
10	Subansiri	539	2,004.24	2.16
11	Teesta	683	3,120.76	3.36
12	Upper Yarlung Tsangpo	2,900	16,088.67	17.30
Total		**18,001**	**92,990.74**	**100.00**

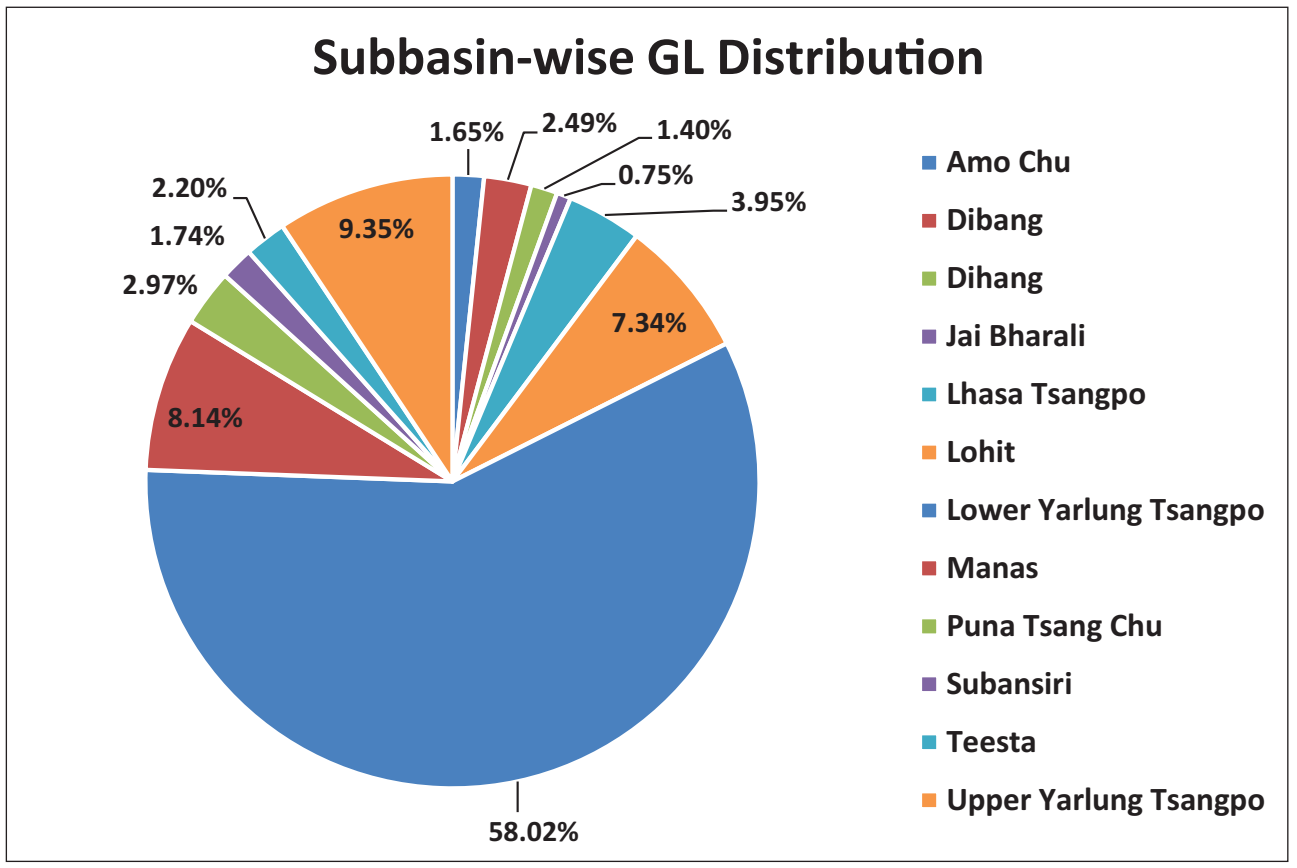


Figure 110: Subbasin-wise distribution of GL in Brahmaputra River basin

Subbasin-Area range-wise Distribution

Glacial lakes have been distributed in all subbasins for 6 classes of area ranges. Table 85 and Figure 111 shows subbasin-area range-wise distribution of glacial lakes for the Brahmaputra River basin. All subbasins contain glacial lakes in all area ranges except Jia Bharali, where lakes are not present in the area range of > 50 ha. Lower Yarlung Tsangpo is the subbasin which has majority of lakes > 50 ha i.e. 26.08%.

Table 85: Subbasin-wise vs. Area range-wise distribution of GL in Brahmaputra River basin

S. No.	Sub basin	Lake Area Range (ha)											
		0.25 - 0.5		0.5 - 1		1 - 5		5 - 10		10 - 50		> 50	
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)
1	Amo Chu	111	37.82	130	94.31	196	443.69	43	297.44	32	639.52	1	52.68
2	Dibang	24	9.90	82	60.95	334	899.70	144	1,030.44	175	3,532.30	13	1,032.81
3	Dihang	39	13.89	60	43.21	176	452.83	78	543.84	77	1,602.17	3	267.72
4	Jia Bharali	43	16.00	63	43.82	94	215.77	24	168.51	10	196.02	0	0.00
5	Lhasa Tsangpo	267	98.10	294	209.19	487	1,041.65	84	567.46	72	1,413.21	21	3,651.33
6	Lohit	466	165.05	496	360.40	857	2,043.43	229	1,615.47	209	3,989.56	19	3,355.32
7	Lower Yarlung Tsangpo	904	328.04	1,024	735.02	2,039	4,769.34	529	3,724.79	429	8,081.12	54	8,733.50
8	Manas	582	204.74	492	352.31	963	2,256.31	239	1,694.77	224	4,221.54	26	2,589.31
9	Puna Tsang Chu	180	64.82	187	134.37	370	836.81	93	668.05	84	1,556.92	7	619.82
10	Subansiri	96	34.94	121	88.12	218	496.80	62	445.09	38	696.38	4	242.91
11	Teesta	196	66.61	153	111.22	226	523.58	47	353.24	50	982.43	11	1,083.68
12	Upper Yarlung Tsangpo	719	255.25	754	538.93	1,056	2,335.77	177	1,239.70	146	3,129.09	48	8,589.93
Total		**3,627**	**1,294.83**	**3,856**	**2,771.84**	**7,016**	**16,315.71**	**1,749**	**12,348.79**	**1,546**	**30,040.25**	**207**	30,219.32

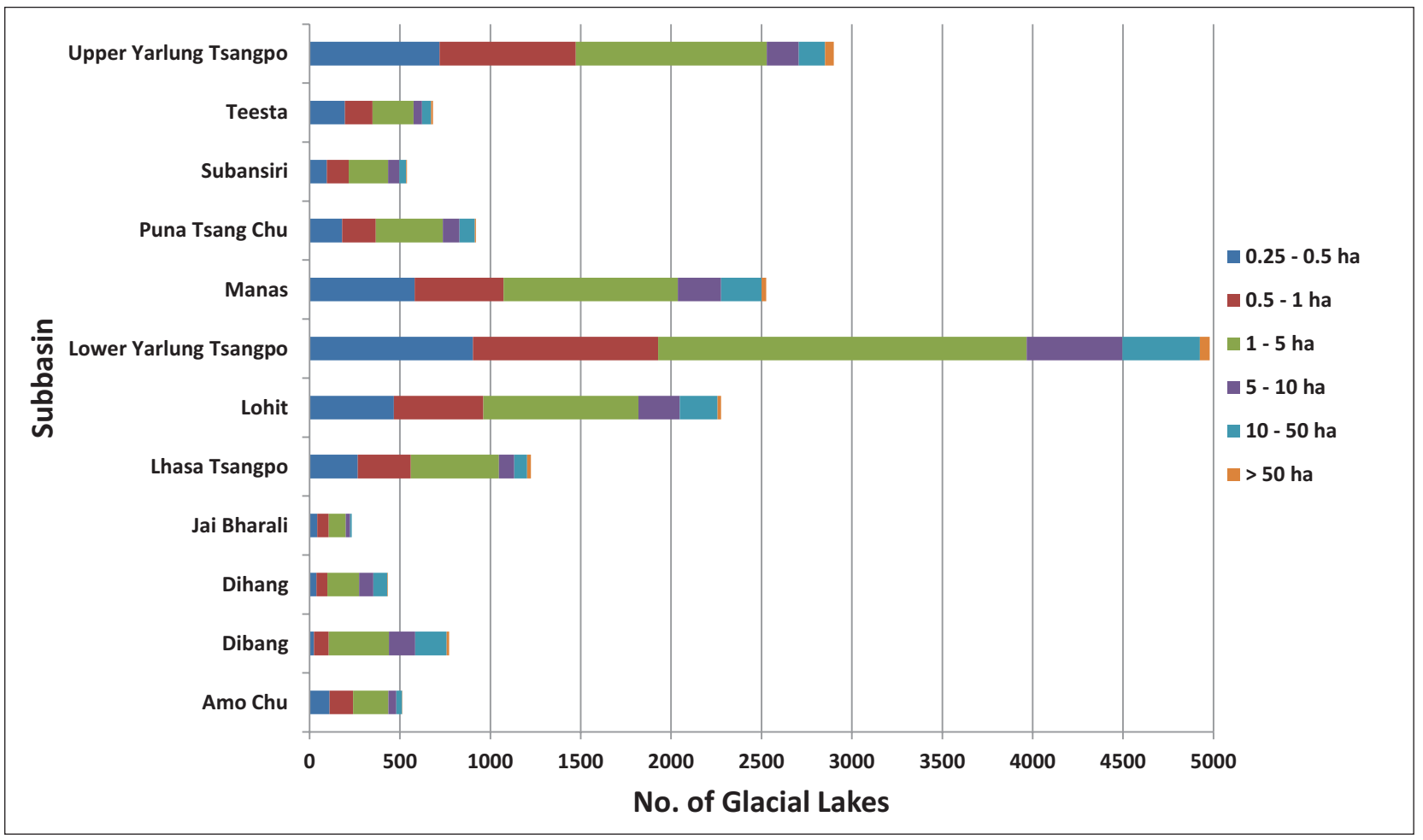


Figure 111: Subbasin-wise vs. Area range-wise distribution of GL in Brahmaputra River basin

Subbasin-Type-wise Distribution

Glacial lake distribution by subbasin vs. type-wise is given in Table 86 and Figure 112. It has been observed that, in descending order of total lake count, 3 types of lakes viz., Other Glacial Erosion, Other Moraine Dammed, and Cirque Erosion lakes are distributed in all subbasins, and Other Glacial Erosion lakes were found predominantly in Lower Yarlung Tsangpo (51.77%), Manas (26.77%), Lohit (13.26%), and Upper Yarlung Tsangpo (6.27%) respectively. Lower Yarlung Tsangpo subbasin consists higher number of End Moraine Dammed lakes i.e. 24.55%. Lateral Moraine Dammed lakes are present in all subbasins except Dibang and Dihang.

Table 86: Subbasin-wise vs. Type-wise distribution of GL in Brahmaputra River basin

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	Amo Chu	2	4	0	27	5	0	61	0	412	2	513
2	Dibang	1	0	0	1	0	0	141	0	601	28	772
3	Dihang	1	0	0	18	3	0	108	1	301	1	433
4	Jai Bharali	0	1	0	26	0	0	13	0	192	2	234
5	Lhasa Tsangpo	9	1	0	126	4	0	23	0	673	389	1,225
6	Lohit	59	5	0	386	12	0	82	0	1,572	160	2,276
7	Lower Yarlung Tsangpo	96	11	1	694	25	0	114	6	3,832	200	4,979
8	Manas	47	3	0	410	67	0	243	0	1,719	37	2,526
9	Puna Tsang Chu	34	2	0	172	61	0	62	0	590	0	921
10	Subansiri	33	1	0	89	6	2	31	0	346	31	539
11	Teesta	31	5	0	148	72	0	37	0	382	8	683
12	Upper Yarlung Tsangpo	78	5	1	922	17	0	28	0	1,226	623	2,900
Total		**391**	**38**	**2**	**3,019**	**272**	**2**	**943**	**7**	**11,846**	**1,481**	**18,001**

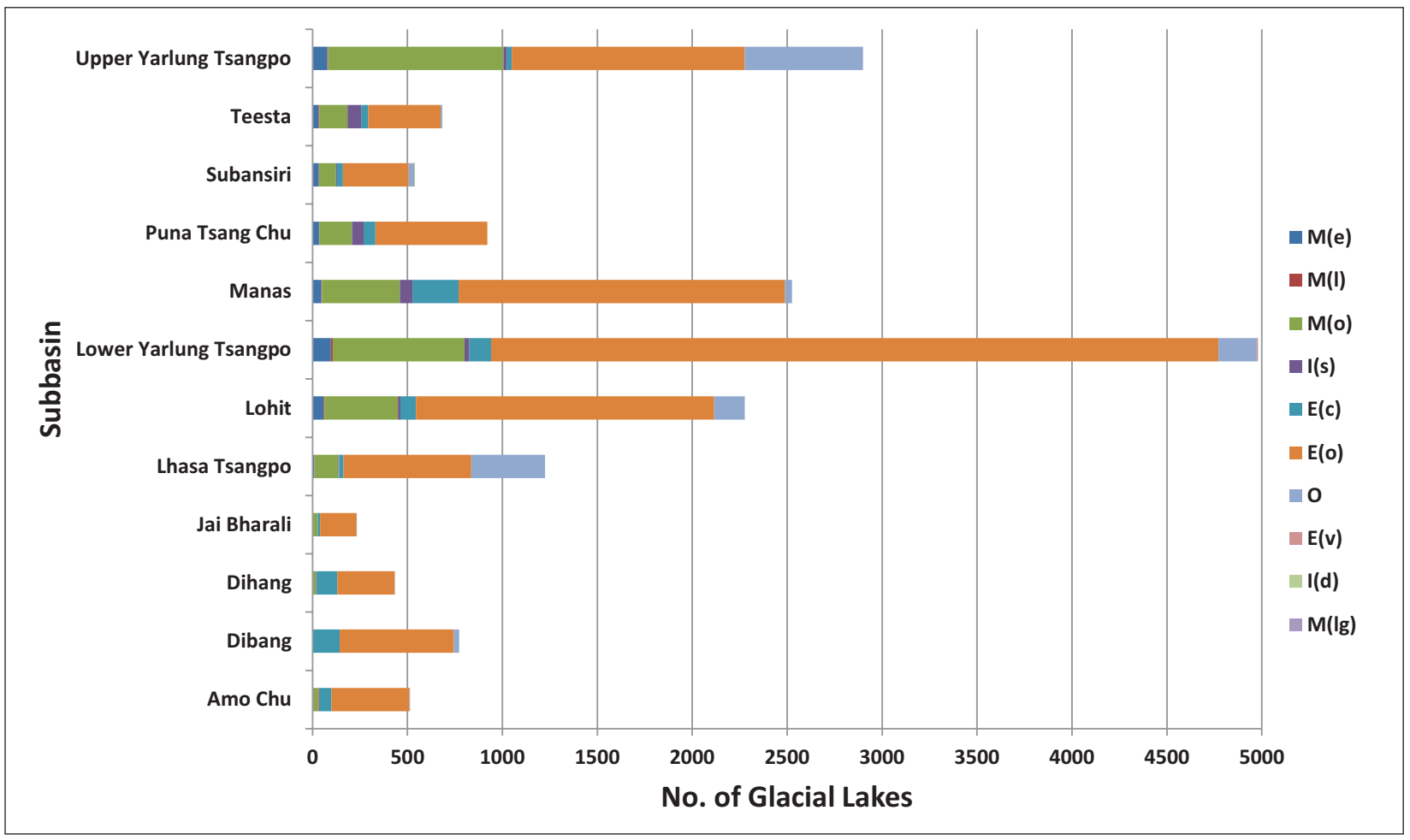


Figure 112: Subbasin-wise vs. Type-wise distribution of GL in Brahmaputra River basin

Subbasin-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per subbasin vs. elevation-range wise, given in Table 87 and Figure 113. Majority of glacial lakes are situated in all subbasins in high altitude range i.e. 4,001 - 5,000 m. After that, majority of glacial lakes in all subbasins are located in very high and medium altitude range i.e. > 5,000 m and 3,001 - 4,000 m. Only 11 lakes are located in all the subbasins in the elevation range < 3,000 m.

Table 87: Subbasin-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

S. No.	Subbasin	Elevation Range (m)							
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000	
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)
1	Amo Chu	0	0.00	17	104.52	462	1,350.92	34	110.02
2	Dibang	2	27.46	405	3,586.02	365	2,952.62	0	0.00
3	Dihang	2	26.48	227	1,613.89	204	1,283.29	0	0.00
4	Jai Bharali	0	0.00	16	95.67	195	500.45	23	44.00
5	Lhasa Tsangpo	0	0.00	1	0.49	376	3,684.05	848	3,296.40
6	Lohit	5	58.10	281	3,896.04	1,735	7,025.16	255	549.93
7	Lower Yarlung Tsangpo	2	40.11	99	1,456.03	3,056	16,552.09	1,822	8,323.58
8	Manas	0	0.00	52	231.67	1,656	8,137.45	818	2,949.84
9	Puna Tsang Chu	0	0.00	9	24.85	668	2,720.80	244	1,135.14
10	Subansiri	0	0.00	57	423.83	279	1,131.38	203	449.02
11	Teesta	0	0.00	22	109.14	375	1,057.08	286	1,954.54
12	Upper Yarlung Tsangpo	0	0.00	2	5.20	299	6,130.29	2,599	9,953.18
Total		**11**	**152.21**	**1,188**	**11,547.28**	**9,670**	**52,525.55**	**7,132**	**28,765.99**

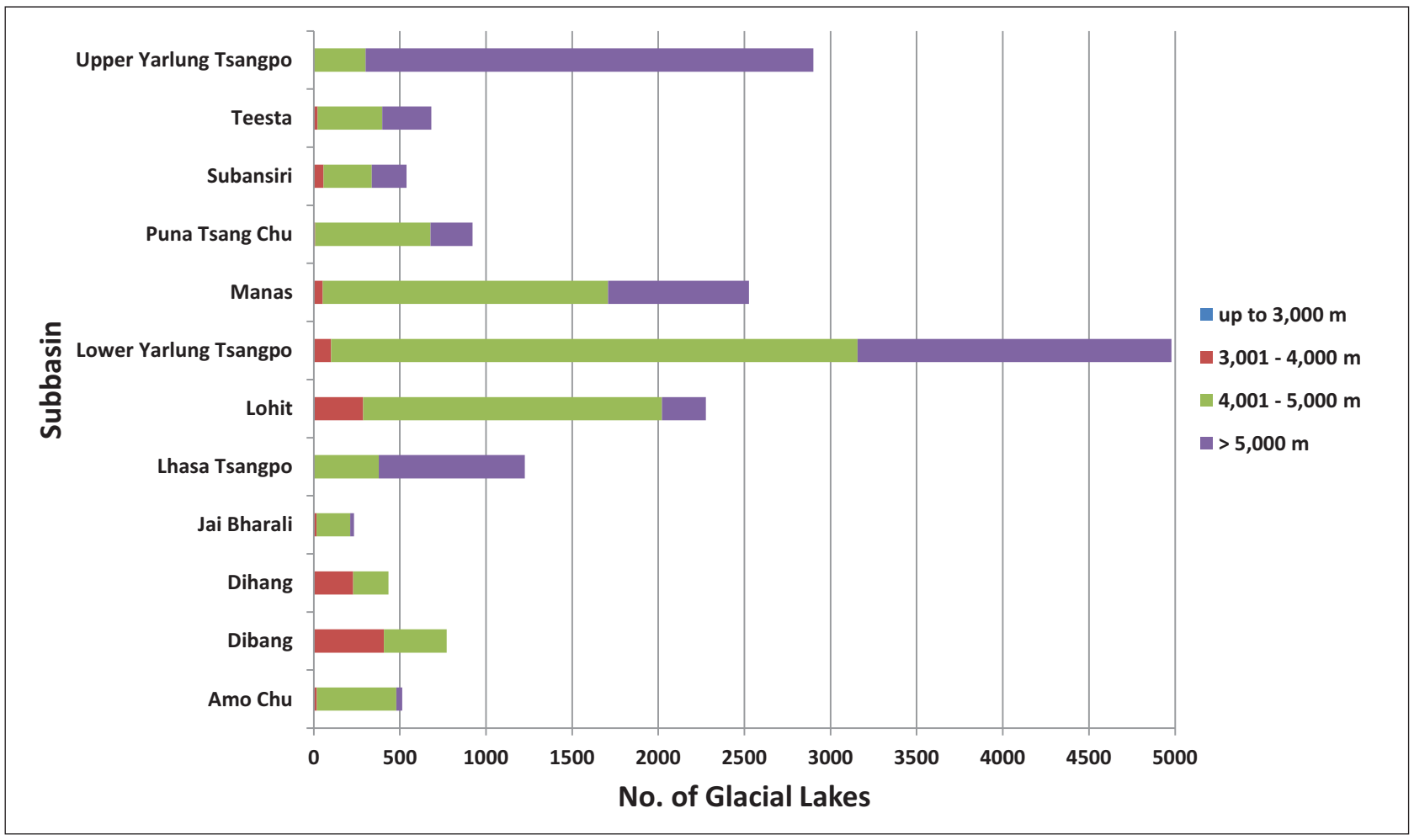


Figure 113: Subbasin-wise vs. Elevation range-wise distribution of GL in Brahmaputra River basin

5.4 India Level Statistics

Brahmaputra River basin covers part of India and transboundary region, where in India it is covering a total area of 81,590 Km^2 i.e. 20.40% of the basin area. In India, basin area has been spread in three states viz., Arunachal Pradesh, Sikkim, and West Bengal. Both states of Arunachal Pradesh and Sikkim covers a total of 94.48% of the basin area lies within India and remaining 5.52% in West Bengal which does not contain any glacial lake. A total of 2,921 glacial lakes lies within Indian region, covering a total area of 15,758.05 ha i.e. 3.93% of the total area of the Brahmaputra River basin.

Area range-wise Distribution

In Indian region, glacial lakes have been distributed in all 6 classes of area ranges. Table 88 and Figure 114 shows the area range-wise distribution of glacial lakes for the Indian region. About 2,143 (73.37%) lakes are with < 5 ha lake area contributing to 21.56% of total lake area. The remaining lakes with > 5 ha in size are 778 (26.63%) but contributing to 78.44% of total lake area in the region.

Table 88:Area range-wise distribution of GL in India

S.No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	458	162.29	1.03
2	0.5 - 1	509	369.74	2.35
3	1 - 5	1,176	2,866.10	18.19
4	5 - 10	391	2,792.42	17.72
5	10 - 50	355	6,958.06	44.16
6	> 50	32	2,609.44	16.56
Total		**2,921**	**15,758.05**	**100.00**

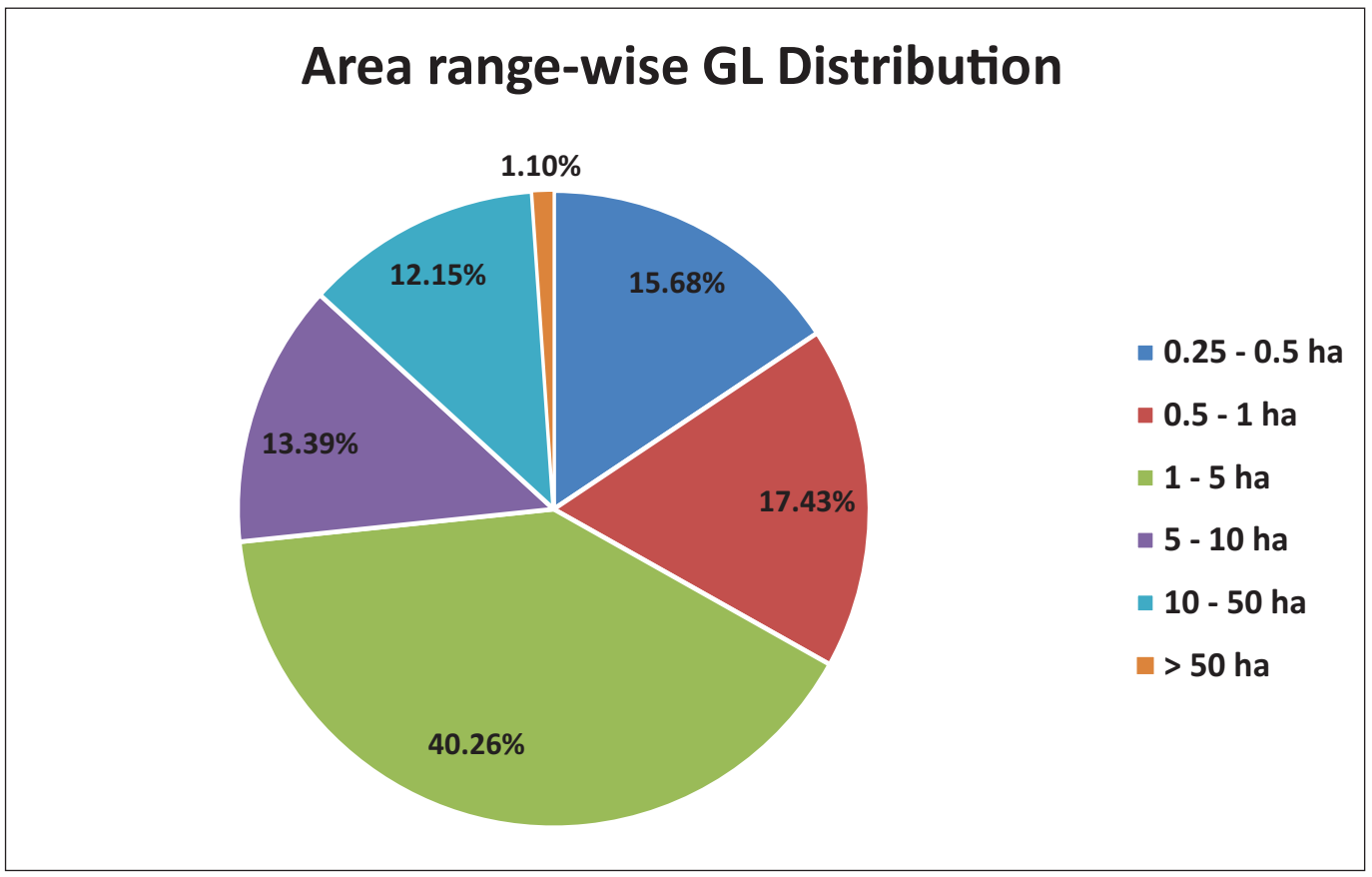


Figure 114: Area range-wise distribution of GL in India

Type-wise Distribution

Distribution of different types of glacial lakes in the Indian region is given in Table 89 and Figure 115. Out of all 10 types of glacial lakes, 7 types of lakes are present in the Indian region, where Other Glacial Erosion lakes are found to be the maximum with 2,150 (73.60%) occupying a total lake extent of 9,349.53 ha at 59.33% in the region. After that, Cirque Erosion Lakes and Other Moraine Dammed Lakes are in majority with 328 (11.23%) and 231 (7.91%) and extend over a total area of 2,947.28 ha (18.70%) and 1,194.07 ha (7.58%) respectively.

Table 89: Type-wise distribution of GL in India

S.No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	38	1,477.67	9.38
2	M(l)	Lateral Moraine Dammed Lake	6	21.87	0.14
3	M(lg)	Lateral Moraine Dammed Lake with Ice	0	0.00	0.00
4	M(o)	Other Moraine Dammed Lake	231	1,194.07	7.58
5	I(s)	Supra-glacial Lake	72	48.75	0.31
6	I(d)	Glacier Ice-dammed Lake	0	0.00	0.00
7	E(c)	Cirque Erosion Lake	328	2,947.28	18.70
8	E(v)	Glacier Trough Valley Erosion Lake	0	0.00	0.00
9	E(o)	Other Glacial Erosion Lake	2,150	9,349.53	59.33
10	O	Other Glacial Lake	96	718.88	4.56
Total			**2,921**	**15,758.05**	**100.00**

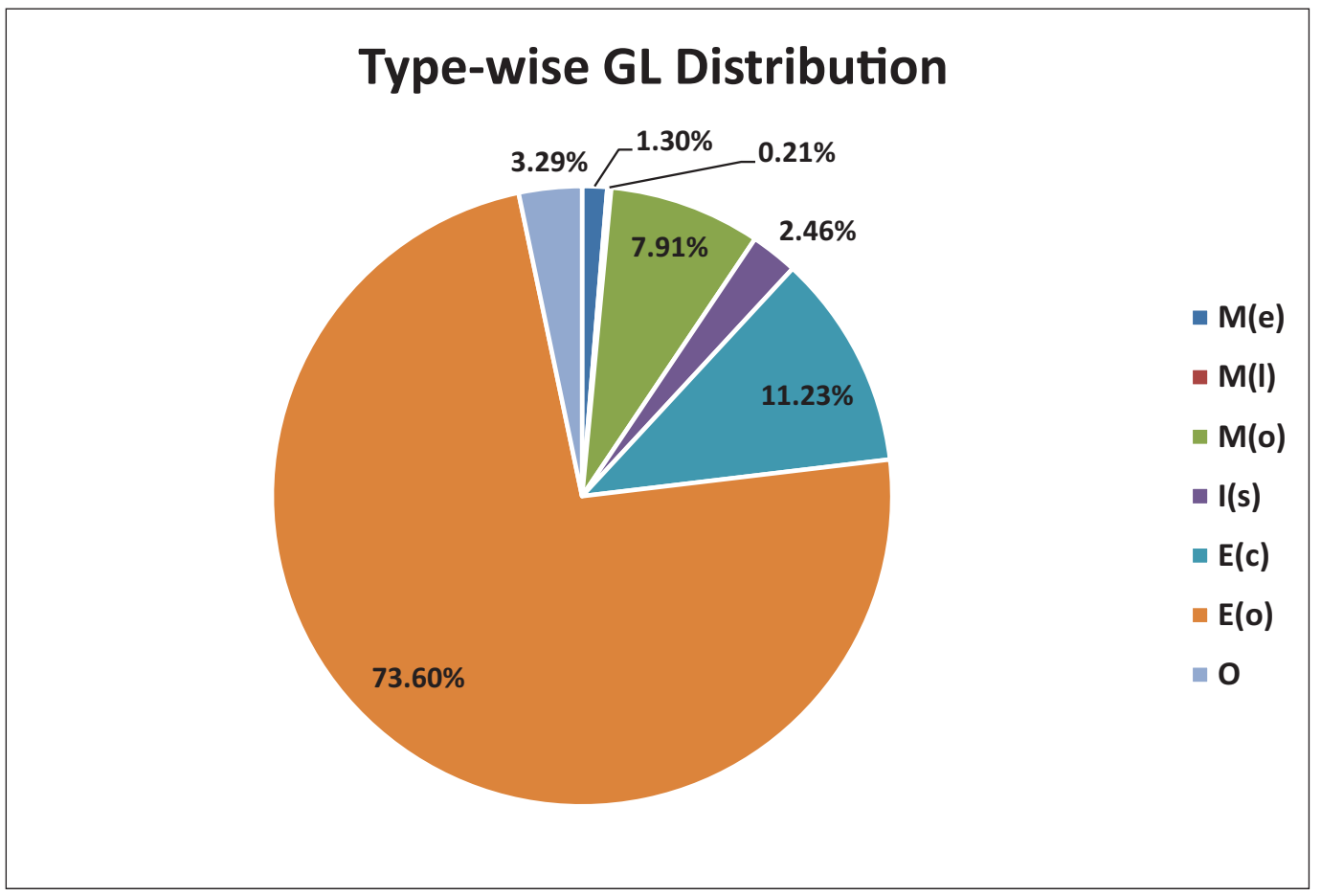


Figure 115: Type-wise distribution of GL in India

Area range Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 90 and Figure 116. The lakes with < 5 ha in size (73.37%) are dominant with Other Glacial Erosion Lakes (77.55%) and Other Moraine Dammed lakes (8.49%). Lakes with > 5 ha (26.63%) are dominated by Other Glacial Erosion Lakes (62.72%). All types of Moraine-dammed lakes, which constitute about 9.41% are predominantly with < 5 ha in water spread.

Table 90: Area range-wise vs. Type-wise distribution of GL in India

S. No.	Lake Area Range (ha)	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	0	0	0	50	50	0	2	0	338	18	458
2	0.5 - 1	0	1	0	56	13	0	9	0	412	18	509
3	1 - 5	3	4	0	76	8	0	136	0	912	37	1,176
4	5 - 10	7	0	0	21	1	0	92	0	264	6	391
5	10 - 50	19	1	0	24	0	0	86	0	211	14	355
6	> 50	9	0	0	4	0	0	3	0	13	3	32
Total		**38**	**6**	**0**	**231**	**72**	**0**	**328**	**0**	**2,150**	**96**	**2,921**

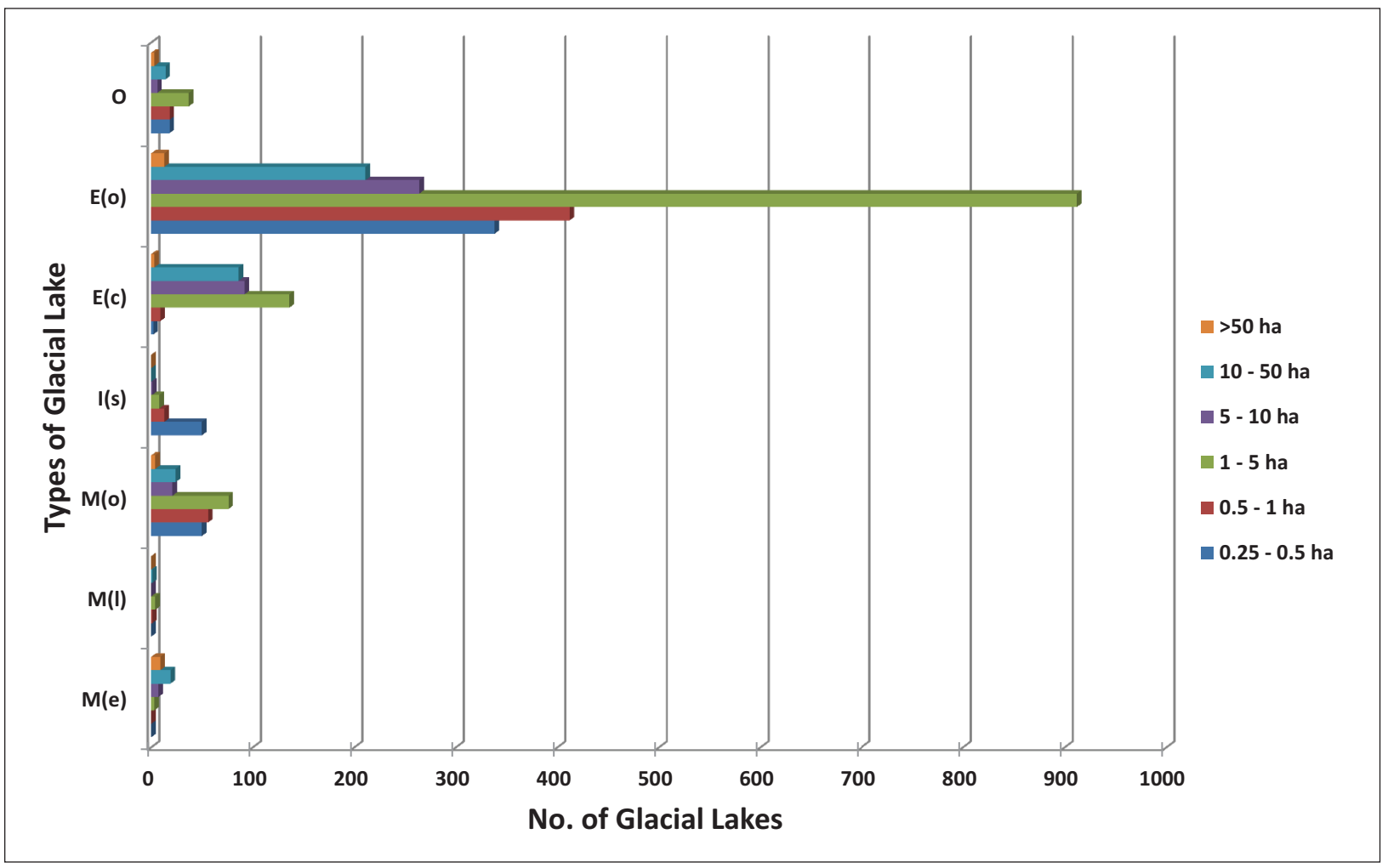


Figure 116: Area range-wise vs. Type-wise distribution of GL in India

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Indian region has been shown in Table 91 and Figure 117. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 2,153 (73.71%) with total lake area of 9,963.6 ha (63.23%) and remaining 26.29% glacial lakes are below 4,000 m elevation.

Table 91: Elevation range-wise distribution of GL in India

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	4	44.73	0.28
2	3,001 - 4,000	764	5,749.71	36.49
3	4,001 - 5,000	1,783	7,780.92	49.38
4	> 5,000	370	2,182.68	13.85
Total		**2,921**	**15,758.05**	**100.00**

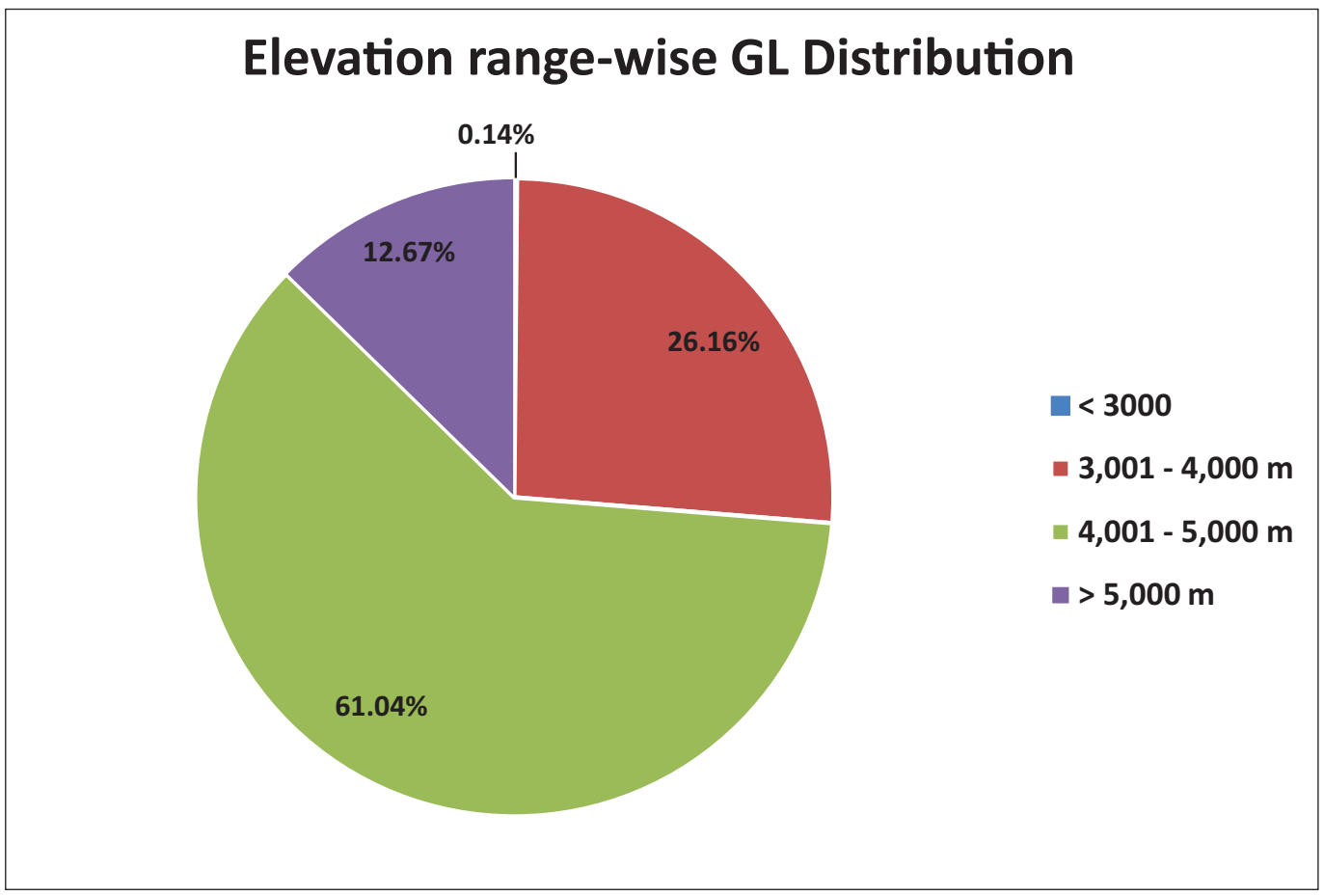


Figure 117: Elevation range-wise distribution of GL in India

Area Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 92 and Figure 118. It is noted that, 61.04% of glacial lakes (1,783) are situated in high altitude range i.e. 4,001 - 5,000 m, which also constitutes majority of total lake area within that range i.e. 49.37%. However, 4 glacial lakes lies below 3,000 m. 82.97% of lakes lying in very high altitude range are < 5 ha, predominantly of size ranging 1 – 5 ha (i.e. 123), followed by lakes of size 0.25 – 0.5 ha (i.e. 102).

Table 92: Area range-wise vs. Elevation range-wise distribution of GL in India

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	46	17.18	310	110.33	102	34.78	458	162.29
2	0.5 - 1	0	0.00	77	58.31	350	252.82	82	58.61	509	369.74
3	1 - 5	1	4.71	335	841.70	717	1,725.87	123	293.82	1,176	2,866.10
4	5 - 10	0	0.00	149	1,078.74	213	1,491.57	29	222.11	391	2,792.42
5	10 - 50	3	40.02	146	2,938.78	183	3,487.28	23	491.98	355	6,958.06
6	> 50	0	0.00	11	815.00	10	713.06	11	1,081.38	32	2,609.44
Total		**4**	**44.73**	**764**	**5,749.71**	**1,783**	**7,780.92**	**370**	**2,182.68**	**2,921**	**15,758.05**

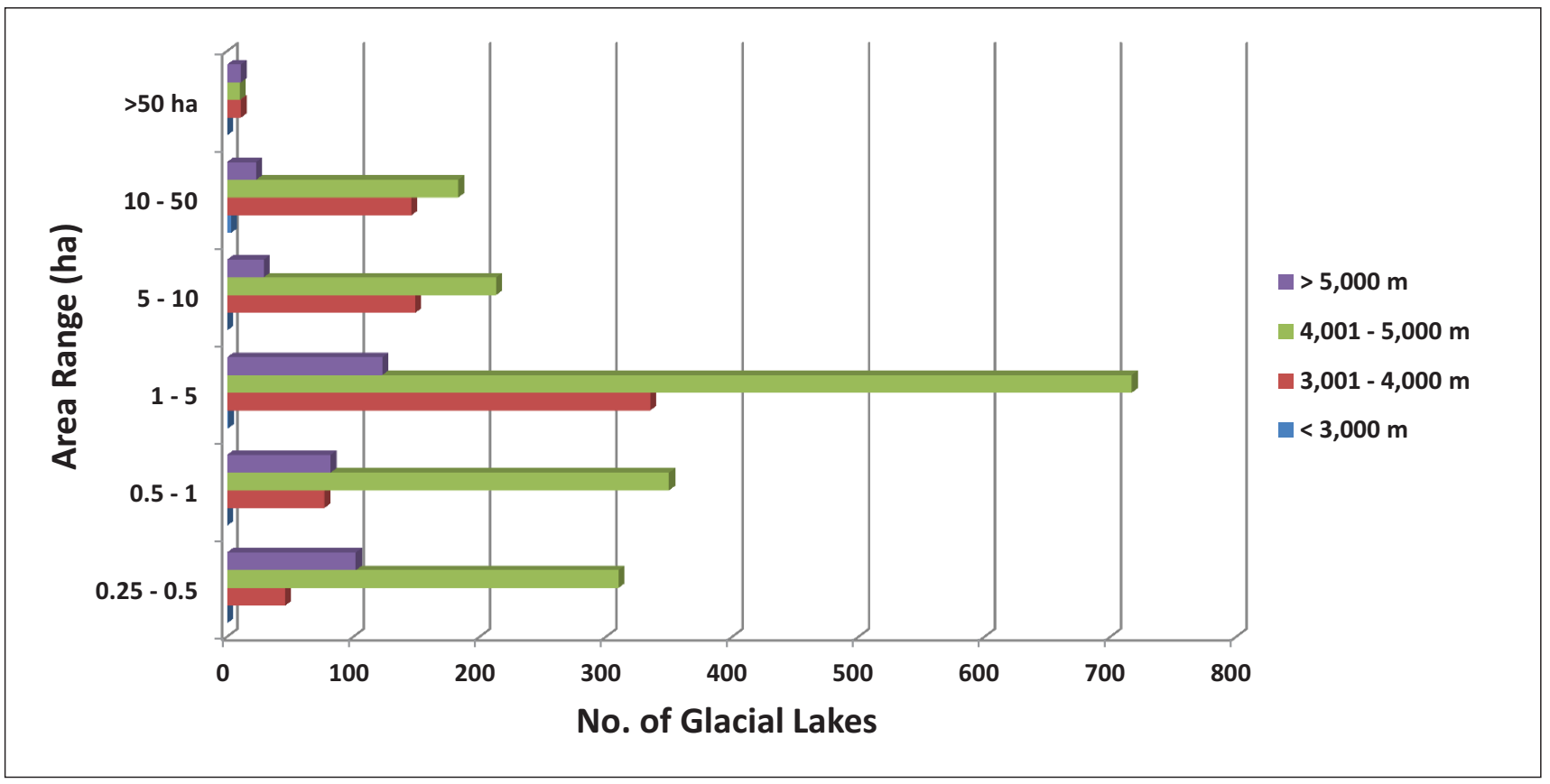


Figure 118: Area range-wise vs. Elevation range-wise distribution of GL in India

Type Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 93 and Figure 119. The dominant lake type in the region i.e., Other Glacial Erosion Lakes (73.60%) are predominantly located in the elevation range of 4,001 - 5,000 m (79.47%). The other dominant lake type, namely, Cirque Erosion Lakes and Other Moraine Dammed lakes are distributed predominantly in altitude range of 4,001 - 5,000 m and > 5,000 m elevation range respectively, i.e. 63.10% and 69.26%. Majority i.e. 99.27% of all types of Moraine-dammed lakes lies above 4,000 m.

Table 93: Type-wise vs. Elevation range-wise distribution of GL in India

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	0	0	0	0	0	1	3	4
2	3,001 - 4,000	2	0	0	0	1	0	112	0	588	61	764
3	4,001 - 5,000	13	6	0	71	42	0	207	0	1,417	27	1,783
4	> 5,000	23	0	0	160	29	0	9	0	144	5	370
Total		**38**	**6**	**0**	**231**	**72**	**0**	**328**	**0**	**2,150**	**96**	**2,921**

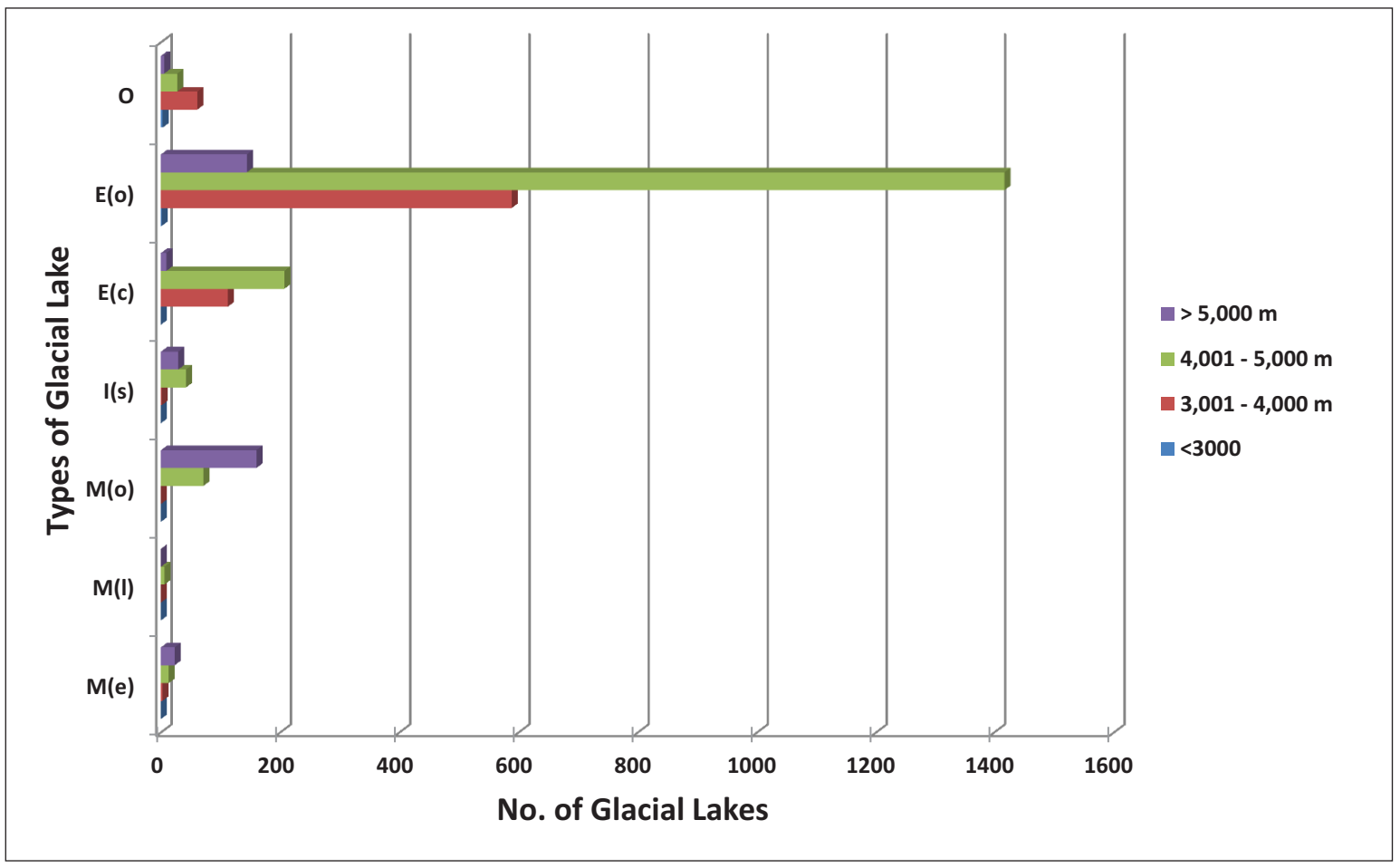


Figure 119: Type-wise vs. Elevation range-wise distribution of GL in India

5.5 Indian State's Statistics

Glacial lakes located in 2 states of Indian region are compared for lake count, total lake area, lake types and their elevation ranges in the following sections.

State-wise Distribution

Table 94 and Figure 120 shows the State-wise distribution of glacial lakes of Indian region. Lakes are predominantly distributed in Arunachal Pradesh with 2,188 (74.91%) occupying a total lake extent of 12,490.77 ha at 79.27% in the region. Sikkim contains 733 glacial lakes (25.09%) extend over an area of 3,267.28 ha (20.73%).

Table 94: State-wise distribution of GL in India

S.No.	Code	State	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	AP	Arunachal Pradesh	2,188	12,490.77	79.27
2	SK	Sikkim	733	3,267.28	20.73
		Total	**2,921**	**15,758.05**	**100.00**

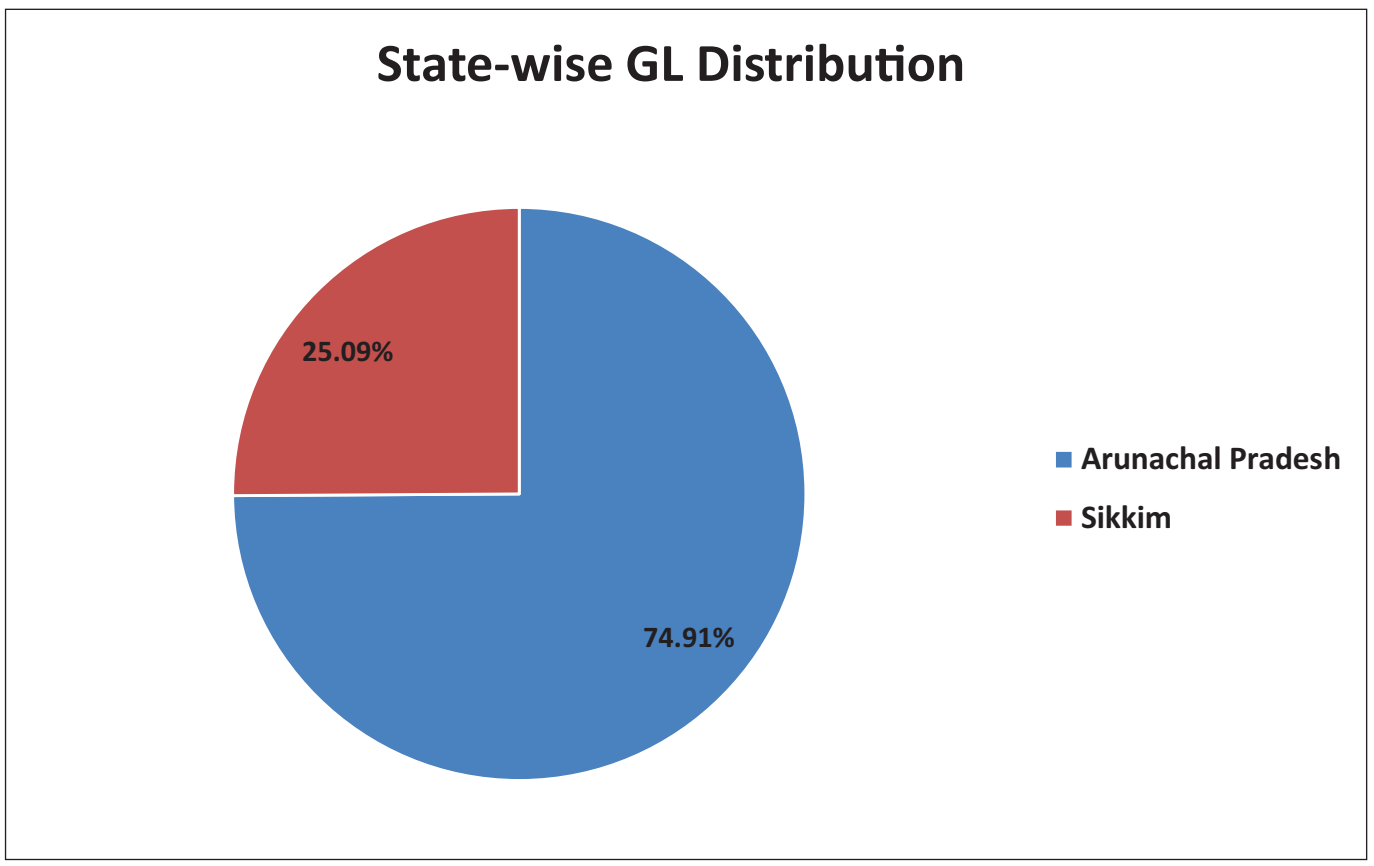


Figure 120: State-wise distribution of GL in India

State-Area range-wise Distribution

Glacial lakes have been distributed in both states for all classes of area range. Table 95 and Figure 121 shows the State -area range-wise distribution of glacial lakes for the Indian region. It has been observed that, glacial lakes in Arunachal Pradesh (AP) are predominantly < 5 ha (69.69%), majority of which are within 1 - 5 ha in size i.e. 60.85%, followed by lakes of 0.5 - 1 ha in size i.e. 22.62%. Not only in Arunachal Pradesh (AP), maximum number of lakes < 5 ha are (84.31%) located in Sikkim.

Table 95: State-wise vs. Area range-wise distribution of GL in India

S. No.	Lake Area Range (ha)	State				Total	
		Arunachala Pradesh		Sikkim			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	252	92.35	206	69.95	458	162.30
2	0.5 - 1	345	250.31	164	119.43	509	369.74
3	1 - 5	928	2,303.41	248	562.68	1,176	2,866.09
4	5 - 10	341	2,418.08	50	374.34	391	2,792.42
5	10 - 50	301	5,900.86	54	1,057.19	355	6,958.06
6	> 50	21	1,525.76	11	1,083.69	32	2,609.44
Total		**2,188**	**12,490.77**	**733**	**3,267.28**	**2,921**	**15,758.05**

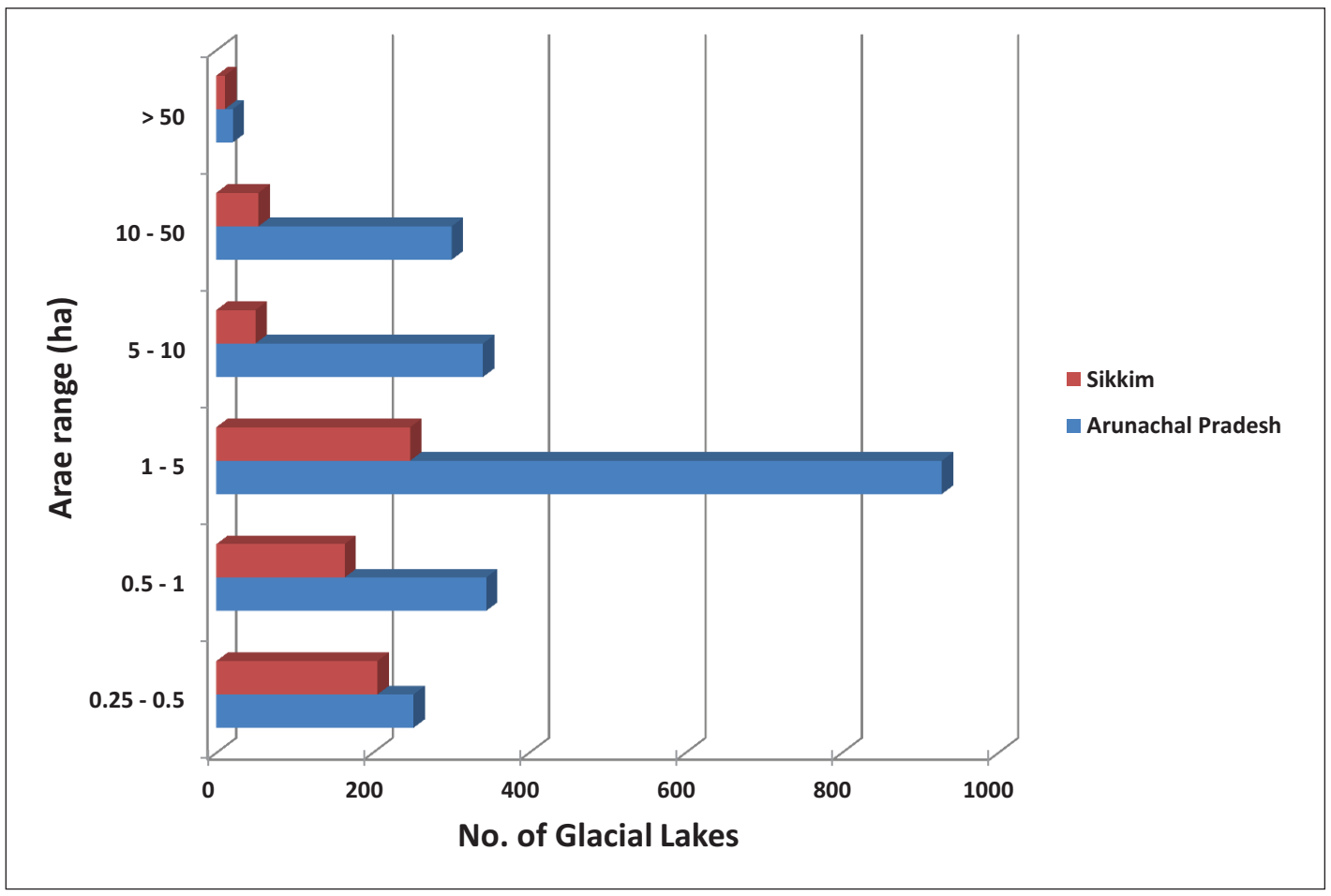


Figure 121: State-wise vs. Area range-wise distribution of GL in India

State-Type-wise Distribution

Glacial lake distribution by State vs. type-wise is given in Table 96 and Figure 122. It has been observed that, Arunachal Pradesh and Sikkim contains same types of glacial lakes except Supra-glacial Lake in Sikkim, with majority of Other Glacial Erosion Lakes i.e. 73.60%, followed by Cirque Erosion Lakes i.e. 11.23%. All types of moraine dammed lakes in Sikkim are 184 with 67.15%.

Table 96: State-wise vs. Type-wise distribution of GL in India

S. No.	State	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	Arunachal Pradesh	7	1	0	83	0	0	282	0	1,727	88	2,188
2	Sikkim	31	5	0	148	72	0	46	0	423	8	733
Total		**38**	**6**	**0**	**231**	**72**	**0**	**328**	**0**	**2,150**	**96**	**2,921**

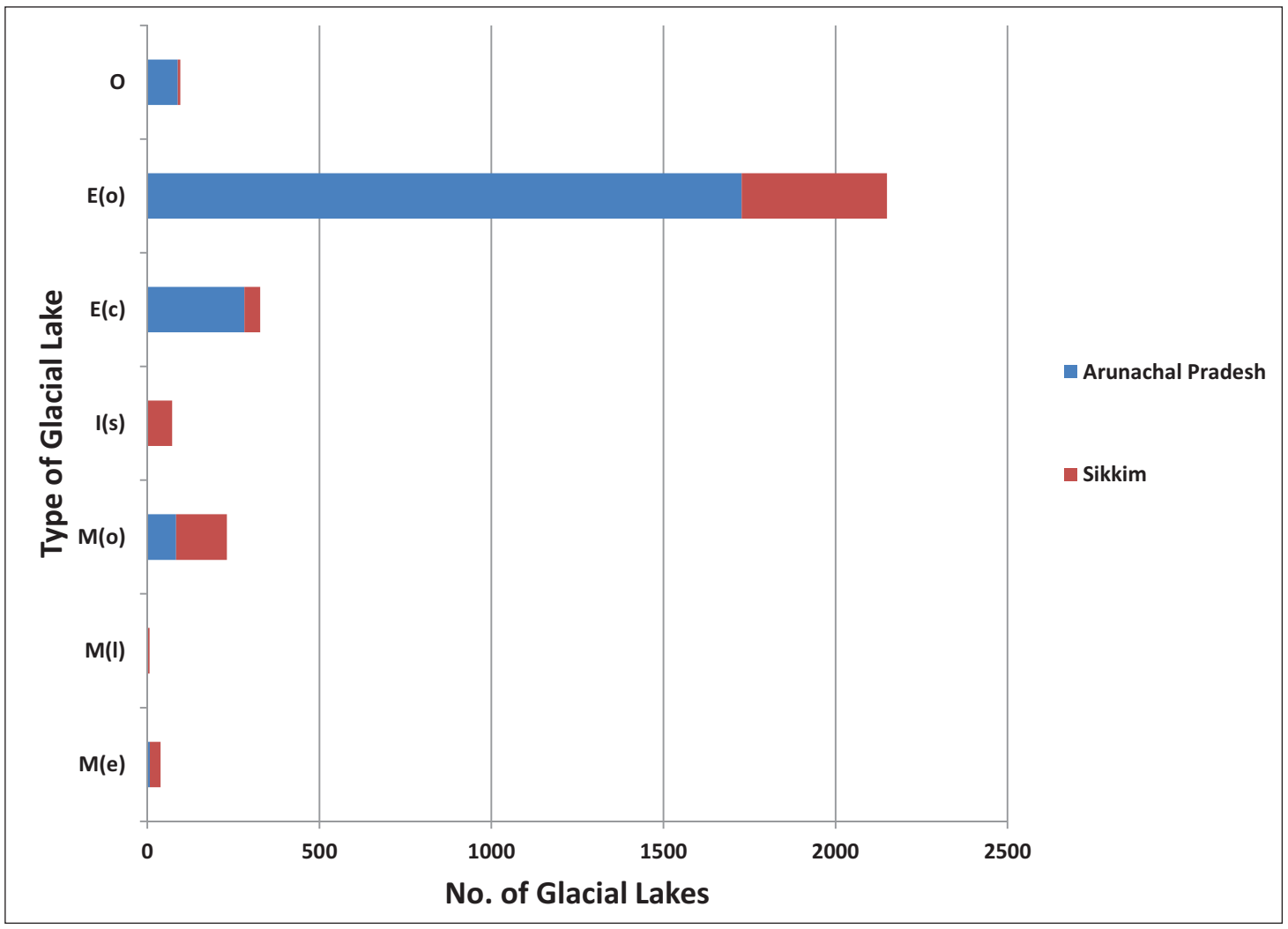


Figure 122: State-wise vs. Type-wise distribution of GL in India

State-Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per State vs. elevation-range wise, given in Table 97 and Figure 123. It has been observed that, majority of glacial lakes (61.04%) are located in high altitude range i.e. 4,001 - 5,000 m in both states. This is followed by medium altitude range i.e. 3,001 - 4,000 m in both states (26.15%).

Table 97: State-wise vs. Elevation range-wise distribution of GL in India

S. No.	Elevation Range (m)	State				Total	
		Arunachala Pradesh		Sikkim			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	up to 3,000	4	44.73	0	0	4	44.73
2	3,001 - 4,000	739	5,610.27	25	139.44	764	5,749.71
3	4,001 - 5,000	1,363	6,610.21	420	1,170.71	1783	7,780.92
4	> 5,000	82	225.56	288	1,957.14	370	2,182.69
Total		**2,188**	**12,490.77**	**733**	**3,267.28**	**2,921**	**15,758.05**

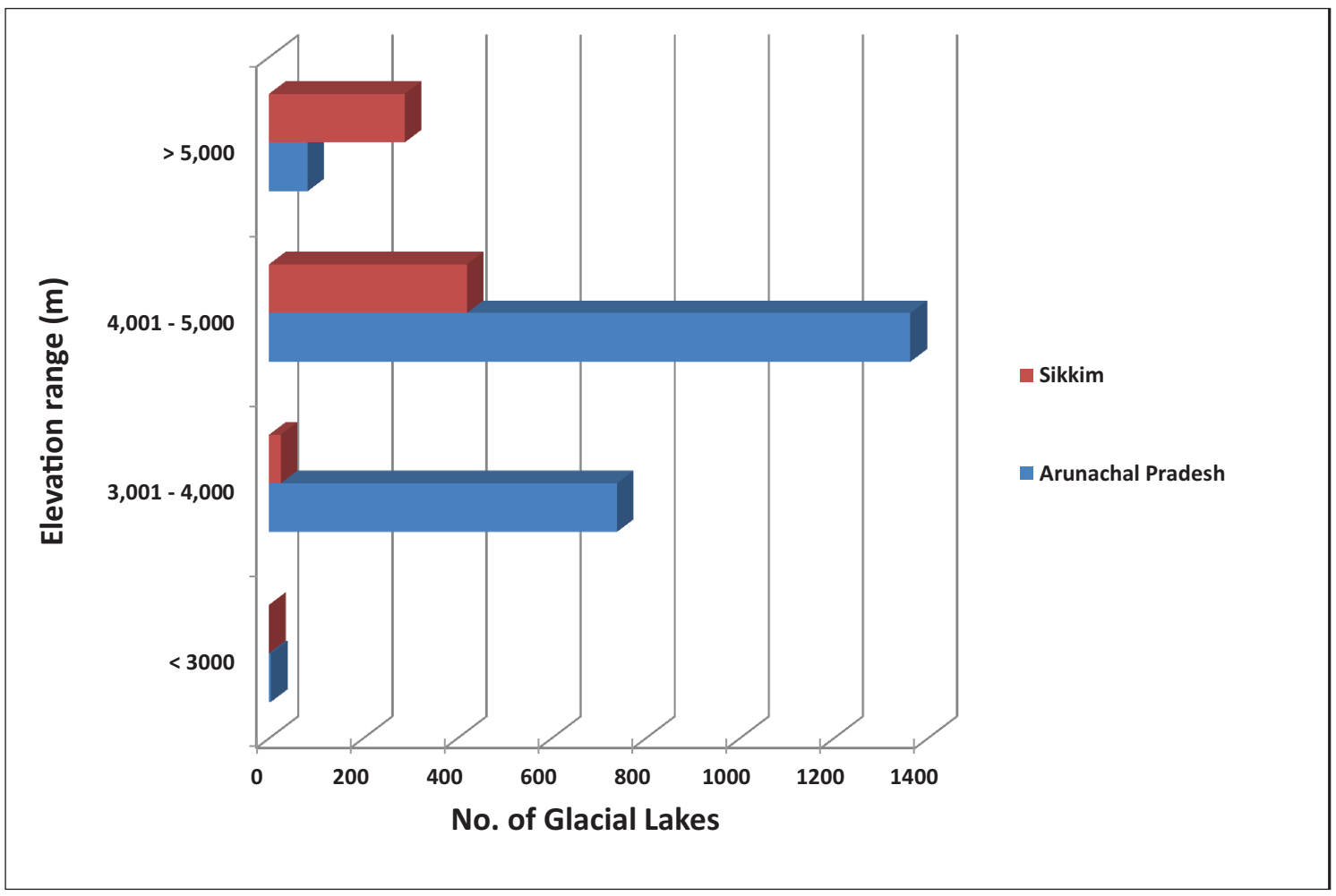


Figure 123: State-wise vs. Elevation range-wise distribution of GL in India

5.5.1 District Level Statistics of Arunachal Pradesh

Arunachal Pradesh is the largest state covering area of Brahmaputra River basin, contains glacial lakes only in fourteen districts. Amongst which, Dibang Valley covers the majority of the total lake area.

Area-range-wise Distribution

Glacial lakes have been distributed in both districts for 6 classes of area ranges, and area range-wise distribution for both districts has been shown in Table 98 and Figure 124. Glacial lakes in Dibang Valley district are found to be the maximum with 669 (30.58%) occupying a total lake extent of 5,746.19 ha at 46%. About 1,525 (69.69%) lakes are with < 5 ha lake area contributing to 21.18% of total lake area in the district.

Table 98: Area range-wise distribution of GL in Districts of Arunachal Pradesh

S. No.	District	Lake Area Range (ha)											
		0.25 - 0.5		0.5 - 1		1 - 5		5 - 10		10 - 50		> 50	
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)
1	Anjaw	52	18.60	75	56.11	193	451.54	65	471.47	61	1,149.56	3	172.29
2	Changlang	4	1.59	0	0.00	1	1.93	2	15.25	2	25.18	0	0.00
3	Dibang Valley	30	11.97	76	55.56	282	747.80	124	891.21	145	3042.37	12	997.29
4	East Kameng	5	1.78	11	8.02	28	71.67	12	86.32	7	150.02	0	0.00
5	Kra Daadi	1	0.25	0	0.00	1	1.19	2	17.19	0	0.00	0	0.00
6	Kurung Kumey	9	3.31	20	15.55	33	73.39	7	52.67	5	86.20	1	55.58
7	Lohit	0	0.00	0	0.00	2	7.52	0	0.00	1	12.55	0	0.00
8	Lower Dibang Valley	0	0.00	0	0.00	3	13.81	2	14.26	1	16.14	0	0.00
9	Siang	2	0.69	2	1.65	6	17.88	2	14.06	1	18.47	0	0.00
10	Tawang	95	34.09	77	54.43	196	466.16	53	362.67	18	317.63	4	249.94
11	Upper Siang	1	0.48	9	6.29	36	91.11	20	141.17	21	383.11	0	0.00
12	Upper Subansiri	9	3.33	21	14.02	64	172.45	34	230.52	26	490.47	0	0.00
13	West Kameng	42	15.47	45	32.11	63	142.52	14	91.60	9	141.81	0	0.00
14	West Siang	2	0.78	9	6.58	20	44.44	4	29.69	4	67.35	1	50.66
Total		**252**	**92.35**	**345**	**250.31**	**928**	**2,303.41**	**341**	**2,418.08**	**301**	**5,900.86**	**21**	**1,525.76**

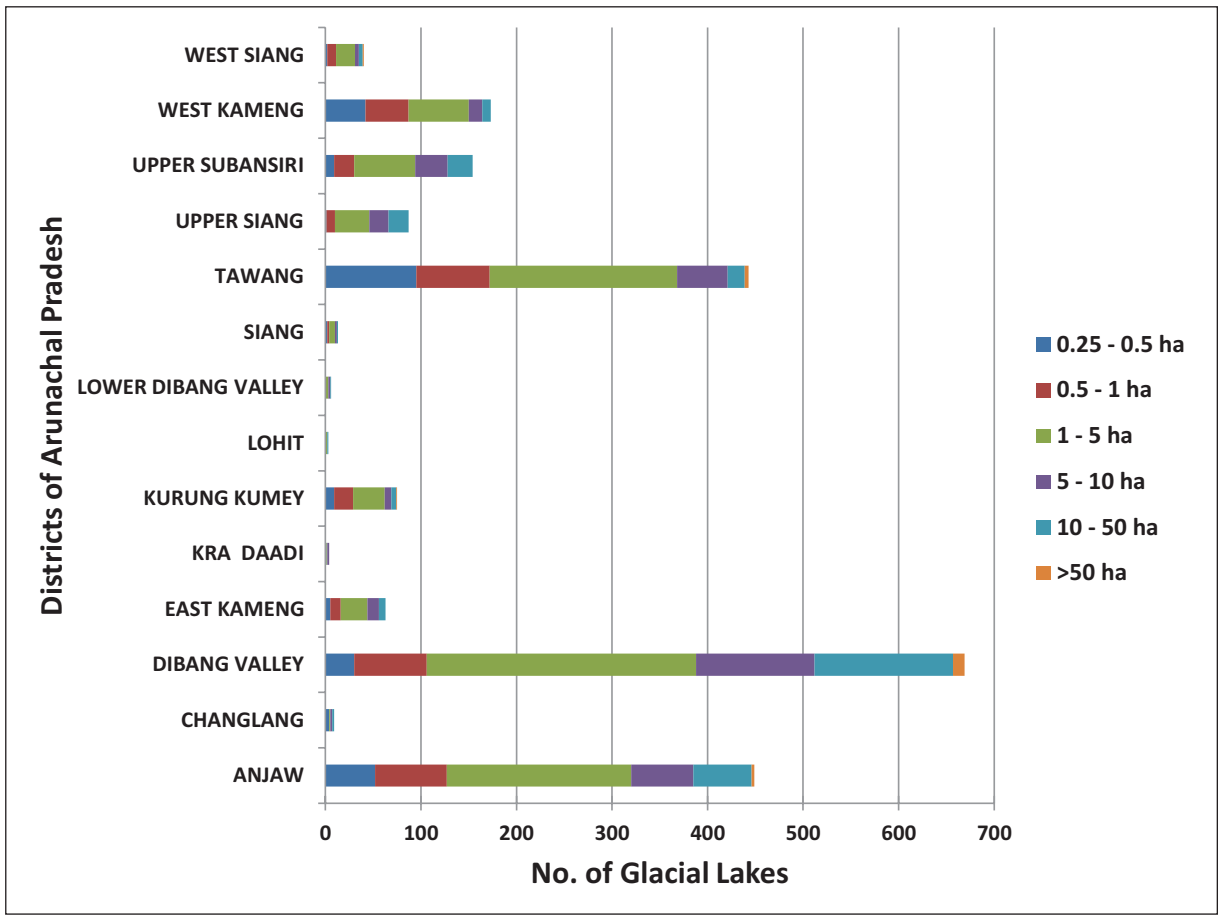


Figure 124: Area range-wise distribution of GL in Districts of Arunachal Pradesh

Type-wise Distribution

Distribution of different types of glacial lakes in the districts of Arunachal Pradesh is given in Table 99 and Figure 125. It has been observed that, Other Glacial Erosion lakes are maximum with 489 (73.09%) in the Dibang Valley district, followed by Cirque Erosion Lake with 117 (17.48%). Total Glacial Erosion Lakes are 1,727 (78.93%) out of total lakes in the Arunachal Pradesh

Table 99: Type-wise distribution of GL in Districts of Arunachal Pradesh

S. No.	District	Types of Glacial Lake										Total	
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	No. of Lakes	Lake Area (ha)
1	Anjaw	0	0	0	3	0	0	28	0	393	25	449	2,319.57
2	Changlang	0	0	0	0	0	0	2	0	6	1	9	43.95
3	Dibang Valley	4	0	0	29	0	0	117	0	489	30	669	5,746.20
4	East Kameng	0	0	0	0	0	0	4	0	59	0	63	317.81
5	Kra Daadi	0	0	0	0	0	0	2	0	2	0	4	18.63
6	Kurung Kumey	2	0	0	9	0	0	14	0	50	0	75	286.70
7	Lohit	0	0	0	0	0	0	0	0	2	1	3	20.07
8	Lower Dibang Valley	0	0	0	0	0	0	2	0	4	0	6	44.21
9	Siang	0	0	0	0	0	0	2	0	11	0	13	52.75
10	Tawang	0	0	0	14	0	0	50	0	365	14	443	1,484.92
11	Upper Siang	0	0	0	1	0	0	22	0	62	2	87	622.16
12	Upper Subansiri	1	0	0	0	0	0	21	0	125	7	154	910.79
13	West Kameng	0	1	0	27	0	0	9	0	132	4	173	423.51
14	West Siang	0	0	0	0	0	0	9	0	27	4	40	199.50
Total		**7**	**1**	**0**	**83**	**0**	**0**	**282**	**0**	**1,727**	**88**	**2,188**	**12,490.77**

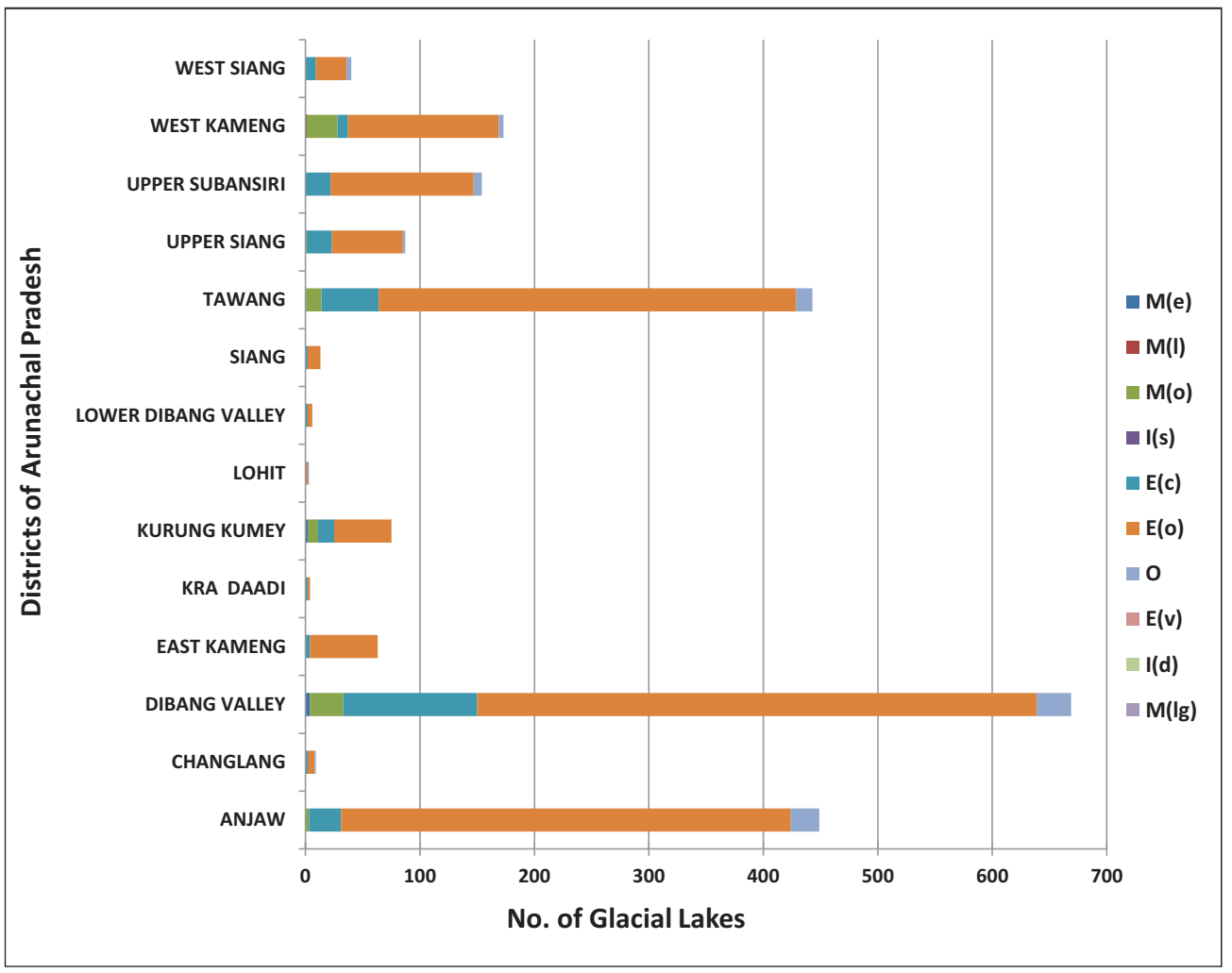


Figure 125: Type-wise distribution of GL in Districts of Arunachal Pradesh

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the districts of Arunachal Pradesh has been shown in Table 100 and Figure 126. Majority of glacial lakes are situated in the elevation range of 4,001 – 5,000 i.e. 1,363 with total lake area of 6,610.22 ha. Tawang district contains maximum number of glacial lakes in the elevation range of > 5,000 m i.e. 56. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 127.

Table 100: Elevation range-wise distribution of GL in Districts of Arunachal Pradesh

S. No.	District	Lake Area Range (ha)							
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000	
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)
1	Anjaw	0	0.00	174	1,049.58	275	1,269.99	0	0.00
2	Changlang	0	0.00	9	43.95	0	0.00	0	0.00
3	Dibang Valley	2	27.47	345	3,151.43	322	2,567.30	0	0.00
4	East Kameng	0	0.00	12	86.34	51	231.47	0	0.00
5	Kra Daadi	0	0.00	3	11.43	1	7.20	0	0.00
6	Kurung Kumey	0	0.00	10	28.21	65	258.49	0	0.00
7	Lohit	2	17.27	1	2.80	0	0.00	0	0.00
8	Lower Dibang Valley	0	0.00	5	40.00	1	4.21	0	0.00
9	Siang	0	0.00	9	27.28	4	25.47	0	0.00
10	Tawang	0	0.00	14	69.60	373	1,254.93	56	160.39
11	Upper Siang	0	0.00	63	495.71	24	126.45	0	0.00
12	Upper Subansiri	0	0.00	63	454.02	91	456.77	0	0.00
13	West Kameng	0	0.00	3	6.39	144	351.94	26	65.16
14	West Siang	0	0.00	28	143.50	12	56.00	0	0.00
Total		**4**	**45.73**	**739**	**5,610.27**	**1,363**	**6,610.21**	**82**	**226.56**

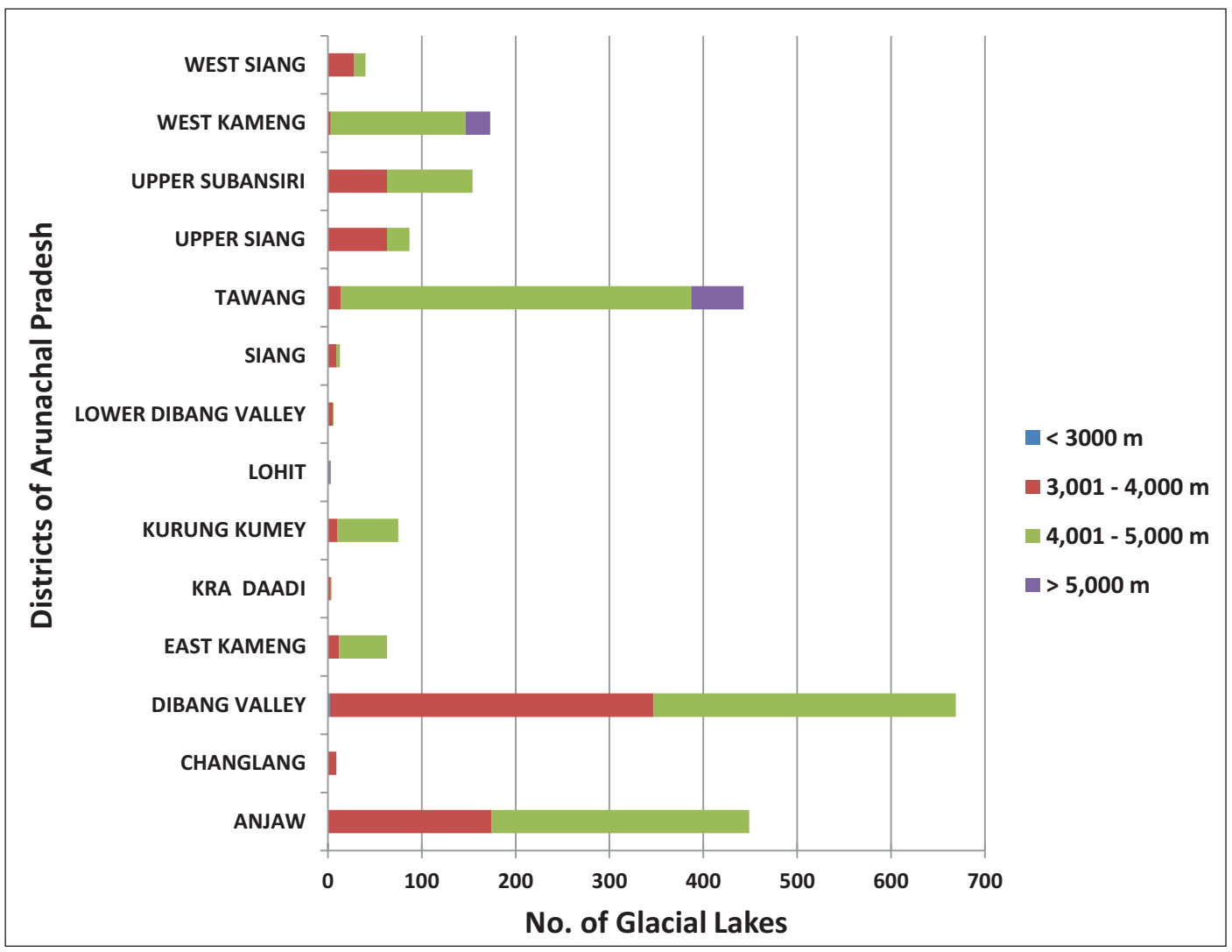


Figure 126: Elevation range-wise distribution of GL in Districts of Arunachal Pradesh

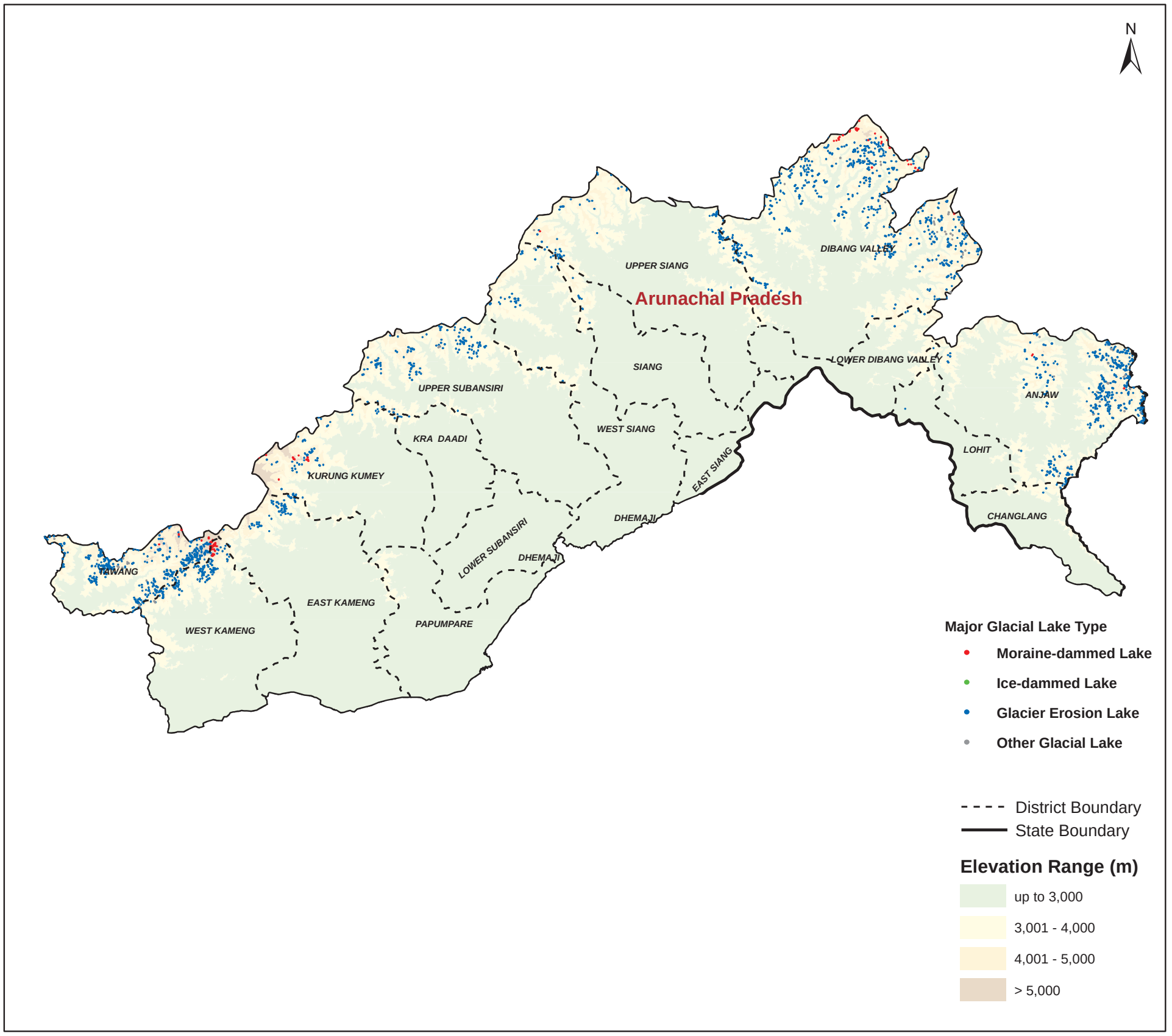


Figure 127: Elevation range-Type-wise spatial distribution of GL in Arunachal Pradesh

5.5.2 District Level Statistics of Sikkim

Sikkim is the second largest state covering area of Brahmaputra River basin, contains glacial lakes in four districts viz., North Sikkim, South Sikkim, West Sikkim, and East Sikkim. Amongst which, North Sikkim has the majority of glacial lakes covering 88.89% of the total lake area in the state.

Area-range-wise Distribution

Glacial lakes has been distributed in 4 districts of Sikkim for 6 classes of area ranges, and area range-wise distribution for those has been shown in Table 101 and Figure 128. Glacial lakes in North Sikkim district are found to be the maximum with 589 (80.35%) occupying a total lake extent of 2,904.40 ha at 88.89%. About 618 (84.31%) lakes are with < 5 ha lake area contributing to 23.02% of total lake area in the district. Whereas, remaining lakes in the district with > 5 ha in size are only 15.69%, predominantly of 5 - 50 ha in size.

Table 101: Area range-wise distribution of GL in Districts of Sikkim

S. No.	District	Lake Area Range (ha)											
		0.25 - 0.5		0.5 - 1		1 - 5		5 - 10		10 - 50		> 50	
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)
1	North Sikkim	165	56.86	126	90.55	200	462.75	40	301.17	47	909.39	11	1,083.69
2	South Sikkim	1	0.44	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3	West Sikkim	18	5.85	18	14.22	17	34.61	3	22.22	3	60.83	0	0.00
4	East Sikkim	22	6.80	20	14.66	31	65.32	7	50.96	4	86.98	0	0.00
Total		**206**	**69.95**	**164**	**119.43**	**248**	**562.68**	**50**	**374.34**	**54**	**1,057.19**	**11**	**1,083.69**

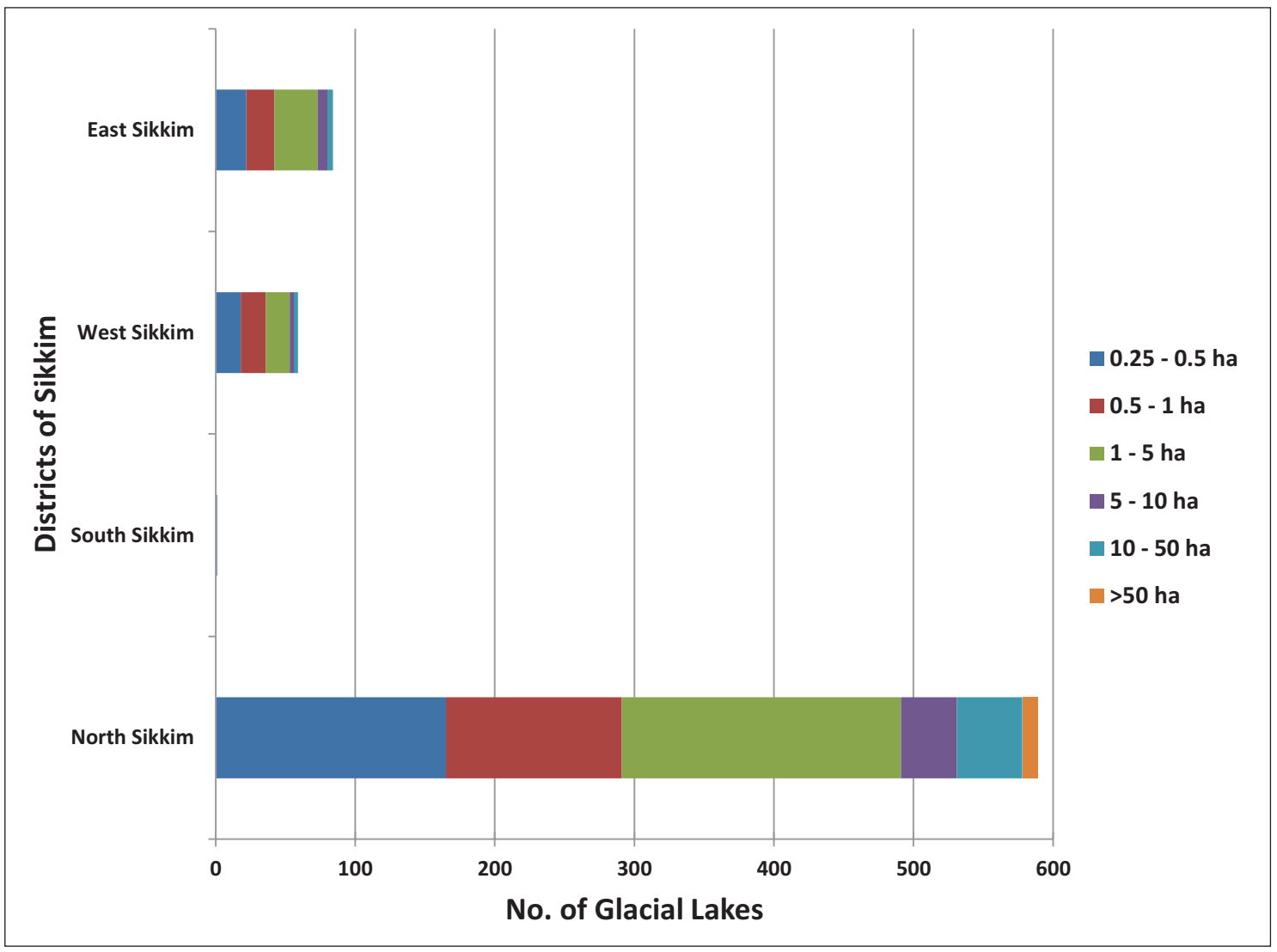


Figure 128: Area range-wise distribution of GL in Districts of Sikkim

Type-wise Distribution

Distribution of different types of glacial lakes in the districts of Sikkim is given in Table 102 and Figure 129. It has been observed that, only 7 types of glacial lakes are distributed in the state, where Other Glacial Erosion Lakes are found to be the maximum with 423 (57.70%) in the state, followed by Other Moraine Dammed lakes with 148 (20.19%). North Sikkim district contains maximum number of glacial lakes in comparison with other districts in the state, with majority of Other Glacial Erosion Lakes (51.78%), followed by Other Moraine Dammed lakes i.e. 23.93%.

Table 102: Type-wise distribution of GL in Districts of Sikkim

S. No.	District	Types of Glacial Lake										Total	
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	No. of Lakes	Lake Area (ha)
1	North Sikkim	30	2	0	141	68	0	36	0	305	7	589	2,904.39
2	South Sikkim	0	0	0	0	0	0	0	0	1	0	1	0.44
3	West Sikkim	1	3	0	7	4	0	2	0	42	0	59	137.73
4	East Sikkim	0	0	0	0	0	0	8	0	75	1	84	224.72
Total		**31**	**5**	**0**	**148**	**72**	**0**	**46**	**0**	**423**	**8**	**733**	**3,267.28**

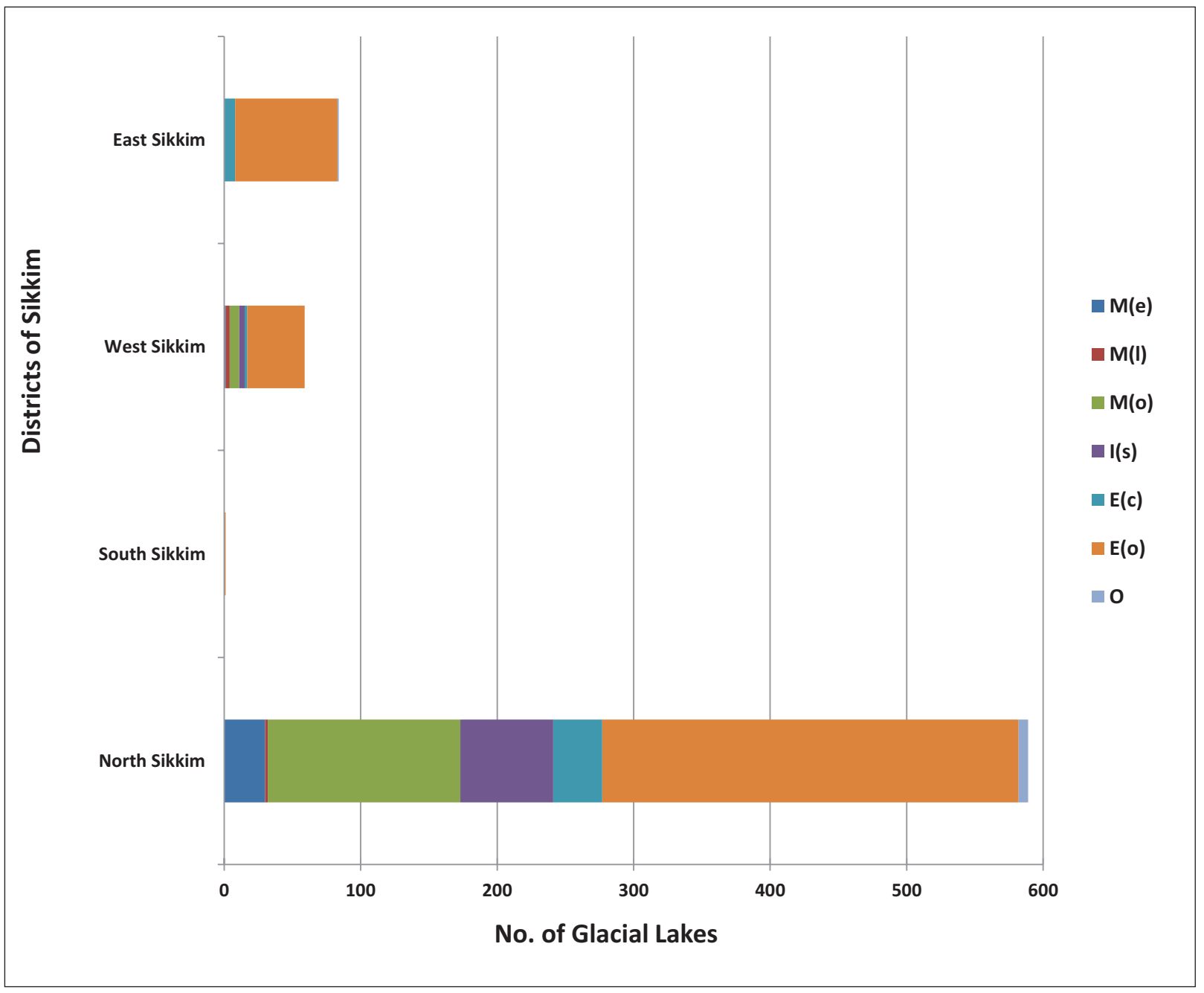


Figure 129: Type-wise distribution of GL in Districts of Sikkim

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the districts of Sikkim has been shown in Table 103 and Figure 130. Majority of glacial lakes (57.29%) are situated in high altitude i.e. 4,001 - 5,000 m elevation range with total lake area of 1,170.72 ha (35.83%). This is followed by glacial lakes in very high altitude elevation range with 39.29%. North Sikkim district contains maximum number of glacial lakes above 4,000 m elevation in comparison with any other district in the state, with majority of them falling in high altitude range i.e. 4,001 - 5,000 m. Elevation range-type-wise distribution of glacial lakes has been represented in Figure 131.

Table 103: Elevation range-wise distribution of GL in Districts of Sikkim

S. No.	District	Lake Area Range (ha)							
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000	
		No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)	No. of Lakes	Total Lake Area (ha)
1	North Sikkim	0	0.00	10	33.76	293	914.45	286	1,956.18
2	South Sikkim	0	0.00	0	0.00	1	0.44	0	0.00
3	West Sikkim	0	0.00	0	0.00	57	136.79	2	0.94
4	East Sikkim	0	0.00	15	105.68	69	119.04	0	0.00
Total		**0**	**0.00**	**25**	**139.44**	**420**	**1,170.72**	**288**	**1,957.14**

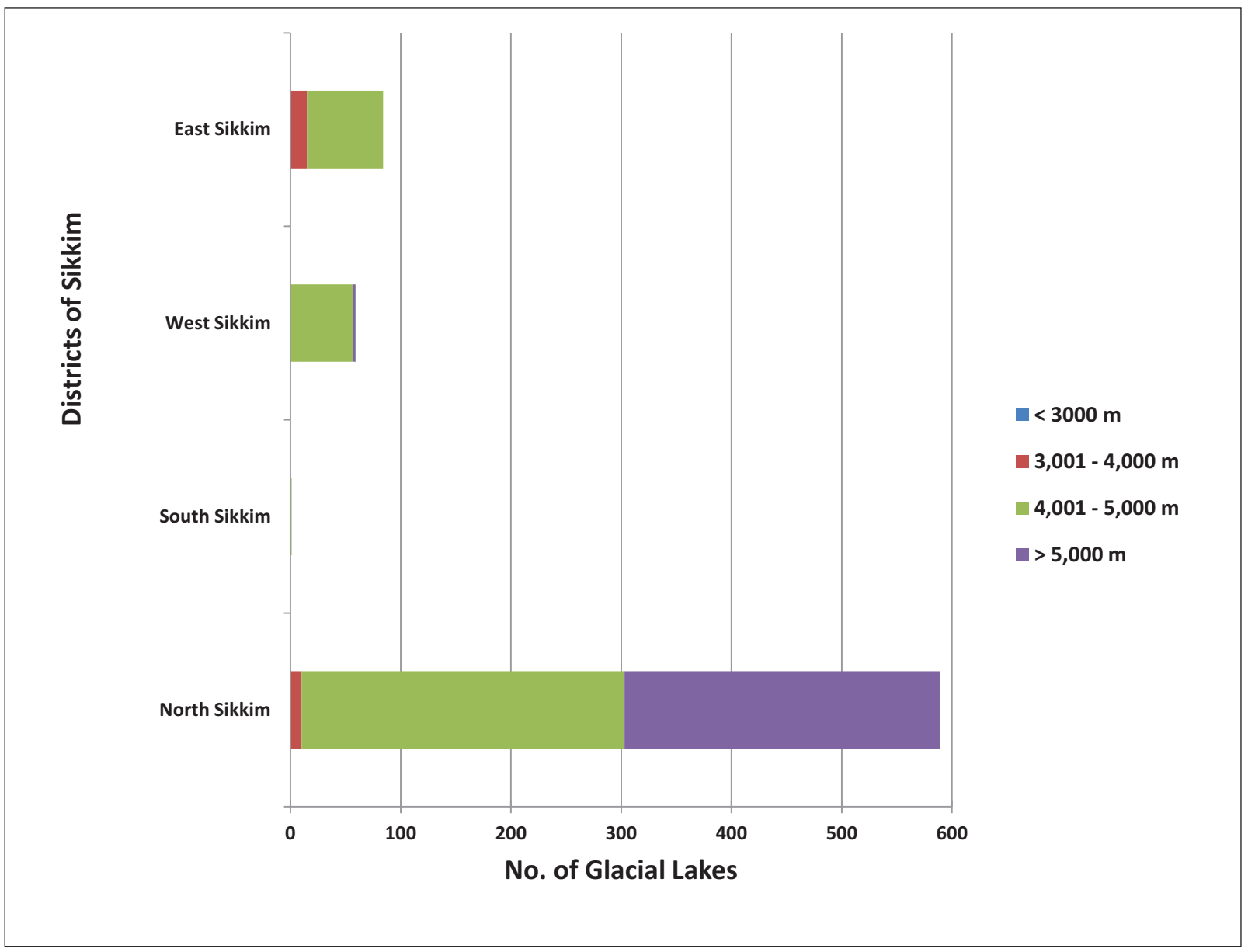


Figure 130: Elevation range-wise distribution of GL in Districts of Sikkim

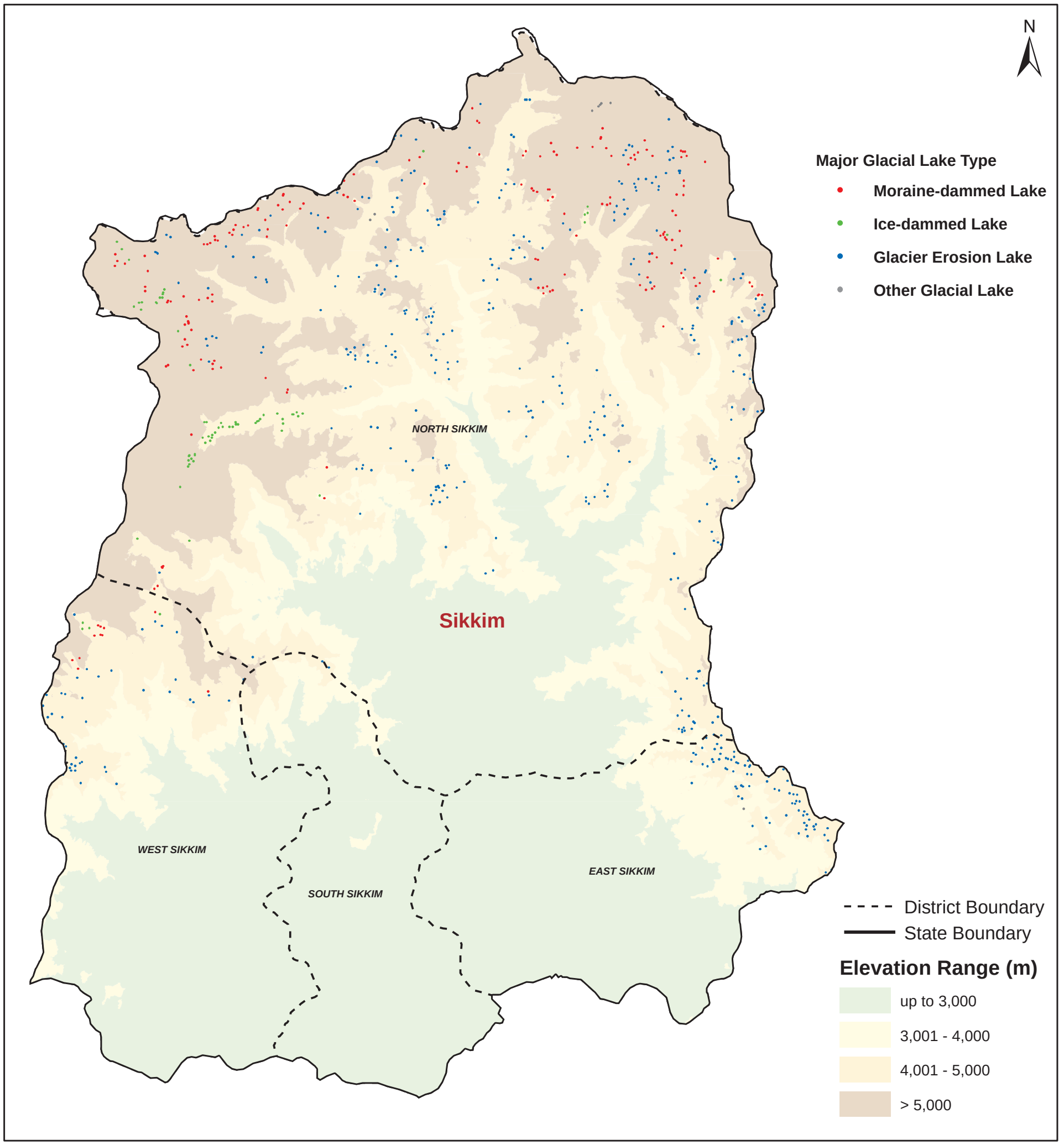


Figure 131: Elevation range-Type-wise spatial distribution of GL in Sikkim

5.6 Transboundary Region Statistics

Apart from India, Brahmaputra River basin also covers part of transboundary region which has a total area of 3,18,243 Km^2 i.e. 79.59% of the total river basin area. This transboundary region covers majority part of it in China and little in Bhutan. A total of 15,080 glacial lakes lies within transboundary region, covering a total area of 77,232.69 ha i.e. 0.24% of the total area of the Brahmaputra River basin under transboundary region.

Area range-wise Distribution

In Transboundary region, glacial lakes have been distributed in all 6 classes of area ranges. Table 68 and Figure 84 shows the area range-wise distribution of glacial lakes for the Transboundary region. About 12,356 (81.93%) lakes are with < 5 ha lake area contributing to 21.99% of total lake area. The remaining lakes with > 5 ha in size are only 2,724 (18.06%) but contributing to 78.01% of total lake area in the region.

Table 104: Area range-wise distribution of GL in Transboundary region

S.No.	Lake Area Range (ha)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	0.25 - 0.5	3,169	1,132.53	1.47
2	0.5 - 1	3,347	2,402.14	3.11
3	1 - 5	5,840	13,449.61	17.41
4	5 - 10	1,358	9,556.37	12.37
5	10 - 50	1,191	23,082.29	29.89
6	> 50	175	27,609.75	35.75
Total		**15,080**	**77,232.69**	**100.00**

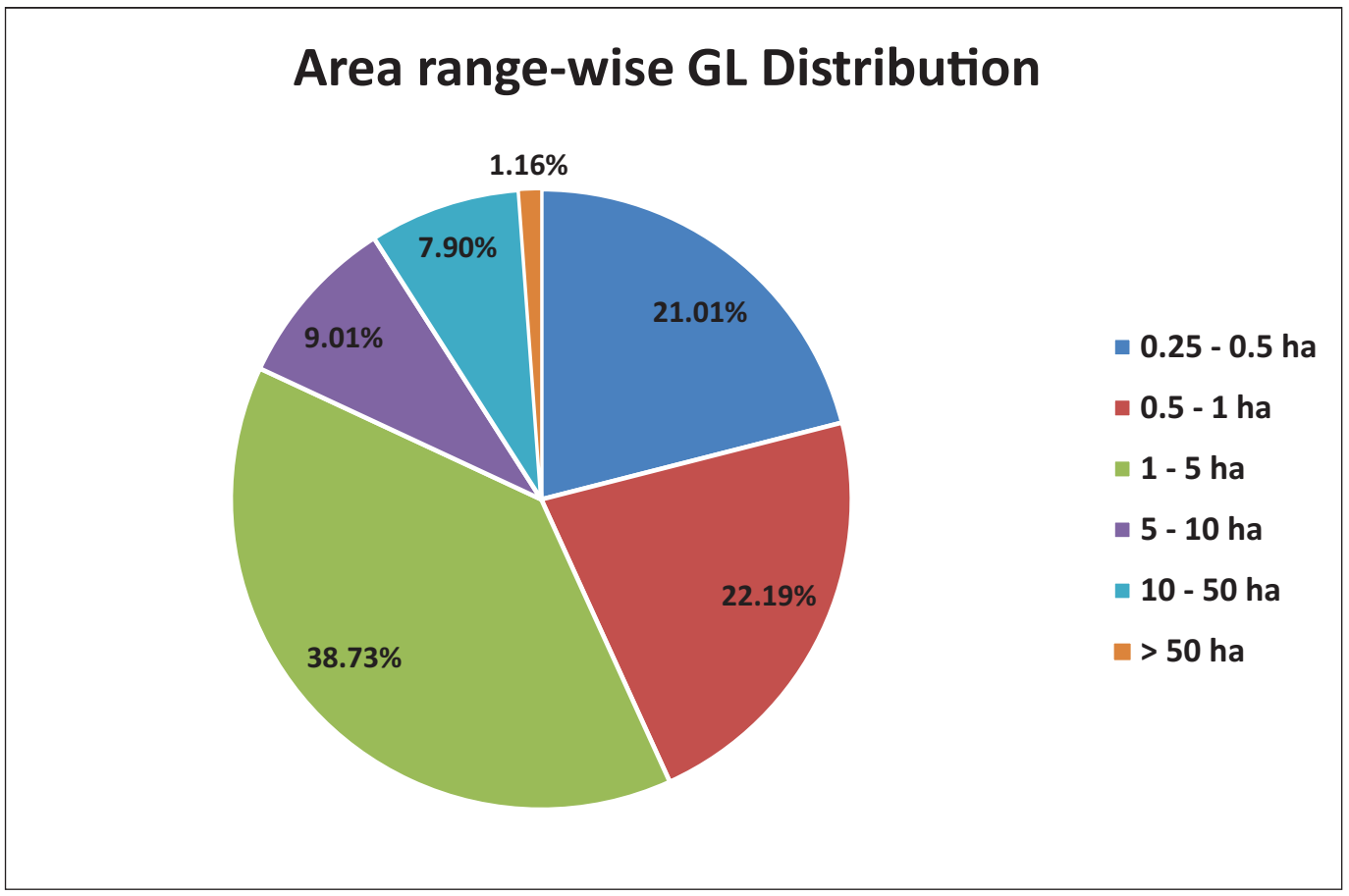


Figure 132: Area range-wise distribution of GL in Transboundary region

Type-wise Distribution

Distribution of different types of glacial lakes in the Transboundary region is given in Table 105 and Figure 133. All types of glacial lakes are present in the Transboundary region, where Other Glacial Erosion lakes are found to be the maximum with 9,696 (64.30%) occupying a total lake extent of 39,019.48 ha at 50.52% in the region. After that, Other Moraine Dammed and Other Glacial lakes are in majority with 2,788 (18.49%) and 1,385 (9.18%) and extend over a total area of 8,263.44 ha (10.70%) and 11,330.78 ha (14.67%) respectively.

Table 105: Type-wise distribution of GL in Transboundary region

S.No.	Code	Types of Glacial Lake	No. of Lakes	Total Lake Area	
				(ha)	(%)
1	M(e)	End-moraine Dammed Lake	353	9,142.85	11.84
2	M(l)	Lateral Moraine Dammed Lake	32	237.80	0.31
3	M(lg)	Lateral Moraine Dammed Lake with Ice	2	0.93	0.00
4	M(o)	Other Moraine Dammed Lake	2,788	8,263.44	10.70
5	I(s)	Supra-glacial Lake	200	214.38	0.28
6	I(d)	Glacier Ice-dammed Lake	2	2.50	0.00
7	E(c)	Cirque Erosion Lake	615	5,574.62	7.22
8	E(v)	Glacier Trough Valley Erosion Lake	7	3,445.91	4.46
9	E(o)	Other Glacial Erosion Lake	9,696	39,019.48	50.52
10	O	Other Glacial Lake	1,385	11,330.78	14.67
Total			**15,080**	**77,232.69**	**100.00**

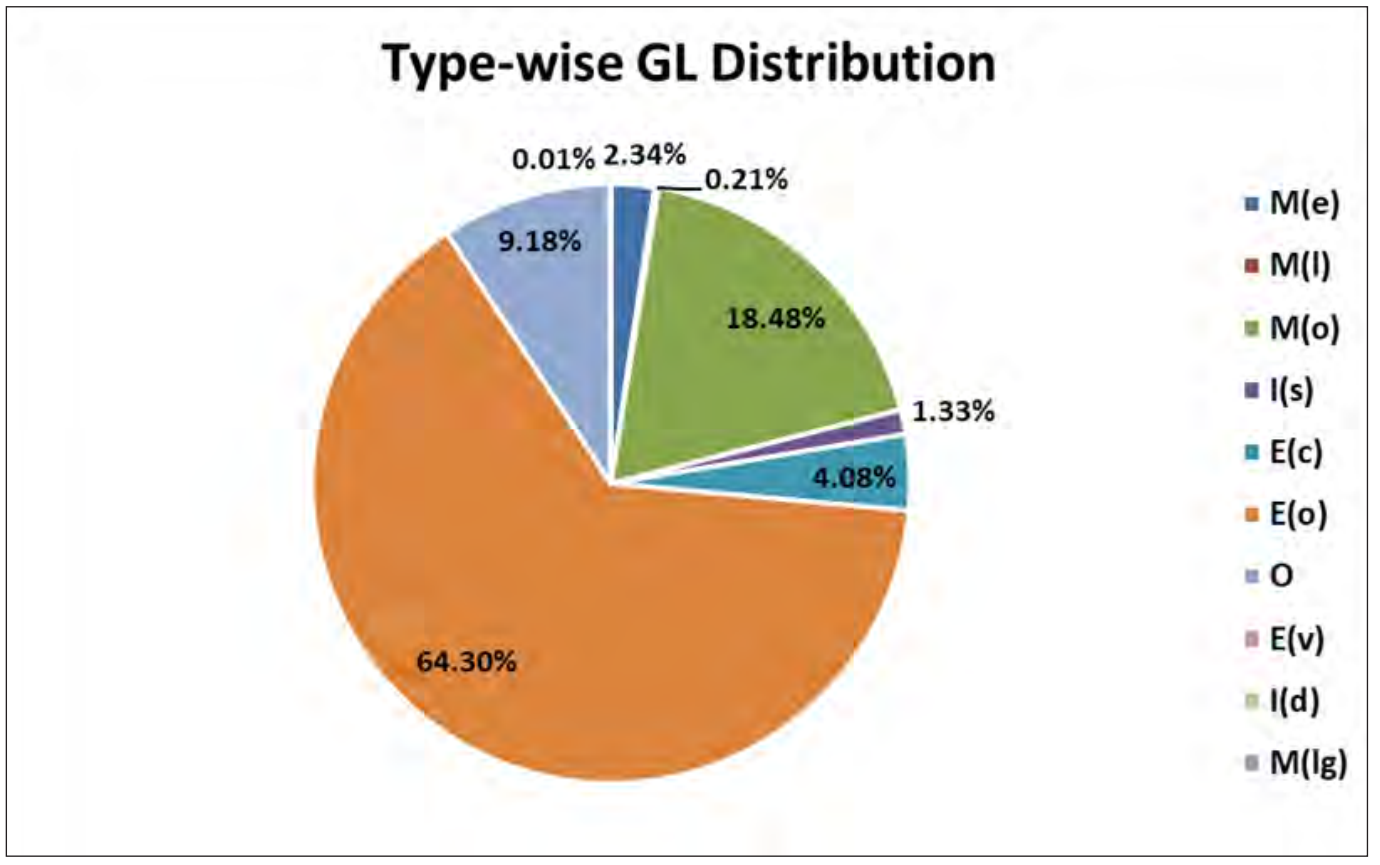


Figure 133: Type-wise distribution of GL in Transboundary region

Area range-Type-wise Distribution

Glacial lake distribution by area range vs. type-wise is given in Table 106 and Figure 134. The lakes with < 5 ha in size (81.93%) are dominant with Other Glacial Erosion (65.85%) and Other Moraine Dammed lakes (19.66%). Lakes with > 5 ha (18.06%) are also dominated by Other Glacial Erosion lakes (57.23%). All types of Moraine-dammed lakes, which constitute about 21.05%, are majorly with < 5 ha in water spread.

Table 106: Area range-wise vs. Type-wise distribution of GL in Transboundary region

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	0.25 - 0.5	6	6	1	668	103	0	11	0	1,986	388	3,169
2	0.5 - 1	12	5	1	687	62	1	37	0	2,224	318	3,347
3	1 - 5	90	13	0	1,075	30	1	228	0	3,927	476	5,840
4	5 - 10	71	3	0	215	3	0	158	0	828	80	1,358
5	10 - 50	133	4	0	132	2	0	176	0	657	87	1,191
6	> 50	41	1	0	11	0	0	5	7	74	36	175
Total		**353**	**32**	**2**	**2,788**	**200**	**2**	**615**	**7**	**9,696**	**1,385**	**15,080**

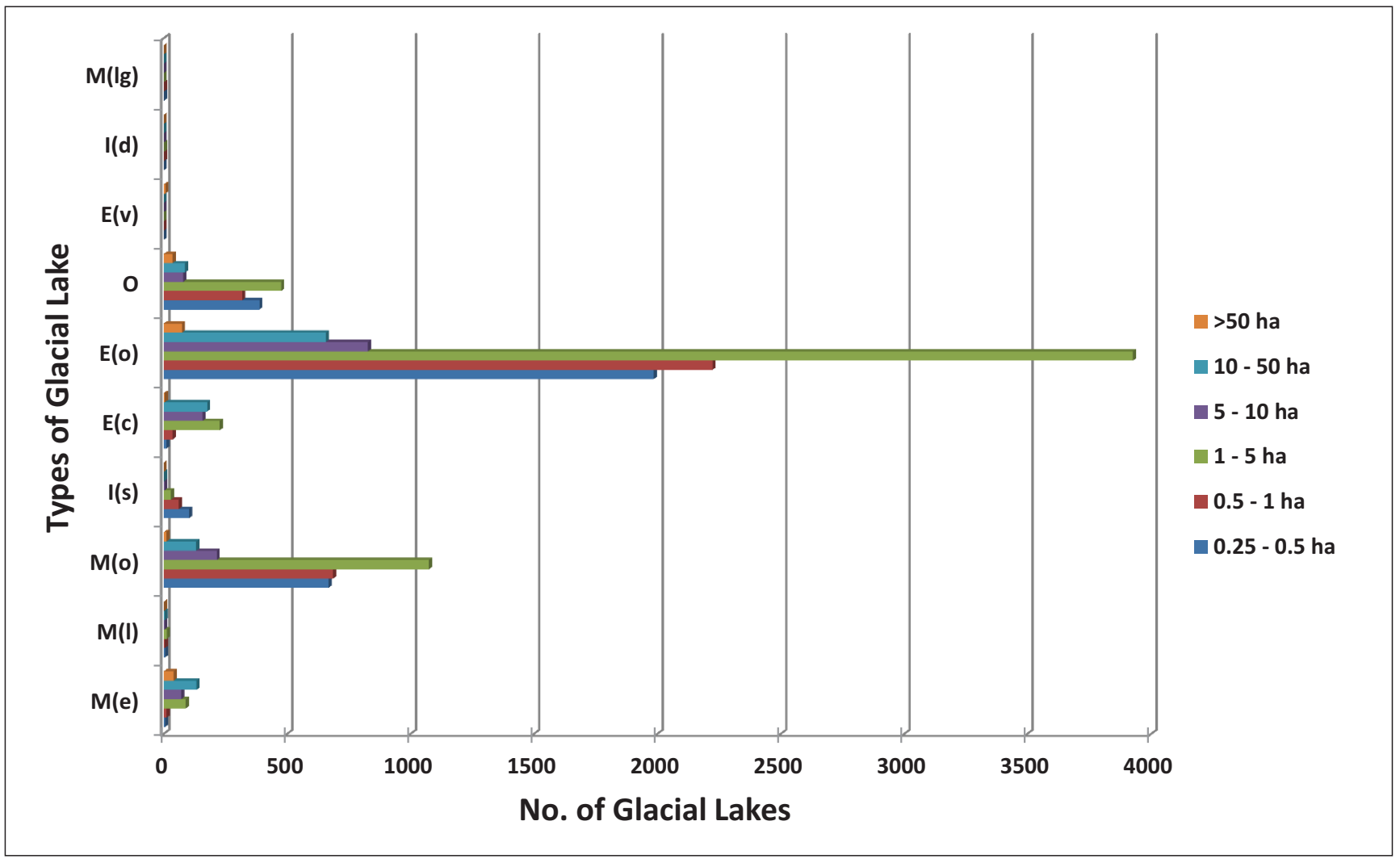


Figure 134: Area range-wise vs. Type-wise distribution of GL in Transboundary region

Elevation range-wise Distribution

Elevation range-wise distribution of the glacial lakes in the Transboundary region has been shown in Table 107 and Figure 135. Majority of glacial lakes are situated above 4,000 m elevation range i.e. 14,649 (97.14%) with total lake area of 71,327.42 ha, contributing 92.35% of lake area.

Table 107: Elevation range-wise distribution of GL in Transboundary region

S. No.	Elevation Range (m)	No. of Lakes	Total Lake Area	
			(ha)	(%)
1	up to 3,000	7	107.41	0.14
2	3,001 - 4,000	424	5,797.86	7.51
3	4,001 - 5,000	7,887	44,743.89	57.93
4	> 5,000	6,762	26,583.53	34.42
Total		**15,080**	**77,232.69**	**100.00**

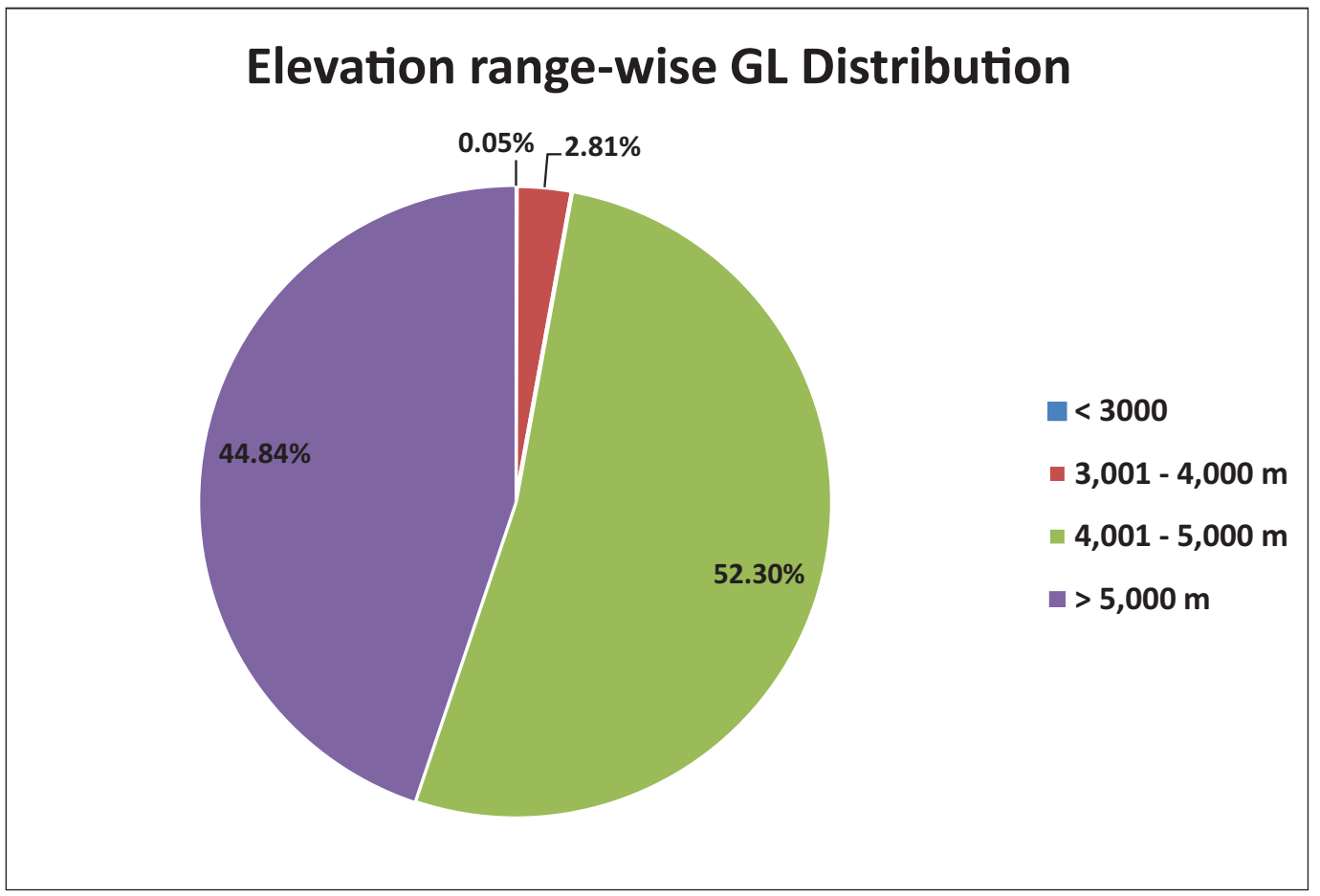


Figure 135: Elevation range-wise distribution of GL in Transboundary region

Area Elevation range-wise Distribution

Glacial lake distribution has been analyzed as per area range vs. elevation range-wise, given in Table 108 and Figure 136. It is noted that, 52.30% of glacial lakes (7,887) are situated in high altitude range i.e. 4,001 - 5,000 m, which also constitutes majority of total lake area within that range i.e. 57.93%. However, 7 glacial lakes lies below 3,000 m, has 50% of its lakes < 5 ha in size. 87% of lakes lying in very high altitude range are < 5 ha, majorly of size ranging 1 - 5 ha (i.e. 2,605), followed by lakes of size 0.5 - 1 ha (i.e. 1,683). It has been further noticed that, 12.88% of lakes > 5 ha are lying within in the very high altitude range, majority of them falling in size ranging of 5 - 10 ha.

Table 108: Area range-wise vs. Elevation range-wise distribution of GL in Transboundary region

S. No.	Lake Area Range (ha)	Elevation Range (m)								Total	
		up to 3,000		3,001 - 4,000		4,001 - 5,000		> 5,000			
		No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Total Lake Area (ha)	No. of lakes	Lake Area (ha)
1	0.25 - 0.5	0	0.00	52	19.42	1,514	544.89	1,603	568.22	3,169	1,132.53
2	0.5 - 1	1	0.62	47	32.57	1,616	1,163.96	1,683	1,204.99	3,347	2,402.14
3	1 - 5	2	5.34	178	458.10	3,055	7,129.38	2,605	5,856.79	5,840	13,449.61
4	5 - 10	1	5.75	70	497.14	822	5,814.98	465	3,238.50	1,358	9,556.37
5	10 - 50	3	95.70	63	1,350.01	769	14,864.32	356	6,772.26	1,191	23,082.29
6	> 50	0	0.00	14	3,440.62	111	15,226.36	50	8,942.77	175	27,609.75
Total		**7**	**107.41**	**424**	**5,797.86**	**7,887**	**44,743.89**	**6,762**	**26,583.53**	**15,080**	**77,232.69**

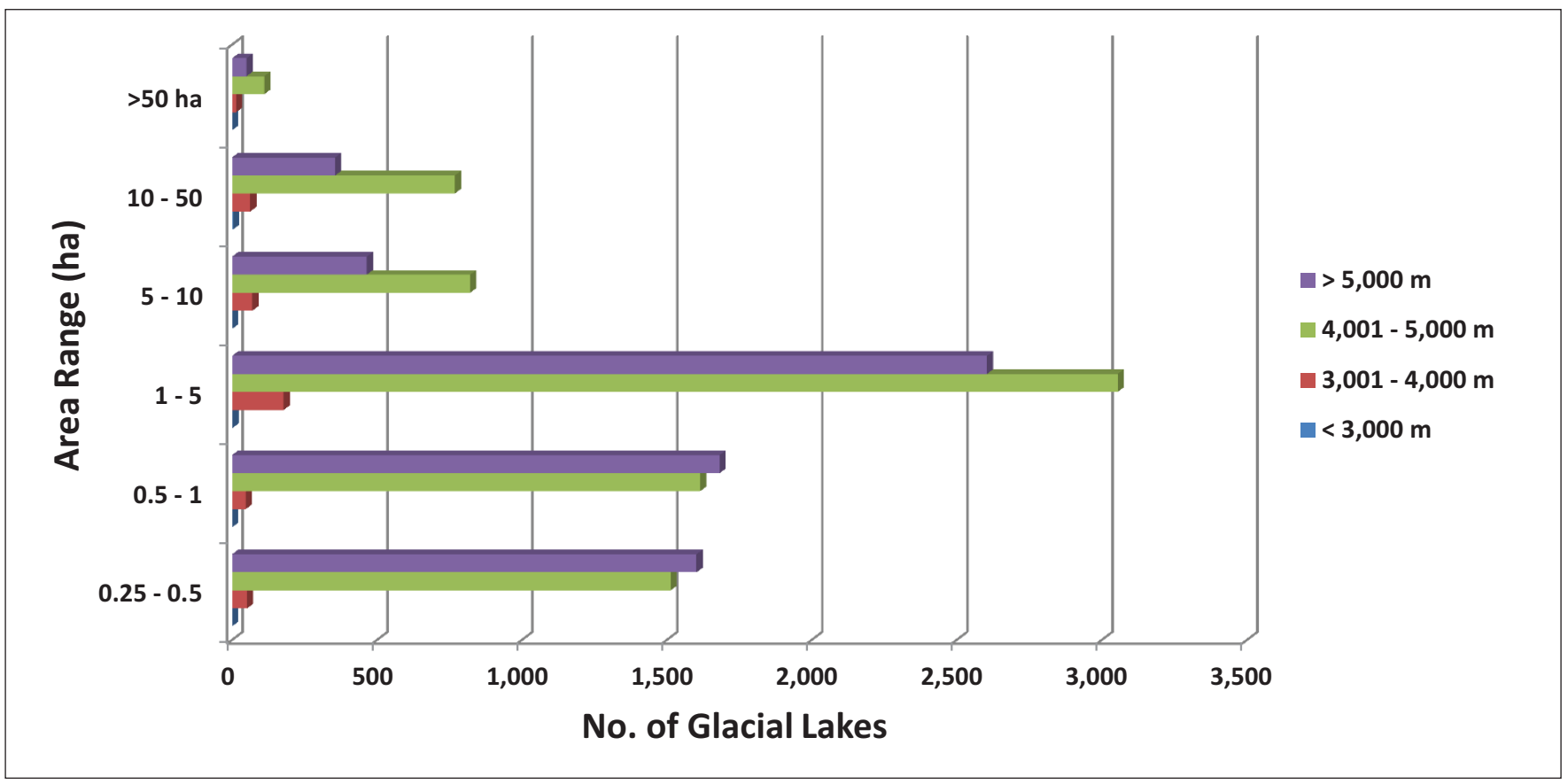


Figure 136: Area range-wise vs. Elevation range-wise distribution of GL in Transboundary region

Type Elevation range-wise Distribution

Glacial lake distribution has also been analyzed as per type-wise vs. elevation range-wise, given in Table 109 and Figure 137. The dominant lake type in the subbasin i.e., Other Glacial Erosion lakes (64.29%) are predominantly located in the elevation range 4,001 - 5,000 m (58.93%). The other dominant lake type, namely, Other Moraine Dammed and End-Moraine Dammed Lakes are also majorly distributed in very high altitude range > 5,000 m elevation range, i.e. 75.71% and 59.49%. Majority i.e. 73.54% of all types of Moraine-dammed lakes lies in > 5,000 m.

Table 109: Elevation range-wise vs. Type-wise distribution of GL in Transboundary region

S. No.	Subbasin	Types of Glacial Lake										Total
		M(e)	M(l)	M(lg)	M(o)	I(s)	I(d)	E(c)	E(v)	E(o)	O	
1	up to 3,000	0	0	0	4	0	0	0	0	3	0	7
2	3,001 - 4,000	9	0	0	26	15	0	46	2	281	45	424
3	4,001 - 5,000	134	19	1	647	117	0	480	4	5,714	771	7,887
4	> 5,000	210	13	1	2,111	68	2	89	1	3,698	569	6,762
Total		**353**	**32**	**2**	**2,788**	**200**	**2**	**615**	**7**	**9,696**	**1,385**	**15,080**

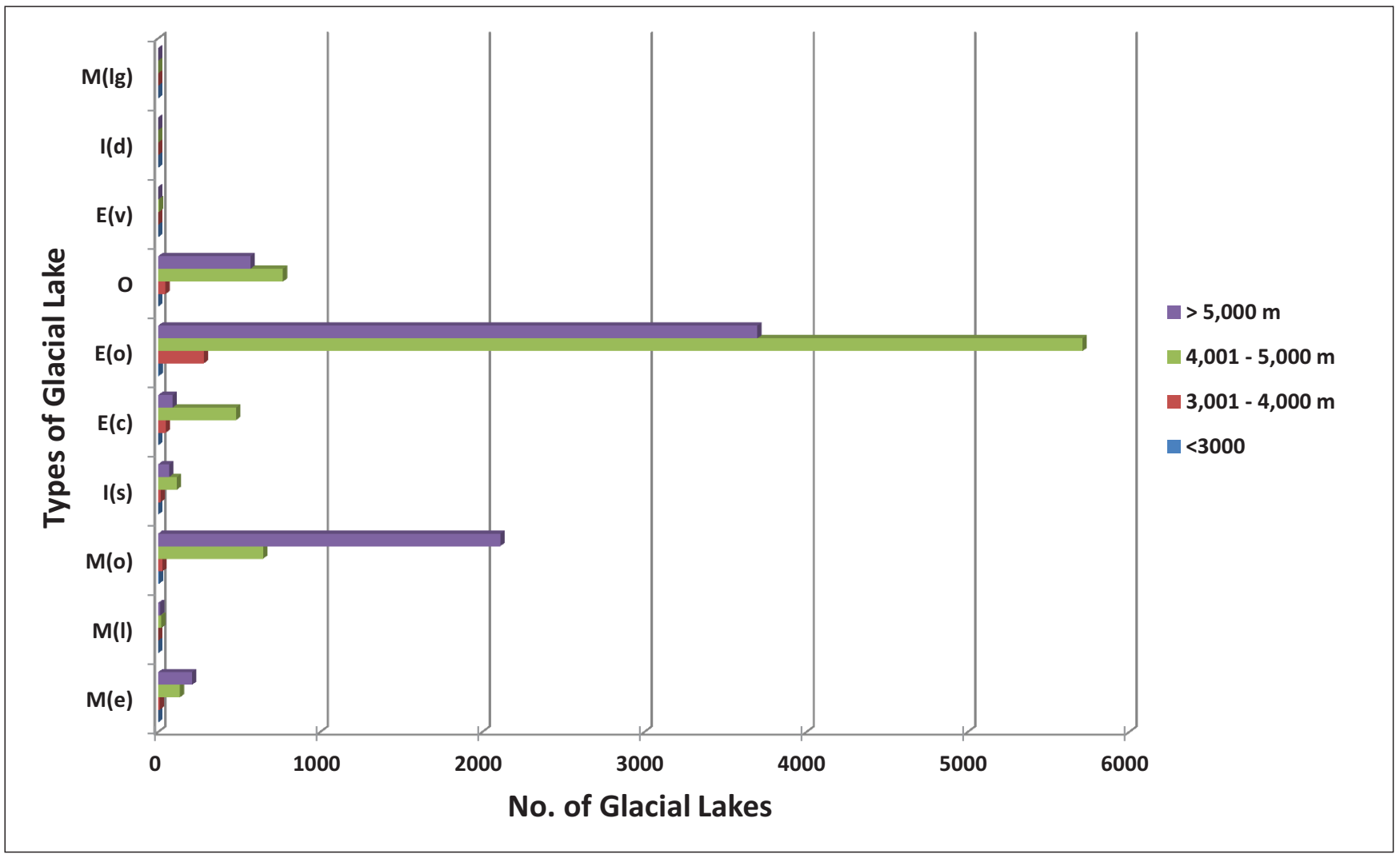
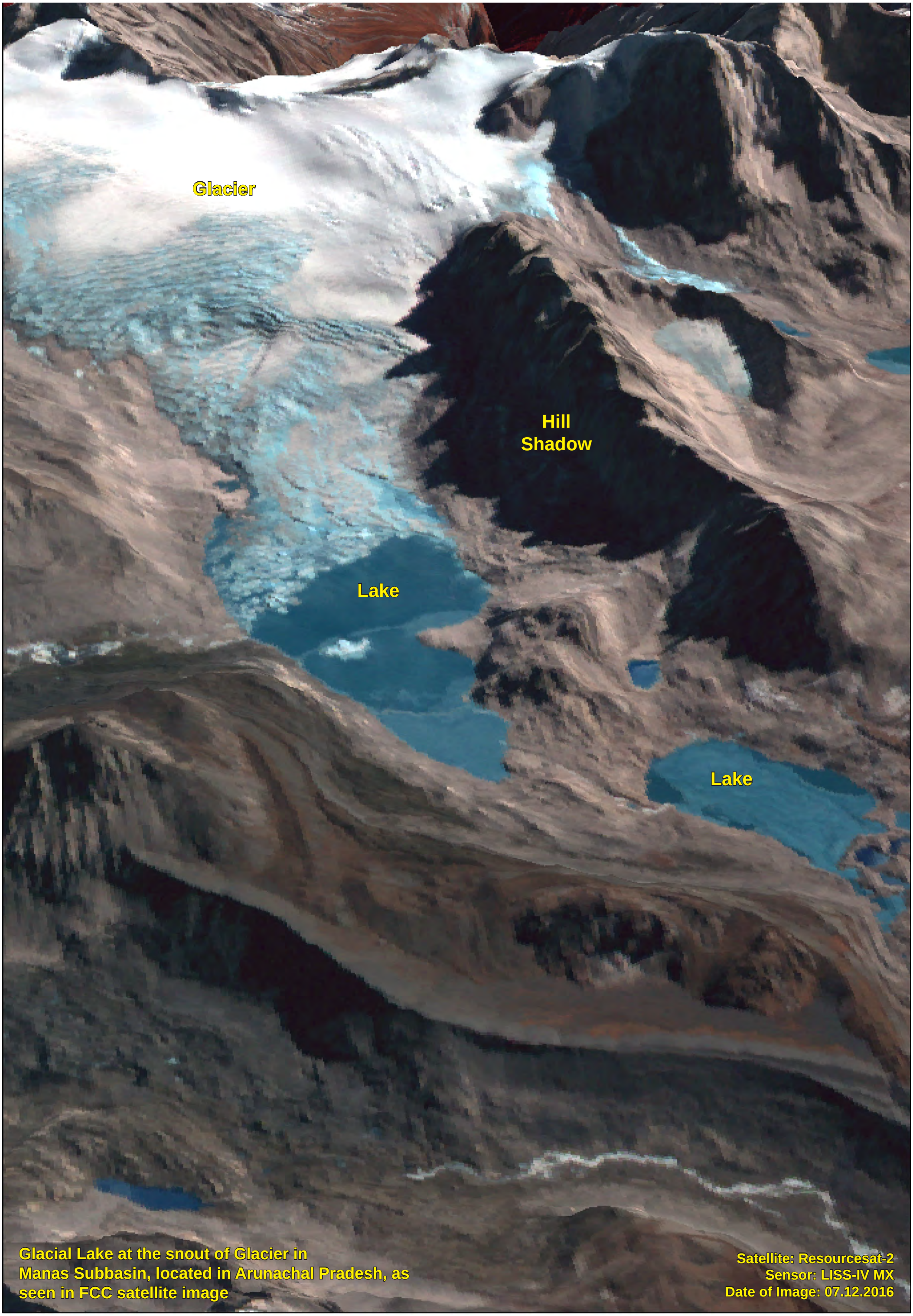


Figure 137: Elevation range-wise vs. Type-wise distribution of GL in Transboundary region



Glacial Lake at the snout of Glacier in Manas Subbasin, located in Arunachal Pradesh, as seen in FCC satellite image

Satellite: Resourcesat-2
Sensor: LISS-IV MX
Date of Image: 07.12.2016

6. INDEX OF MAP SHEETS

Figure 138 shows the layout map representing SOI 250K toposheets overlaid on satellite image acquisition year layer covering the Brahmaputra River basin. A total of 65 toposheets covered the entire study area, of which 54 toposheets contain glacial lakes.

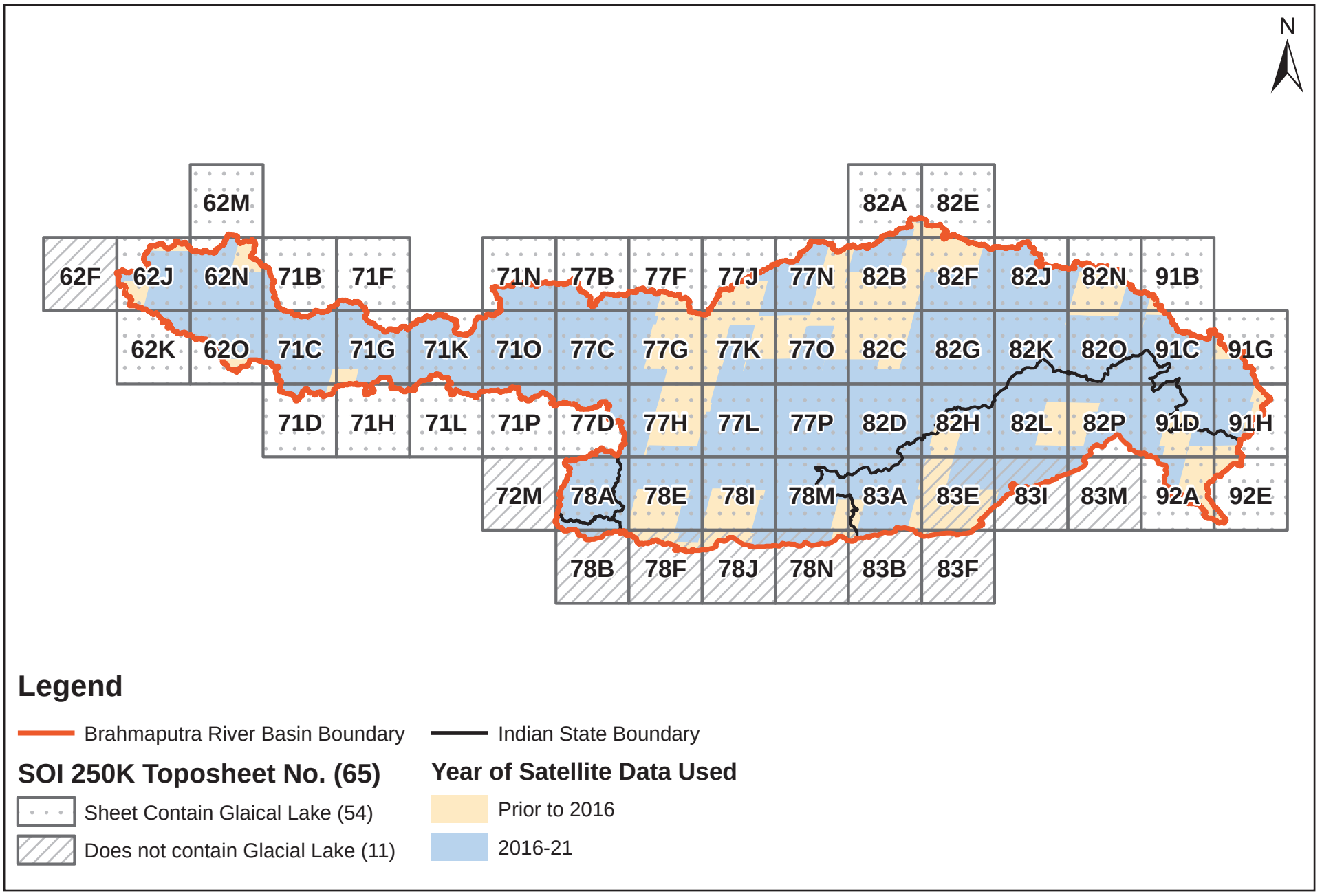
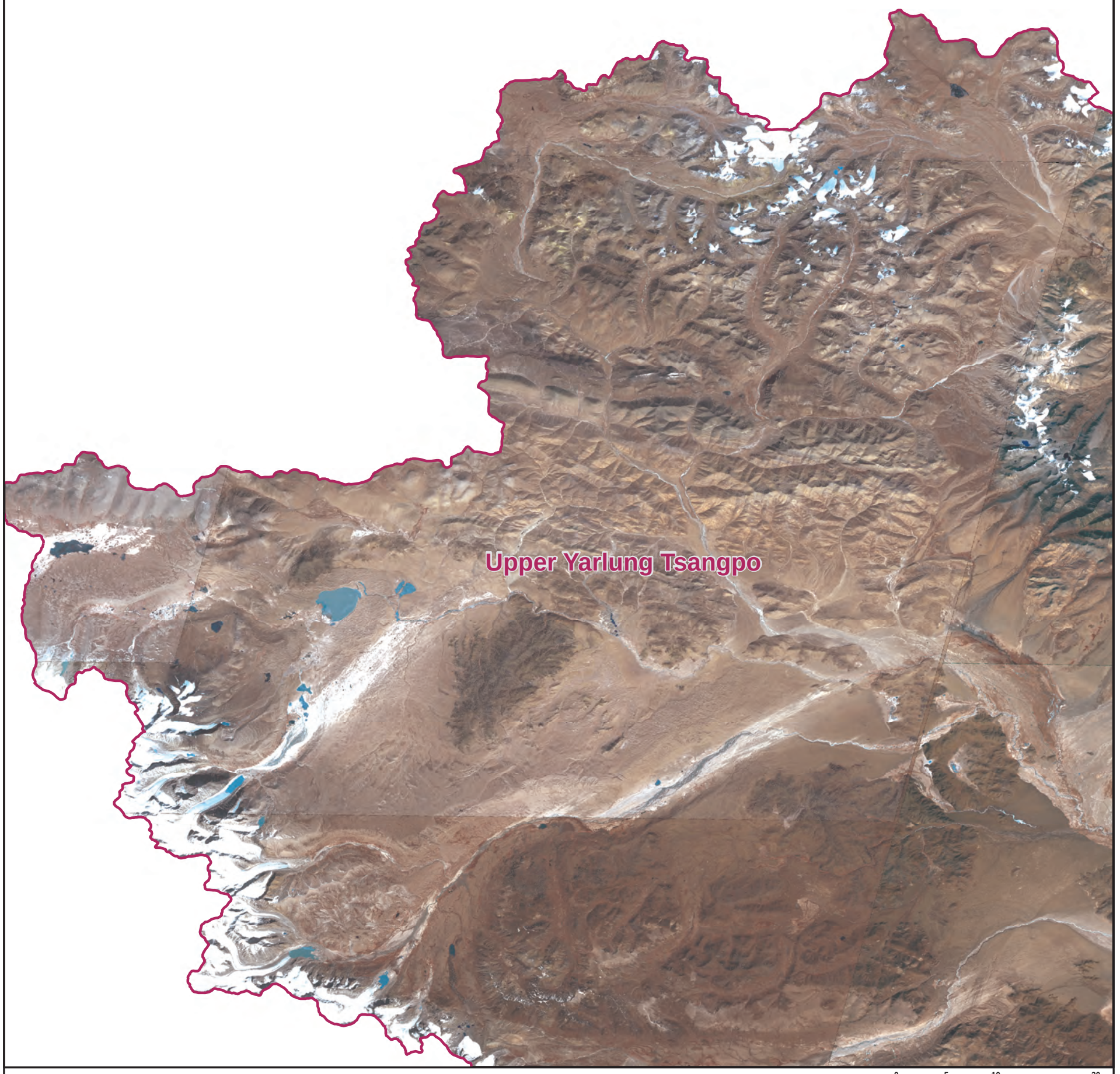


Figure 138: Layout of SOI 250K Toposheets and year of satellite data used

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 1** | Plate No: 62J



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	1	0	59	1	0	0	0	20	111	**192**
2	**0.5 - 1**	0	0	0	44	2	0	1	0	10	94	**151**
3	**1 - 5**	1	1	0	46	0	0	0	0	8	106	**162**
4	**5 - 10**	2	1	0	13	0	0	1	0	1	10	**28**
5	**10 - 50**	4	0	0	5	0	0	0	0	2	16	**27**
6	**> 50**	4	0	0	0	0	0	0	0	1	6	**11**
Total		**11**	**3**	**0**	**167**	**3**	**0**	**2**	**0**	**42**	**343**	**571**

Legend

Subbasin Boundary — District Boundary

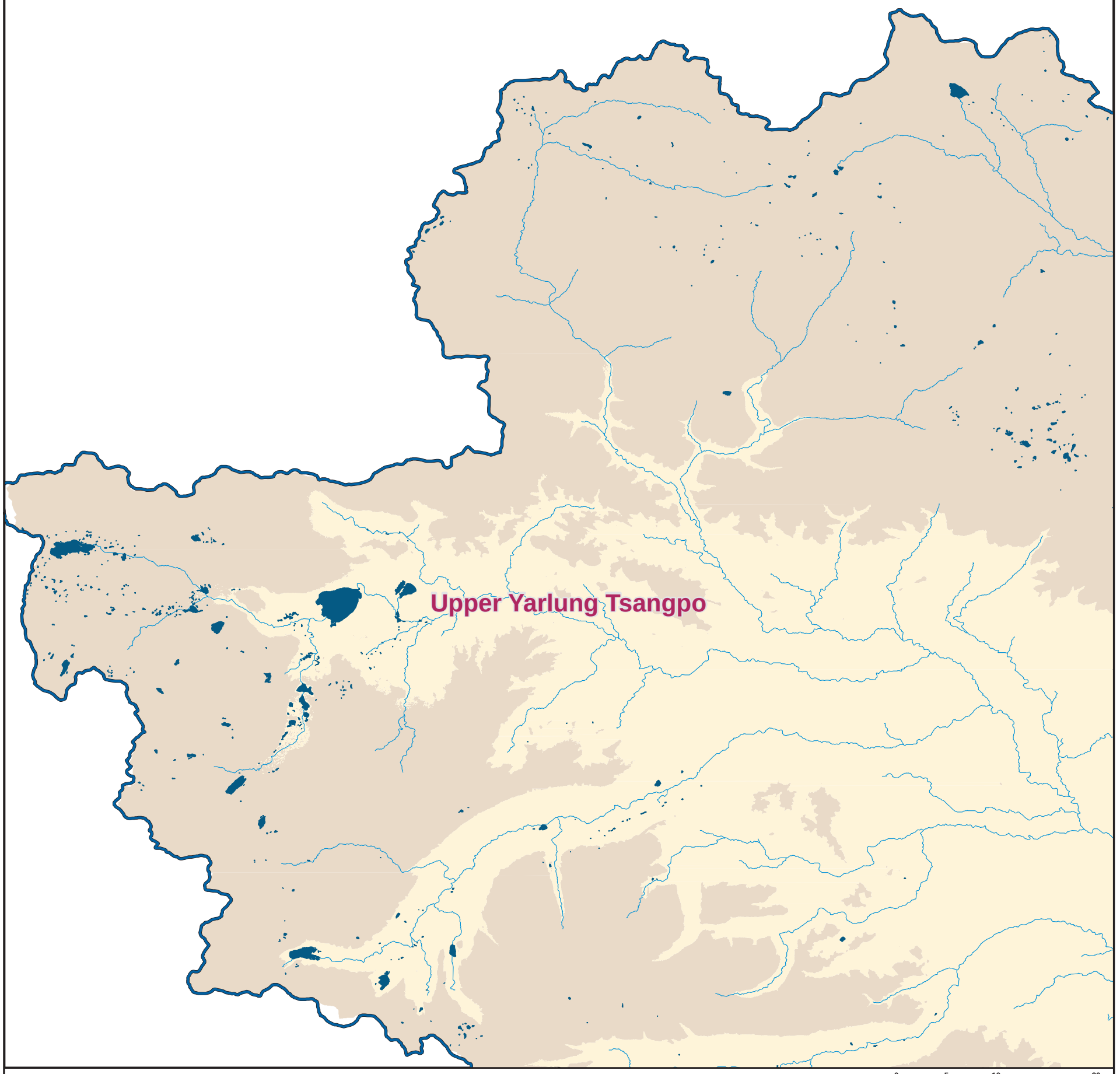
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

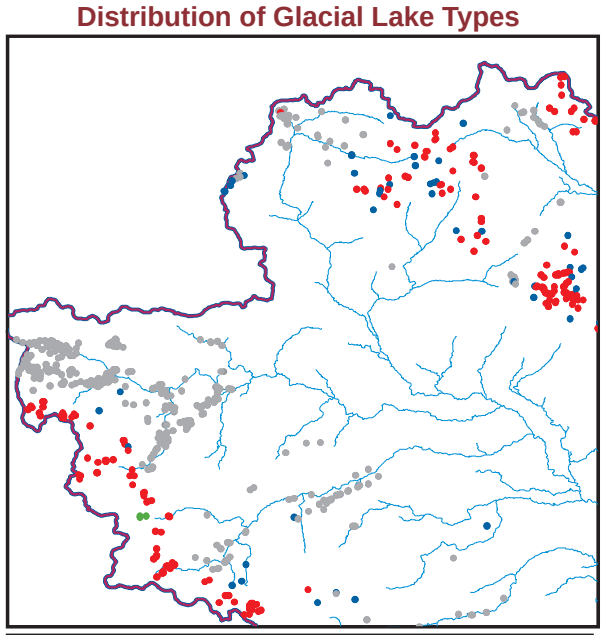
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 2** | Plate No: 62J

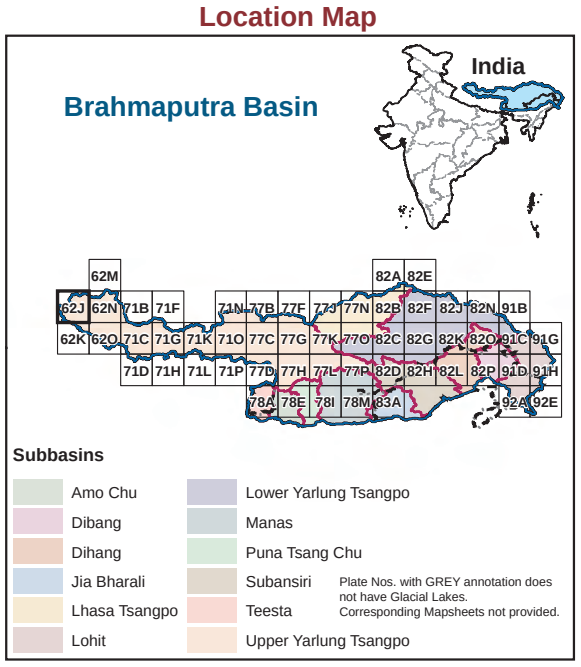


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	133	1,858.8
4	> 5,000	438	1,716.9
Total		**571**	**3,575.6**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

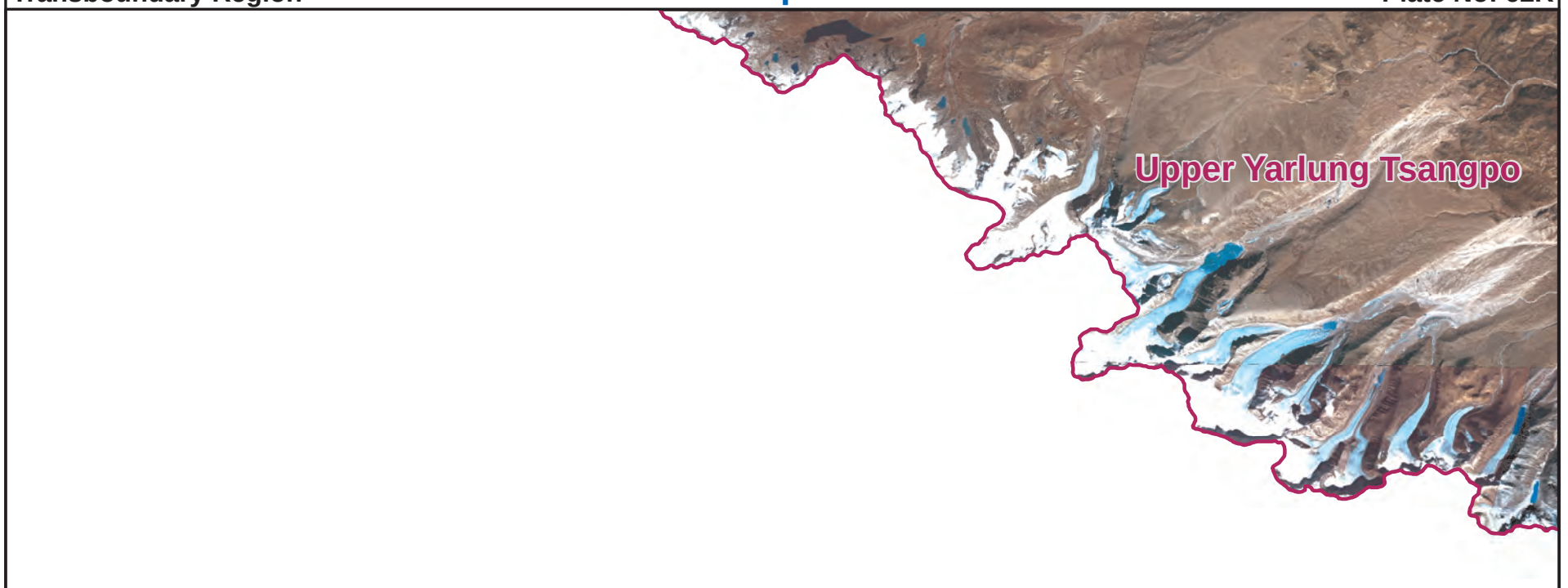
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 3** | Plate No: 62K



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 4)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	1	0	17	1	0	0	0	1	15	**35**
2	**0.5 - 1**	0	0	0	8	0	0	0	0	6	9	**23**
3	**1 - 5**	1	1	0	15	0	0	0	0	4	18	**39**
4	**5 - 10**	1	0	0	2	0	0	0	0	1	0	**4**
5	**10 - 50**	6	0	0	2	0	0	0	0	1	0	**9**
6	**> 50**	3	0	0	0	0	0	0	0	1	0	**4**
Total		**11**	**2**	**0**	**44**	**1**	**0**	**0**	**0**	**14**	**42**	**114**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

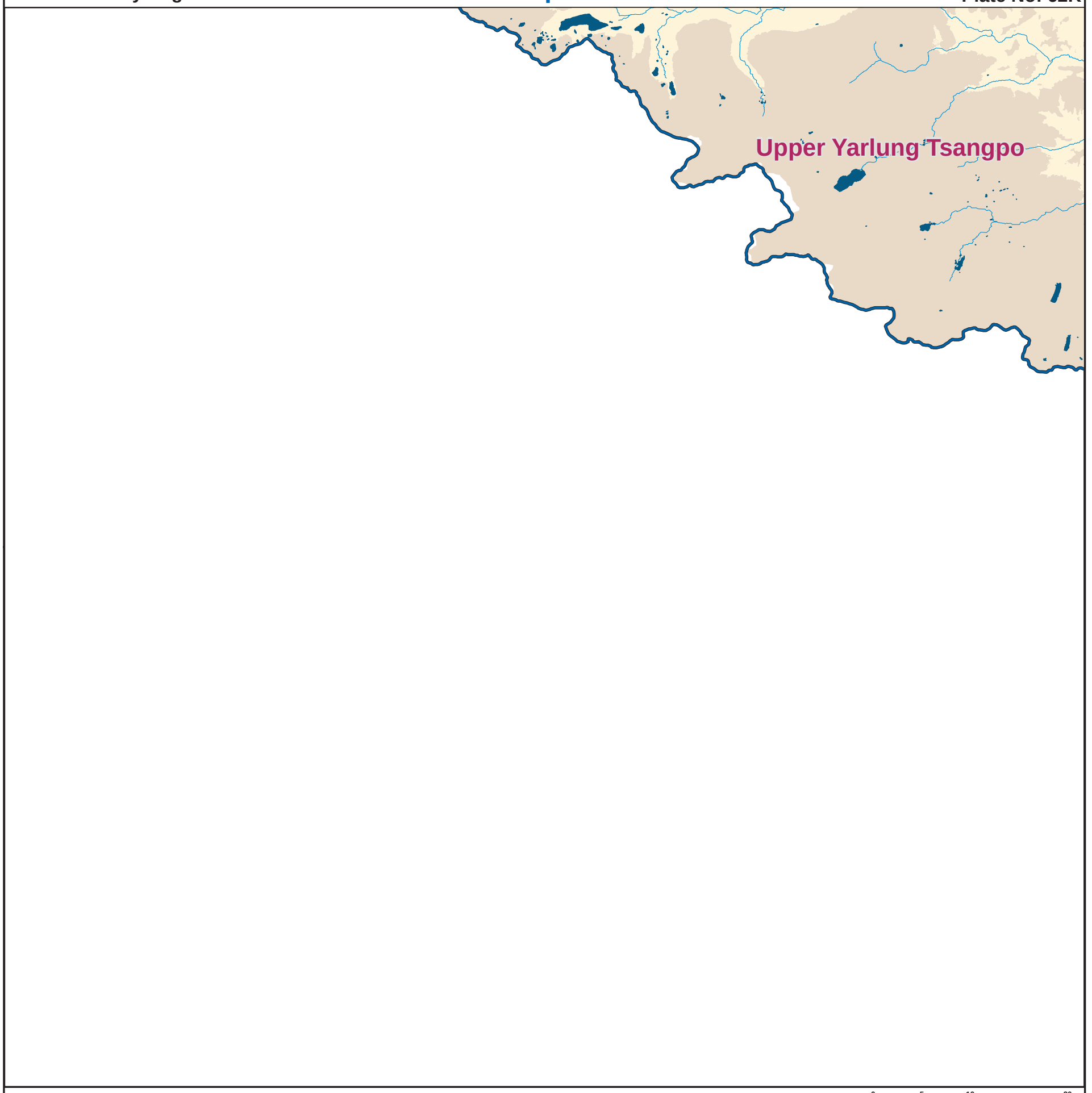
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

Map 4

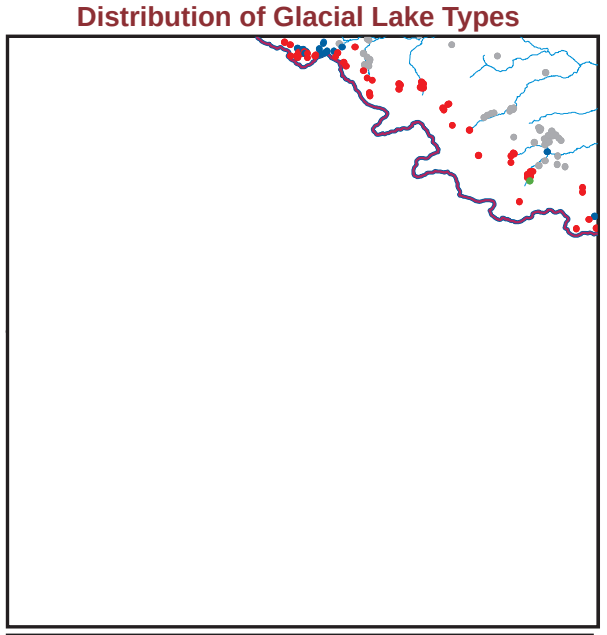
Plate No: 62K



Data Source: Resourcesat-2 LISS-IV

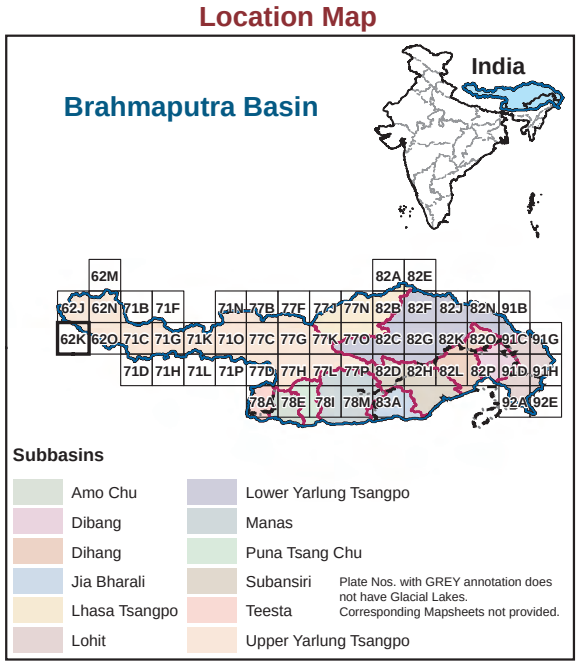
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

Amo Chu	Lower Yarlung Tsangpo
Dibang	Manas
Dihang	Puna Tsang Chu
Jia Bharali	Subansiri
Lhasa Tsangpo	Teesta
Lohit	Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	31	602.4
4	> 5,000	83	639.0
Total		**114**	**1,241.4**

Legend

Glacial Lake · River / Stream · Basin Boundary · Subbasin Boundary

District Boundary · State / UT Boundary · International Boundary

Elevation Range (m)

up to 3,000 · 3,001 - 4,000 · 4,001 - 5,000 · > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

DISCLAIMER: The Administrative Boundaries shown are for scientific study and not for statutory purpose

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 5** | **Plate No: 62M**

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 1)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	1	0	**1**
2	**0.5 - 1**	0	0	0	1	0	0	0	0	0	0	**1**
3	**1 - 5**	0	0	0	4	0	0	0	0	1	0	**5**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	0	**0**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**2**	**0**	**7**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

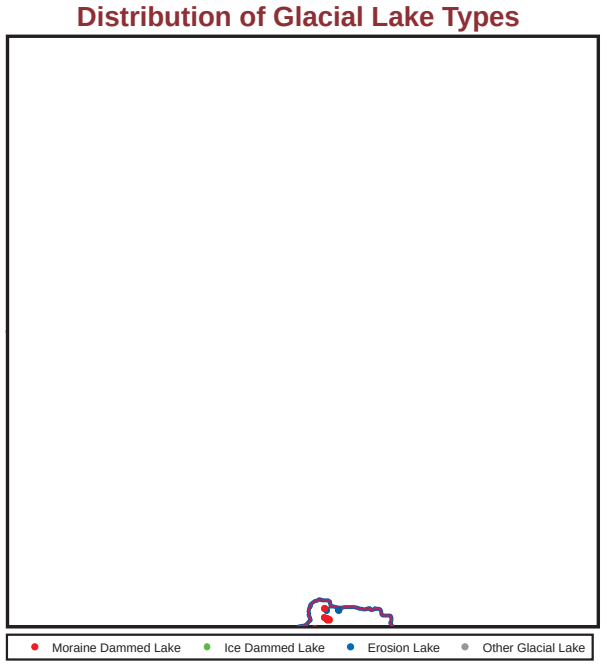
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 6** | **Plate No: 62M**

Data Source: Resourcesat-2 LISS-IV

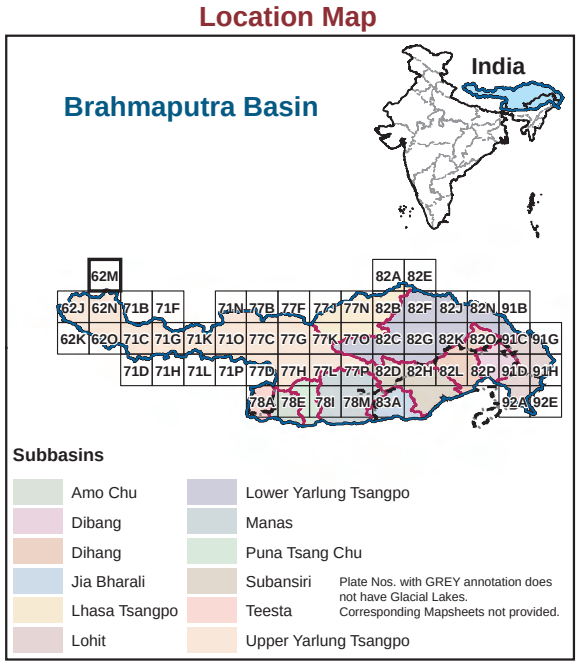
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	7	13.4
Total		**7**	**13.4**

Legend

Glacial Lake · River / Stream · Basin Boundary · Subbasin Boundary
District Boundary · State / UT Boundary · International Boundary

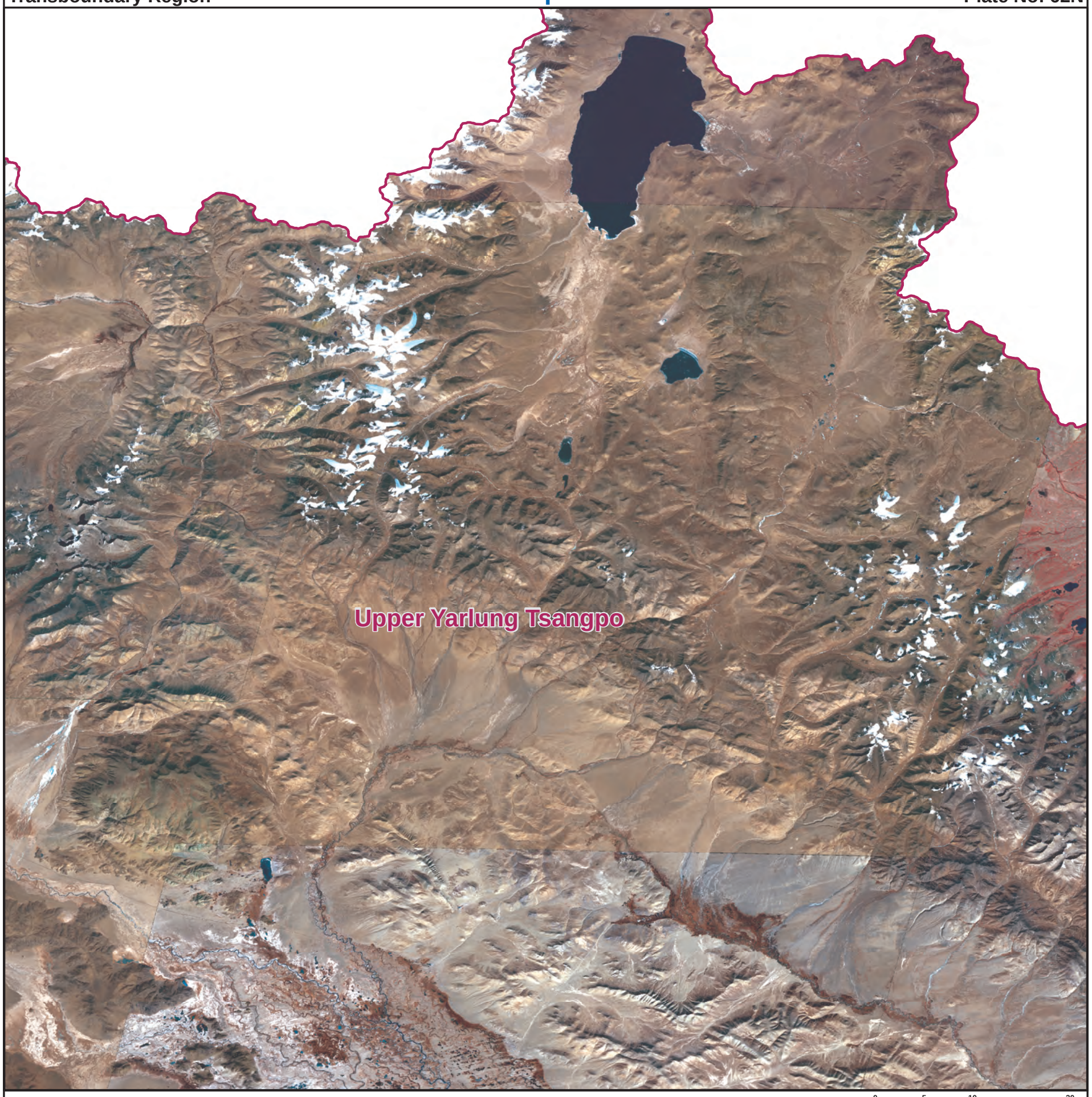
Elevation Range (m)
up to 3,000 · 3,001 - 4,000 · 4,001 - 5,000 · > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 7** | Plate No: 62N



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	49	0	0	0	0	26	11	**86**
2	**0.5 - 1**	1	0	0	39	0	0	0	0	28	4	**72**
3	**1 - 5**	4	0	0	58	0	0	1	0	31	18	**112**
4	**5 - 10**	3	0	0	7	0	0	0	0	2	1	**13**
5	**10 - 50**	3	0	0	2	0	0	0	0	6	6	**17**
6	**> 50**	0	0	0	0	0	0	0	0	2	1	**3**
Total		**11**	**0**	**0**	**155**	**0**	**0**	**1**	**0**	**95**	**41**	**303**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

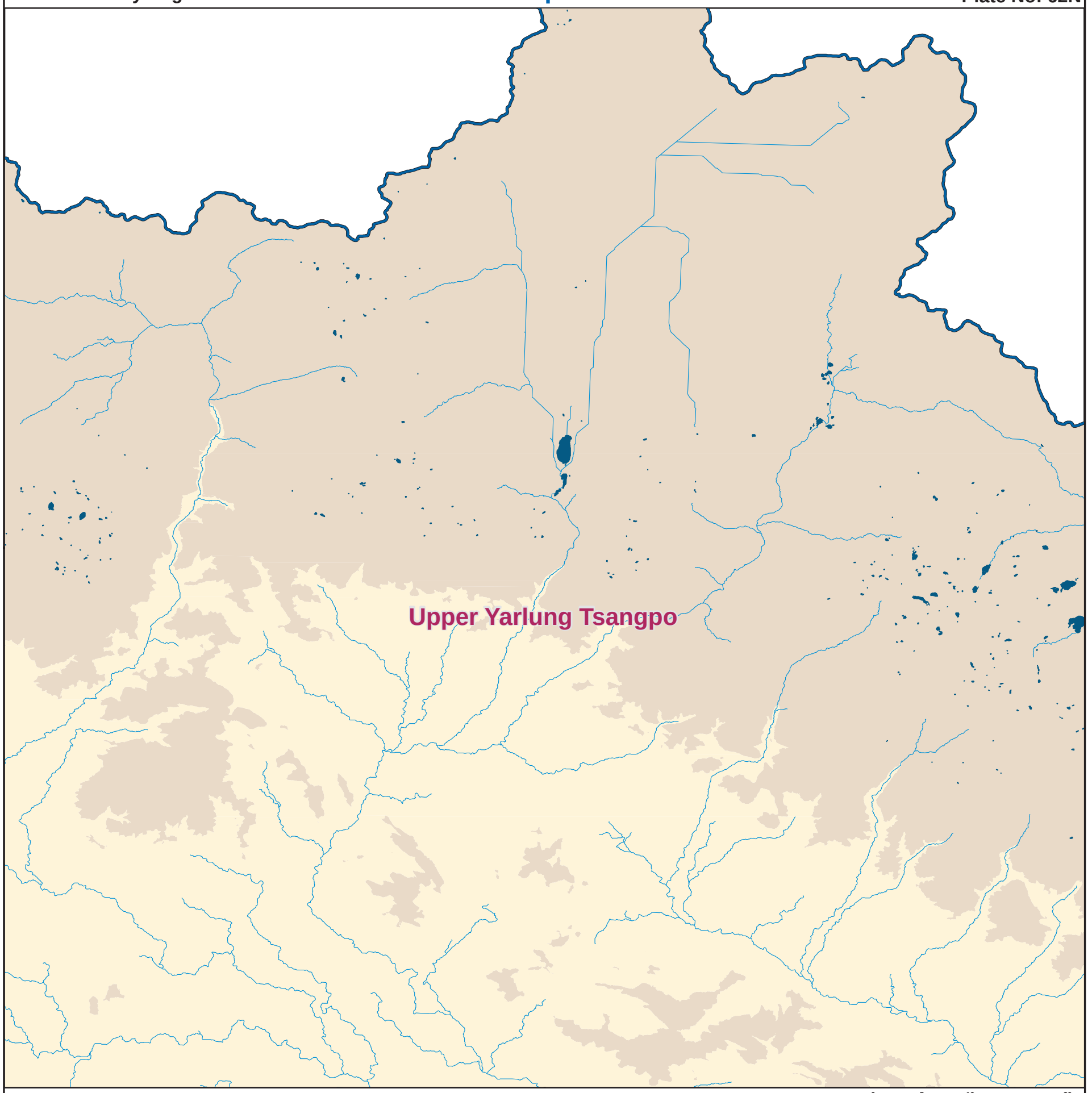
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

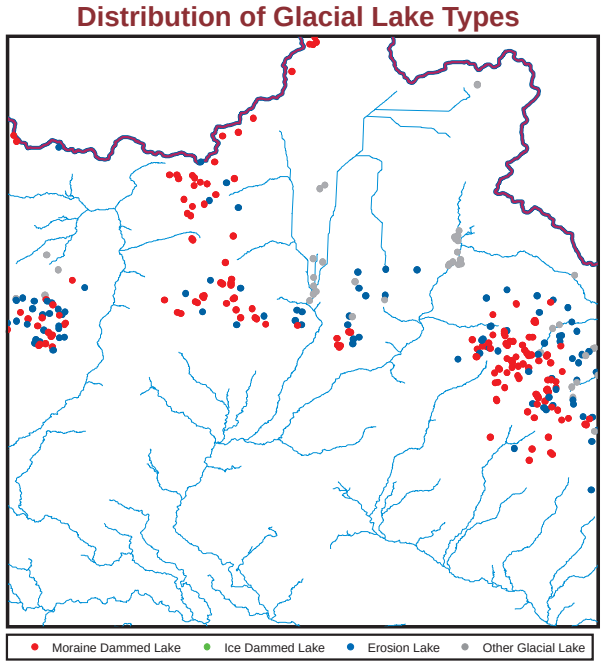
Map 8

Plate No: 62N

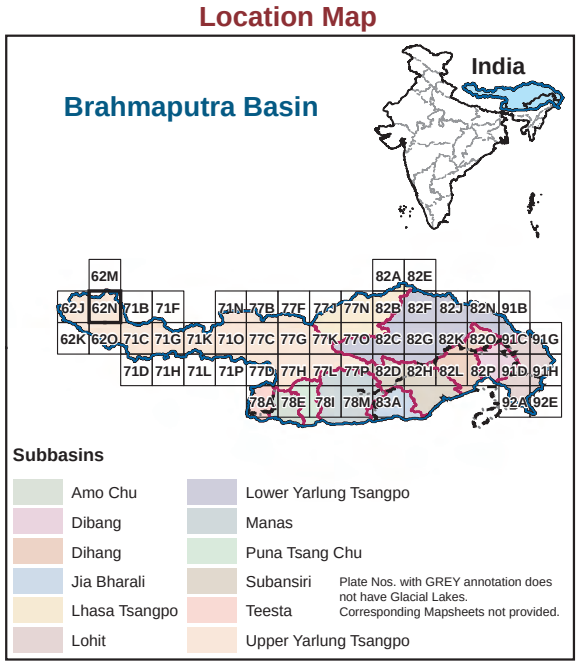


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	303	1,337.0
	Total	**303**	**1,337.0**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 9** | Plate No: 62O

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	21	2	0	1	0	30	9	**63**
2	**0.5 - 1**	0	0	0	21	1	0	0	0	20	5	**47**
3	**1 - 5**	0	0	0	35	0	0	1	0	55	8	**99**
4	**5 - 10**	0	0	0	9	0	0	0	0	10	2	**21**
5	**10 - 50**	1	0	0	2	0	0	0	0	3	3	**9**
6	**> 50**	0	0	0	0	0	0	0	0	0	7	**7**
Total		**1**	**0**	**0**	**88**	**3**	**0**	**2**	**0**	**118**	**34**	**246**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

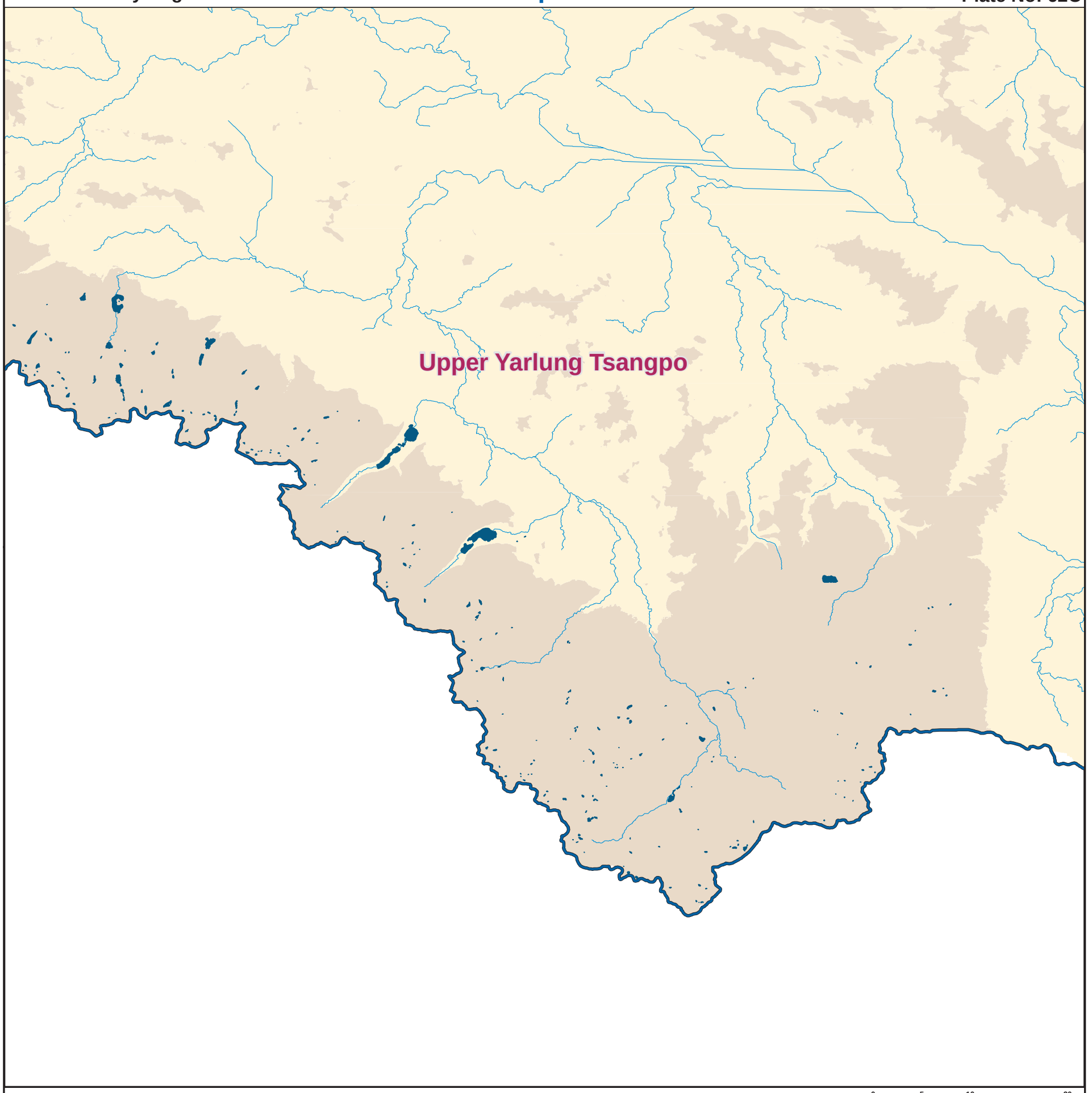
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

Map 10

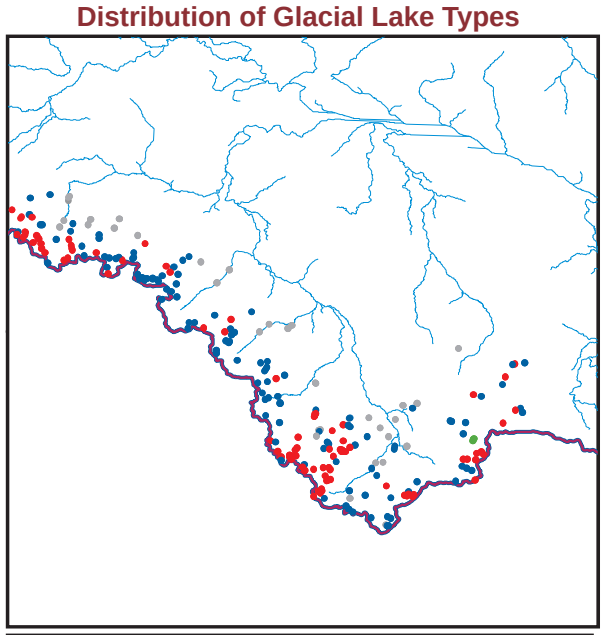
Plate No: 62O



Data Source: Resourcesat-2 LISS-IV

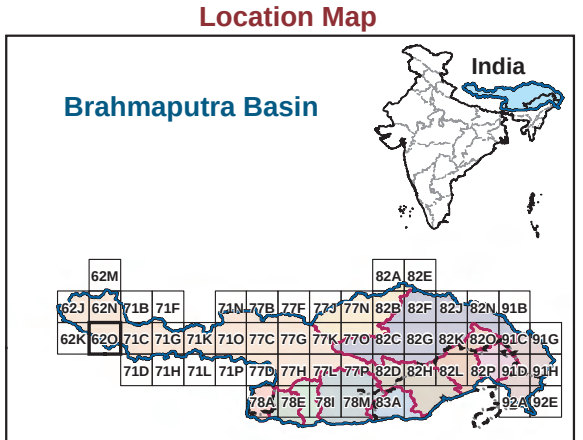
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	6	537.0
4	> 5,000	240	895.3
	Total	**246**	**1,432.3**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 11** | Plate No: 71B

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 4)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	4	0	0	1	0	2	2	**9**
2	**0.5 - 1**	0	0	0	2	1	0	0	0	7	0	**10**
3	**1 - 5**	0	0	0	5	1	0	1	0	4	7	**18**
4	**5 - 10**	0	0	0	3	0	0	0	0	0	1	**4**
5	**10 - 50**	1	0	0	1	0	0	0	0	0	1	**3**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**1**	**0**	**0**	**15**	**2**	**0**	**2**	**0**	**13**	**11**	**44**

Legend

Subbasin Boundary — District Boundary

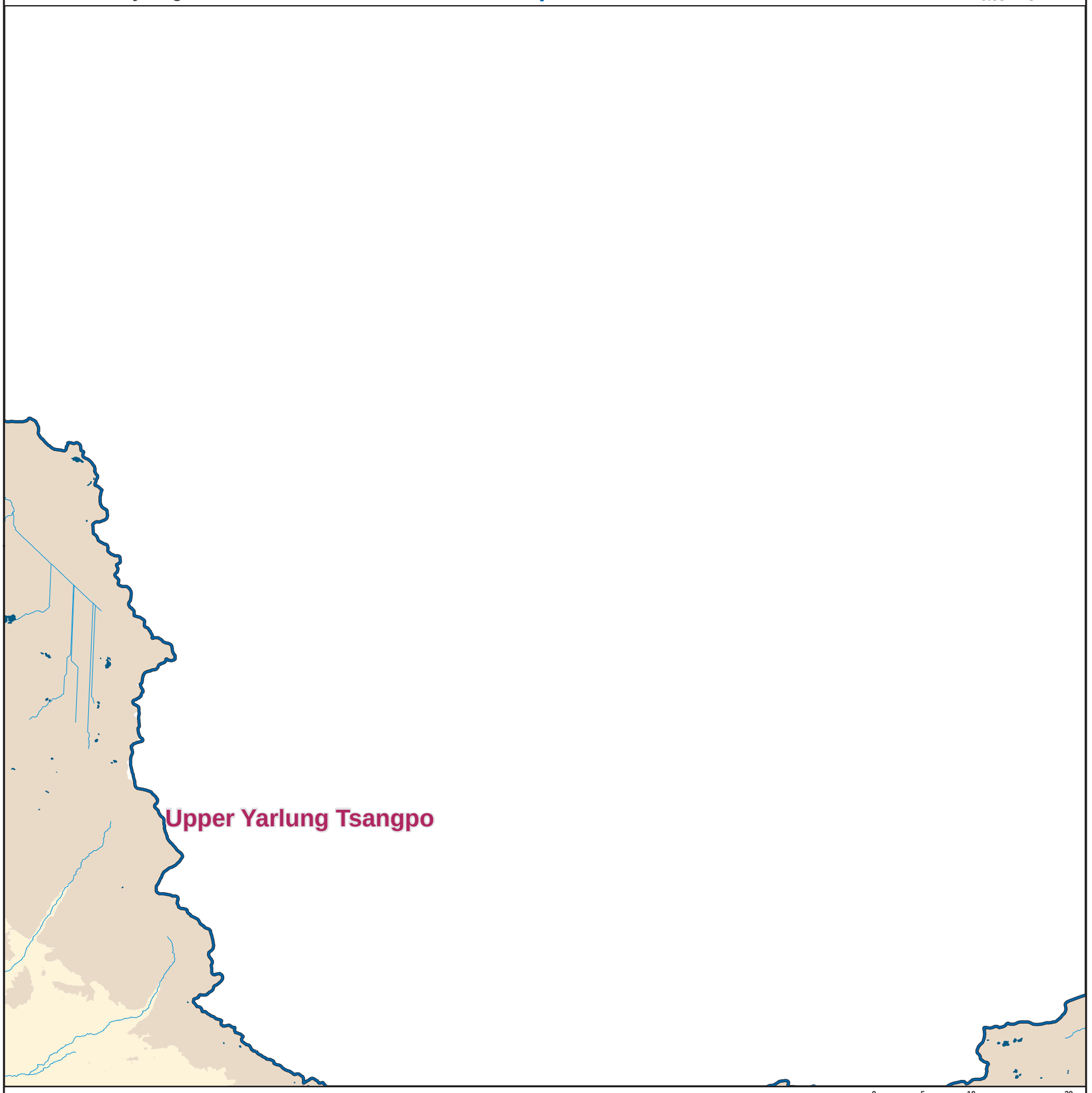
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

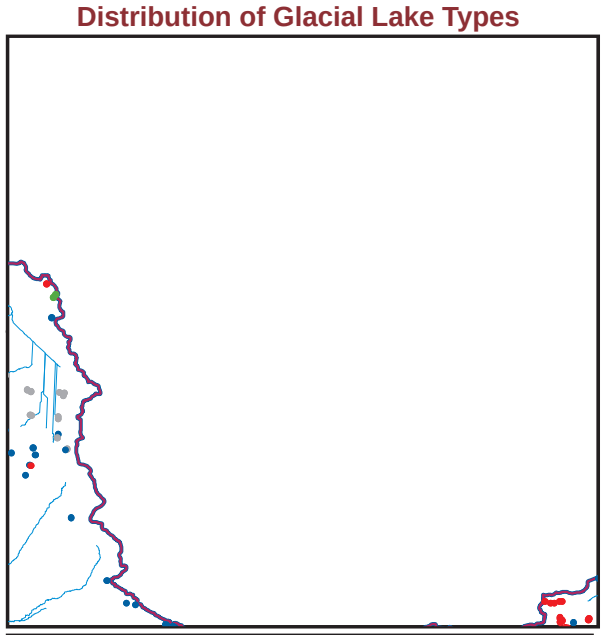
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 12** | **Plate No: 71B**

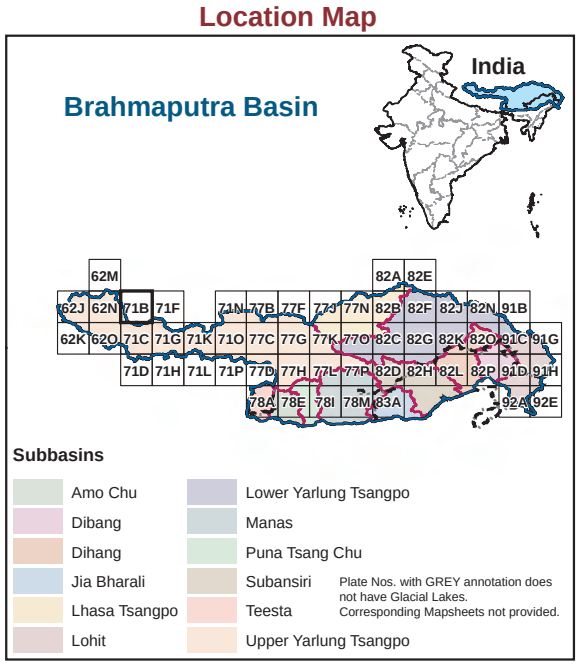


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	44	157.9
	Total	**44**	**157.9**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 13** | Plate No: 71C

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	24	0	0	0	0	18	3	**45**
2	**0.5 - 1**	0	0	0	26	1	0	0	0	27	0	**54**
3	**1 - 5**	3	0	0	33	1	0	1	0	29	0	**67**
4	**5 - 10**	0	0	0	5	0	0	0	0	5	0	**10**
5	**10 - 50**	3	0	0	2	0	0	0	0	2	0	**7**
6	**> 50**	1	0	0	0	0	0	0	0	0	0	**1**
Total		**7**	**0**	**0**	**90**	**2**	**0**	**1**	**0**	**81**	**3**	**184**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

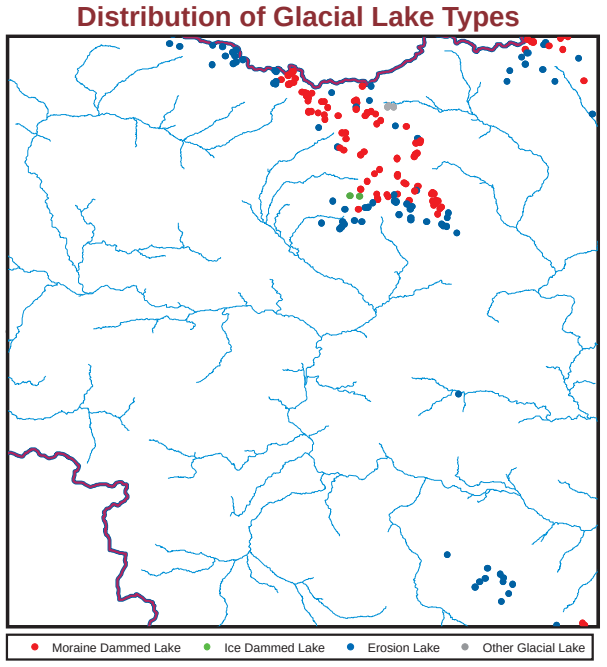
Transboundary Region

Map 14

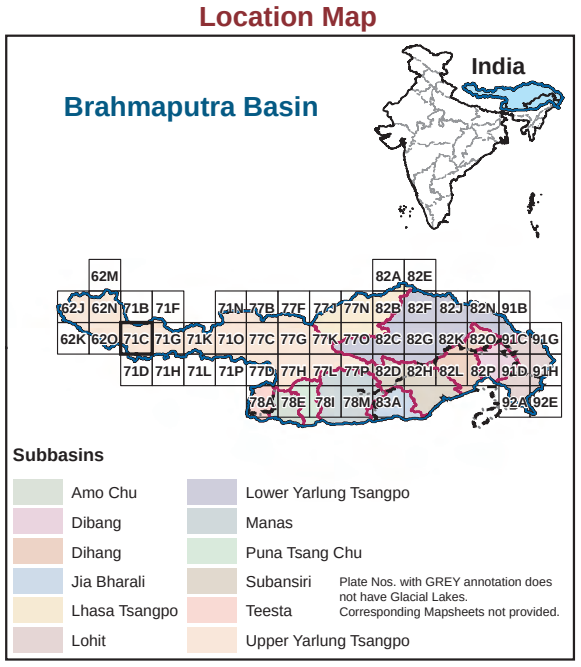
Plate No: 71C

Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	1	3.1
4	> 5,000	183	466.6
Total		**184**	**469.6**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 15** | Plate No: 71D

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	5	0	0	0	0	3	1	**9**
2	**0.5 - 1**	0	0	0	7	0	0	1	0	5	1	**14**
3	**1 - 5**	0	0	0	6	0	0	0	0	4	1	**11**
4	**5 - 10**	1	0	0	1	0	0	0	0	0	0	**2**
5	**10 - 50**	2	0	0	0	0	0	0	0	1	0	**3**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**3**	**0**	**0**	**19**	**0**	**0**	**1**	**0**	**13**	**3**	**39**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

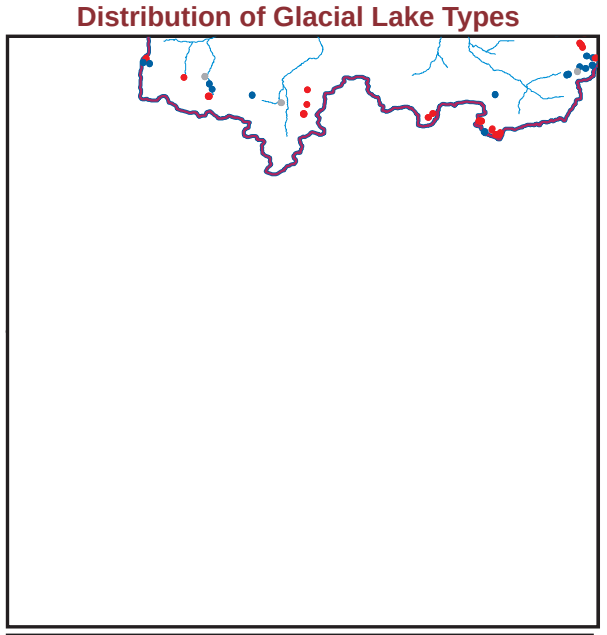
Map 16

Plate No: 71D

Data Source: Resourcesat-2 LISS-IV

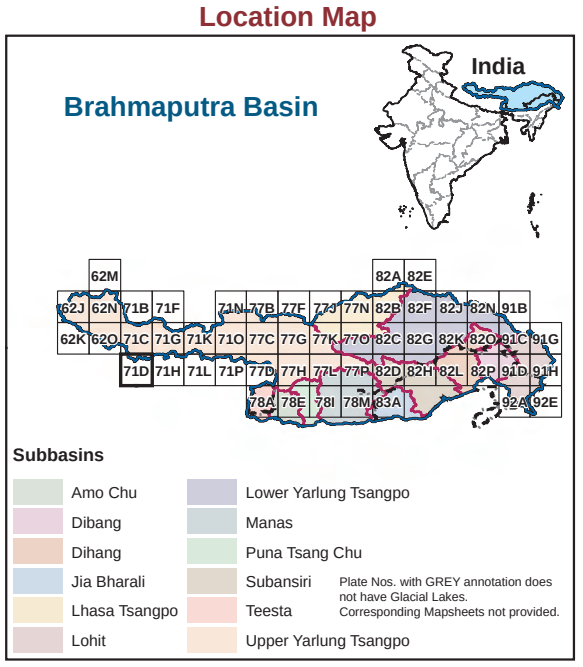
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	39	118.3
	Total	**39**	**118.3**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 17** | Plate No: 71F

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	1	0	0	0	0	3	0	**4**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	6	0	**6**
3	**1 - 5**	0	0	0	6	0	0	0	0	5	0	**11**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	0	**0**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**14**	**0**	**21**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

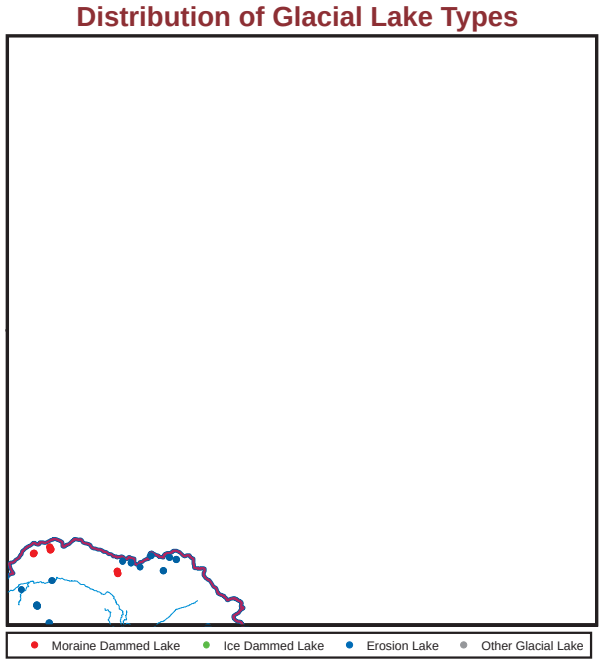
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 18** | **Plate No: 71F**

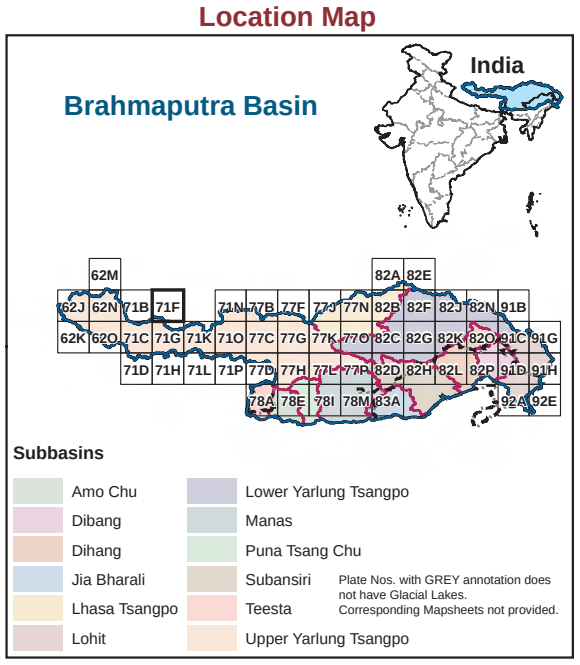
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	21	26.4
	Total	**21**	**26.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

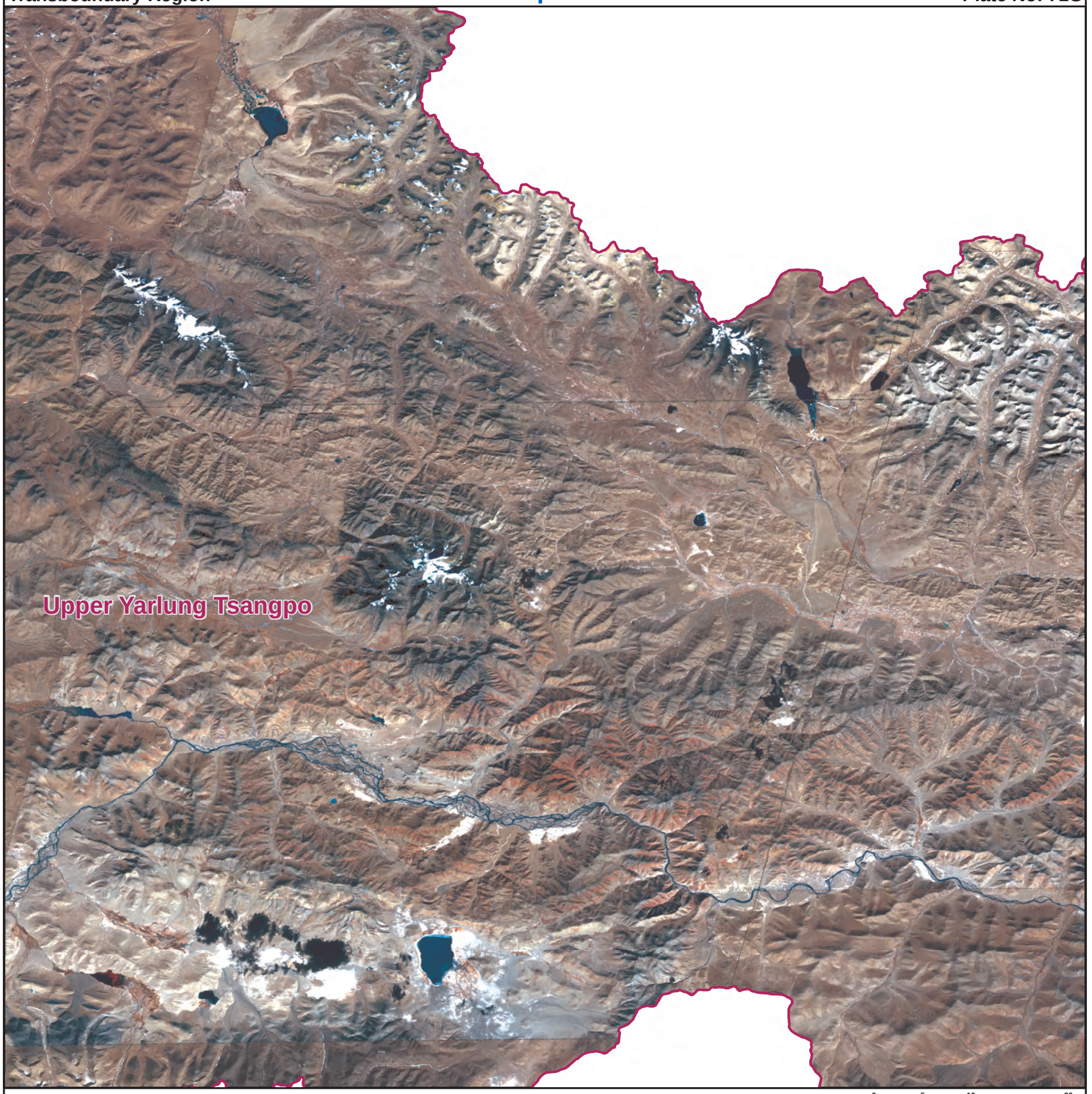
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 19** | Plate No: 71G



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	8	0	0	0	0	16	6	**30**
2	**0.5 - 1**	1	0	0	11	0	0	3	0	21	6	**42**
3	**1 - 5**	1	0	0	19	0	0	1	0	35	13	**69**
4	**5 - 10**	0	0	0	3	0	0	0	0	4	4	**11**
5	**10 - 50**	0	0	0	0	0	0	0	0	3	0	**3**
6	**> 50**	0	0	0	0	0	0	0	0	0	1	**1**
Total		**2**	**0**	**0**	**41**	**0**	**0**	**4**	**0**	**79**	**30**	**156**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

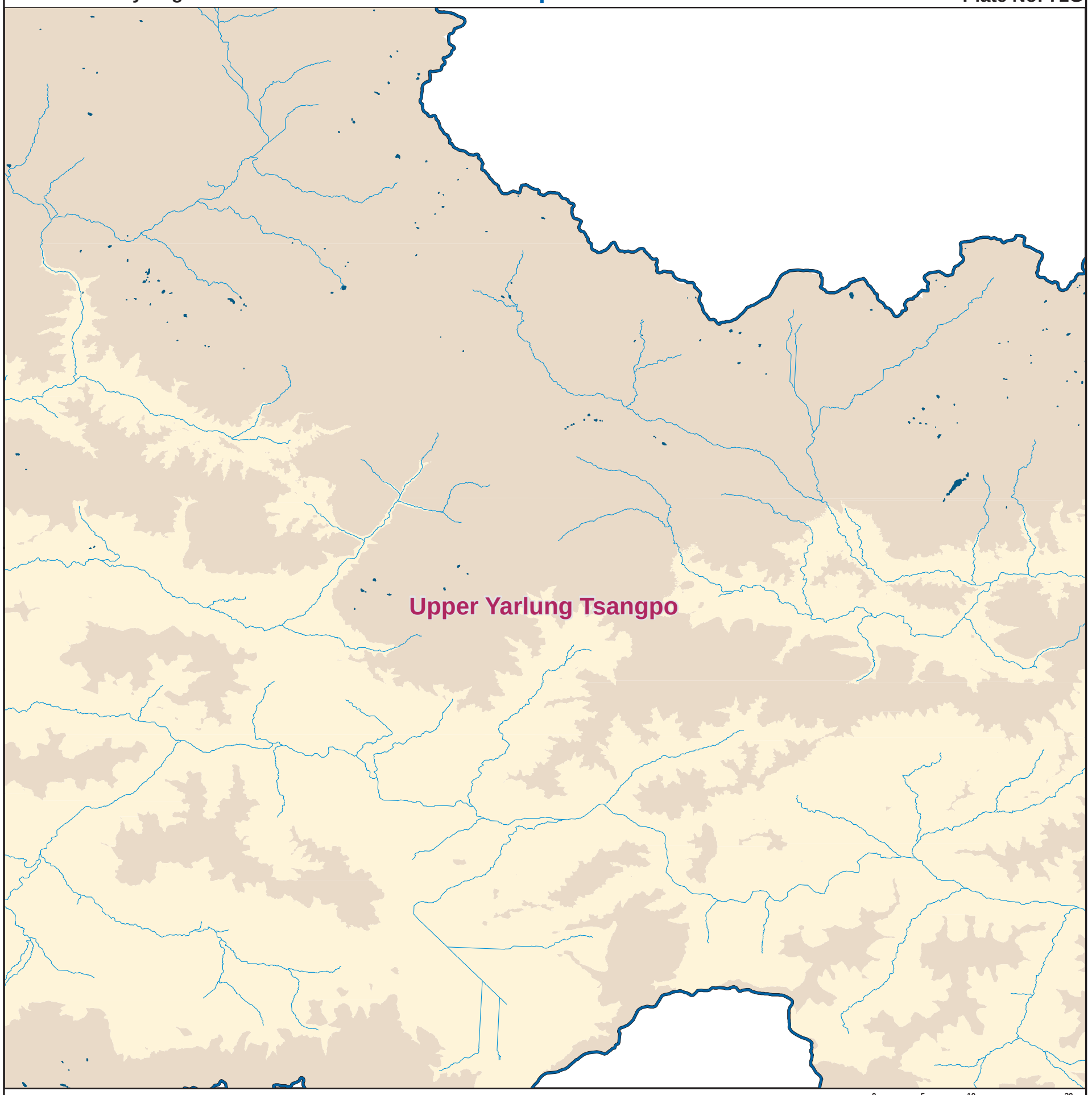
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

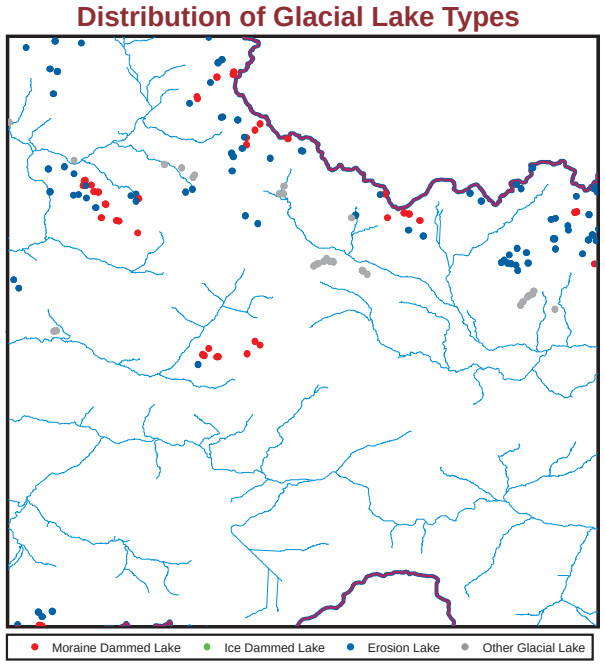
Transboundary Region

Map 20

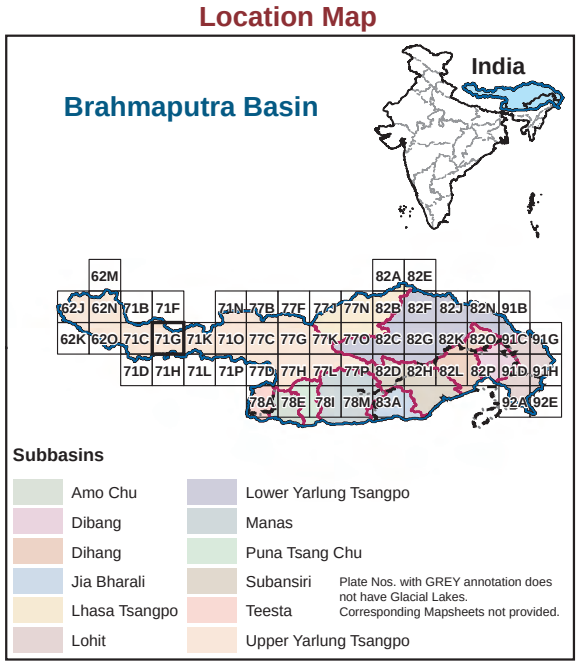
Plate No: 71G



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	3	2.6
4	> 5,000	153	366.5
Total		**156**	**369.1**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | Map 21 | Plate No: 71H

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 3)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	3	0	**3**
2	**0.5 - 1**	0	0	0	2	0	0	0	0	5	0	**7**
3	**1 - 5**	1	0	0	0	0	0	0	0	4	0	**5**
4	**5 - 10**	0	0	0	1	0	0	0	0	0	0	**1**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**12**	**0**	**16**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

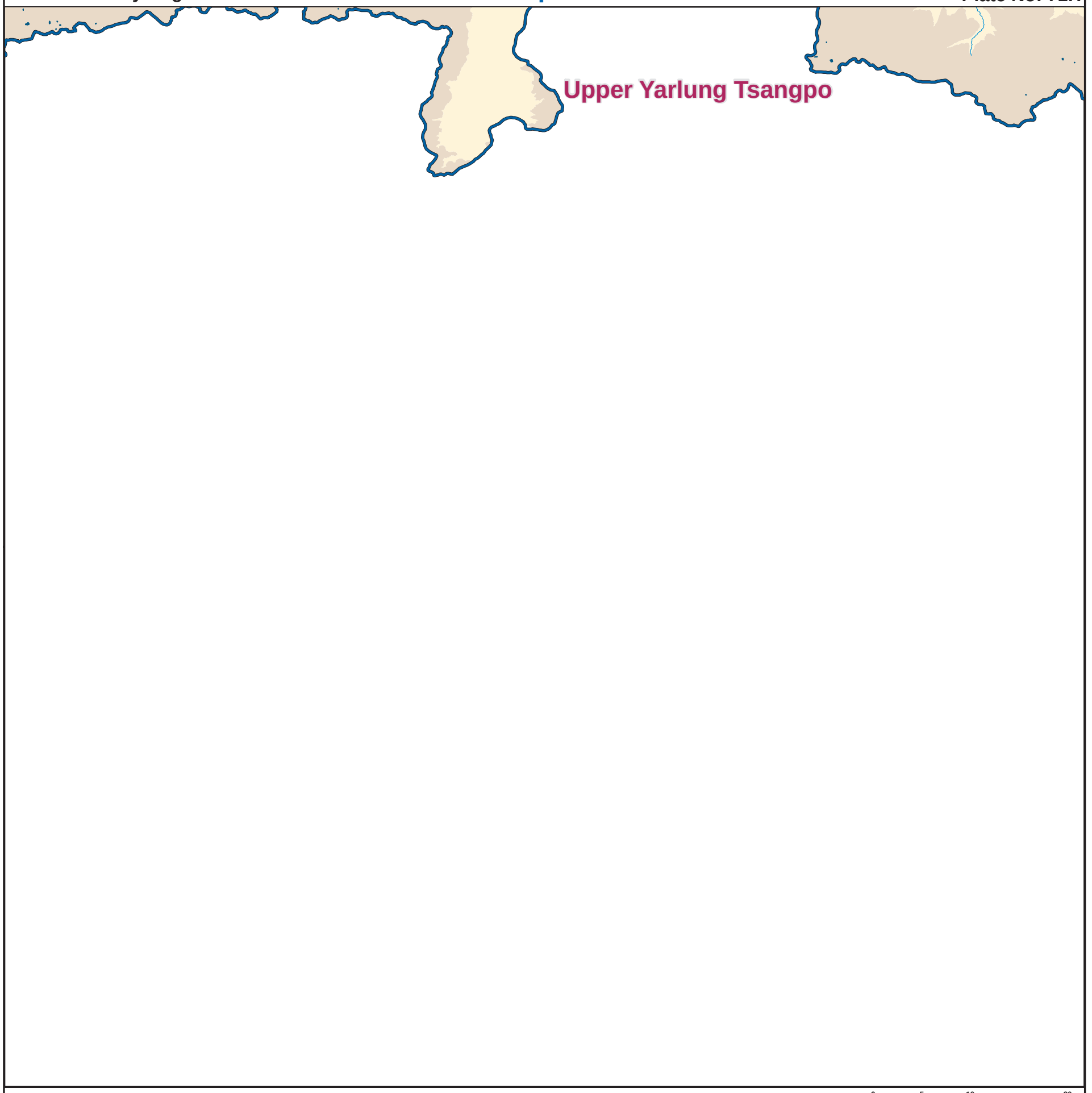
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

Map 22

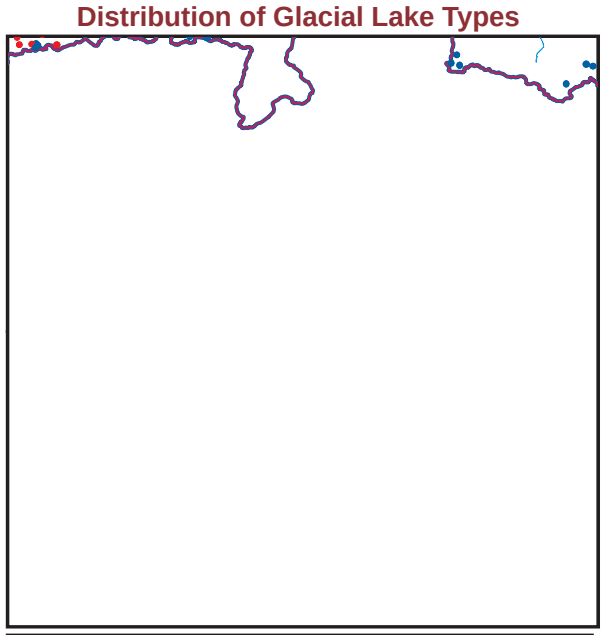
Plate No: 71H



Data Source: Resourcesat-2 LISS-IV

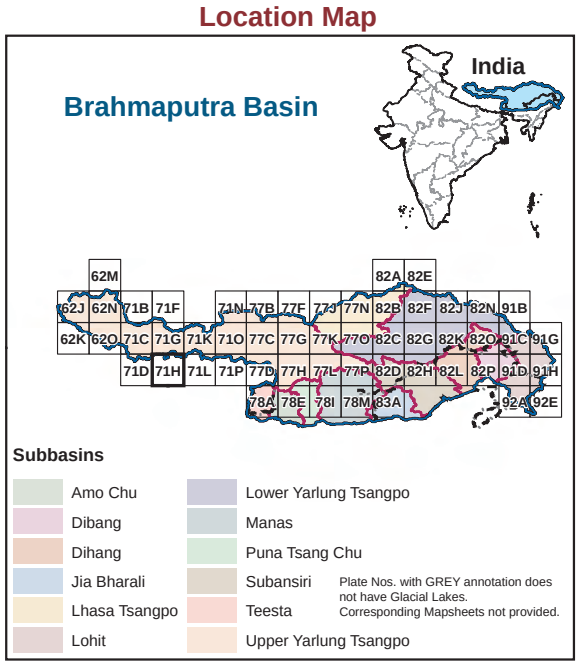
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	16	23.1
	Total	**16**	**23.1**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

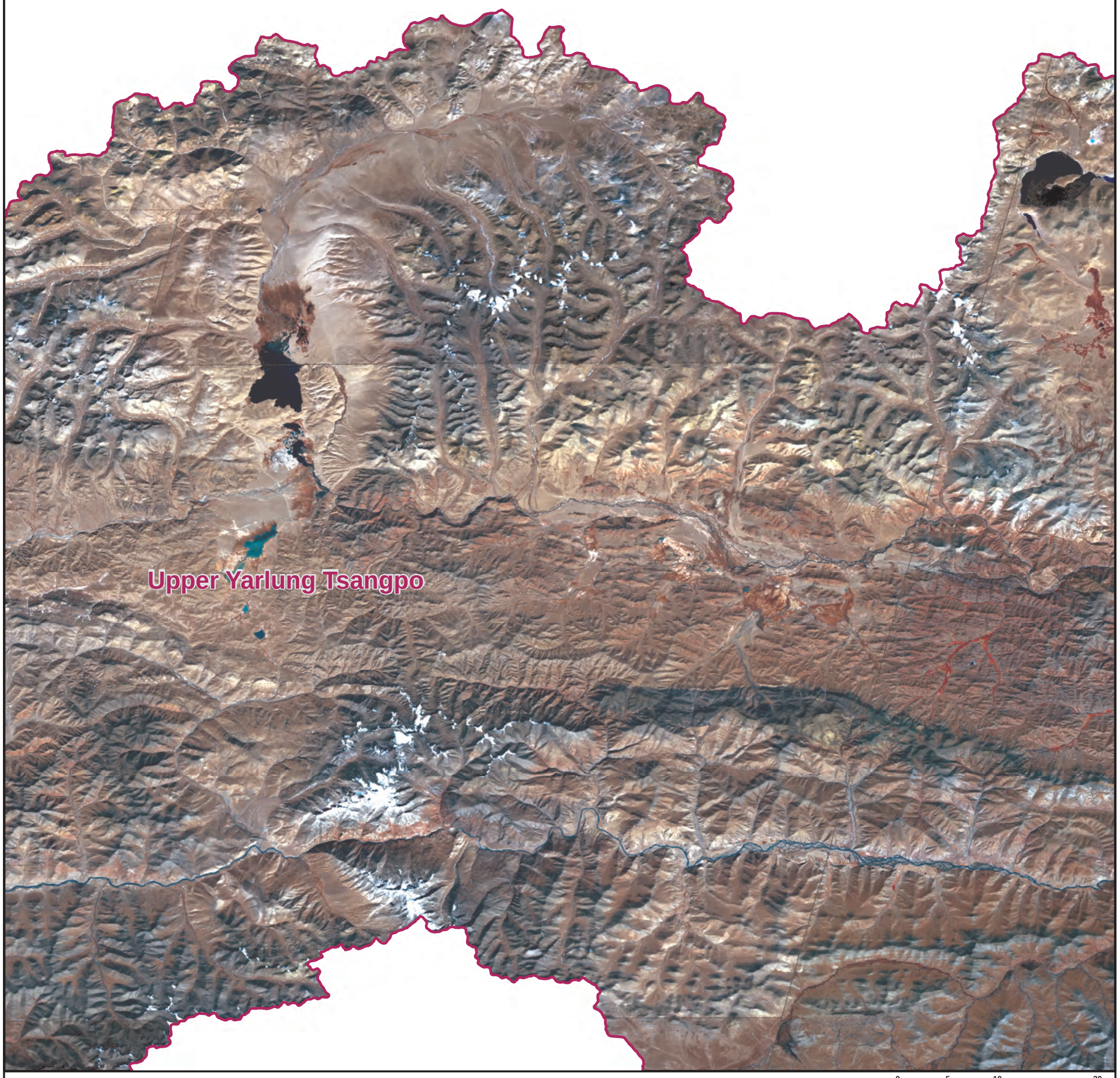
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 23** | Plate No: 71K



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	20	0	0	0	0	16	1	**37**
2	**0.5 - 1**	0	0	1	17	0	0	0	0	22	6	**46**
3	**1 - 5**	0	0	0	29	0	0	0	0	22	4	**55**
4	**5 - 10**	0	0	0	3	0	0	1	0	2	0	**6**
5	**10 - 50**	0	0	0	0	0	0	0	0	1	1	**2**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**1**	**69**	**0**	**0**	**1**	**0**	**63**	**12**	**146**

Legend

Subbasin Boundary — District Boundary

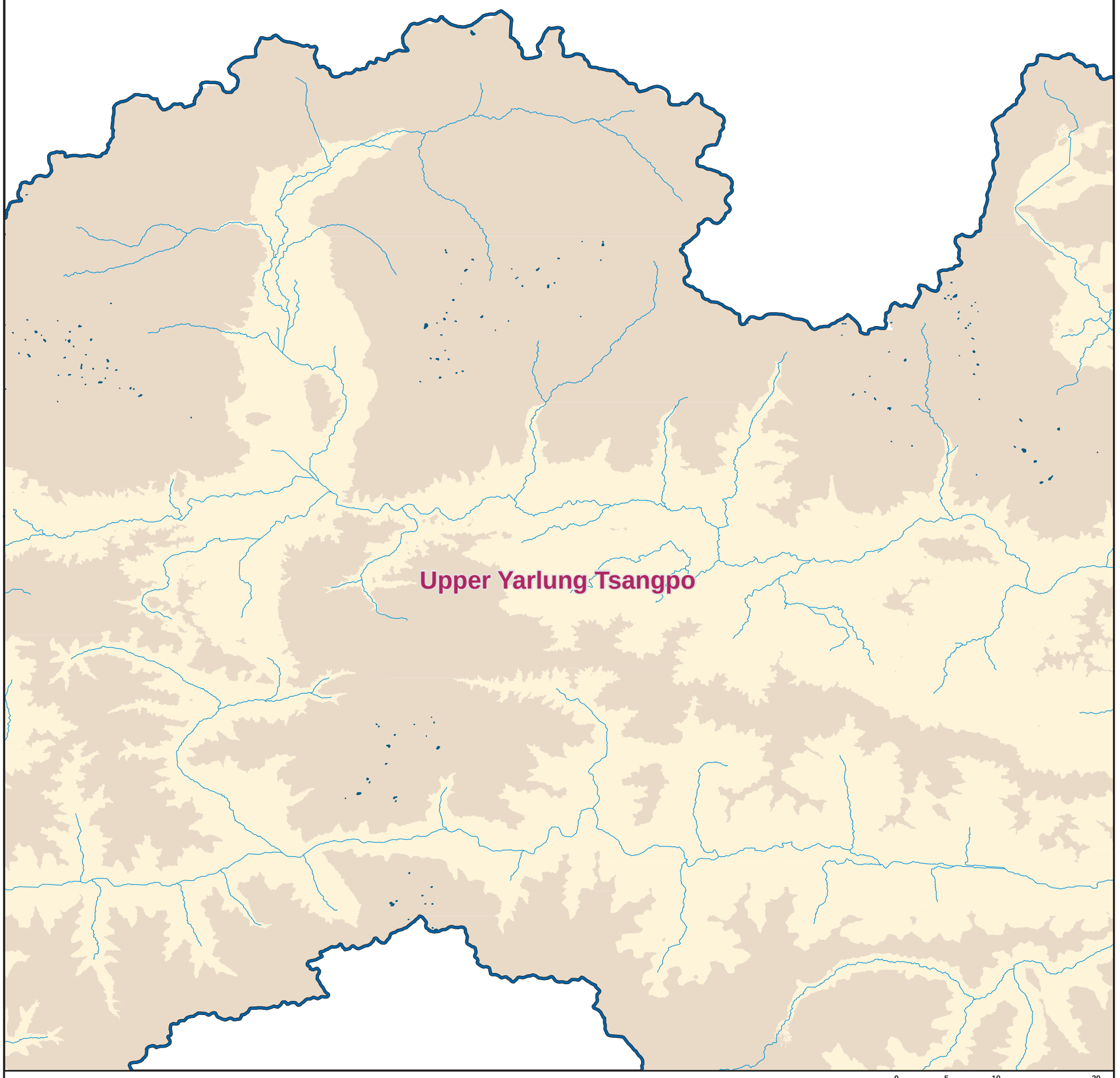
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

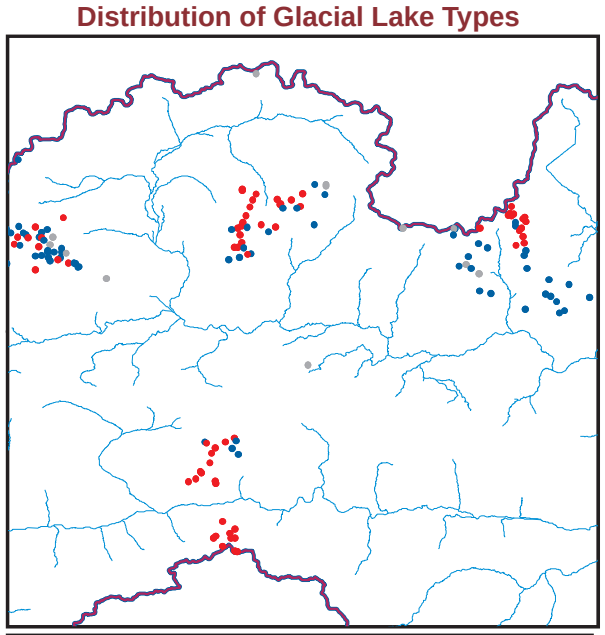
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 24** | Plate No: 71K



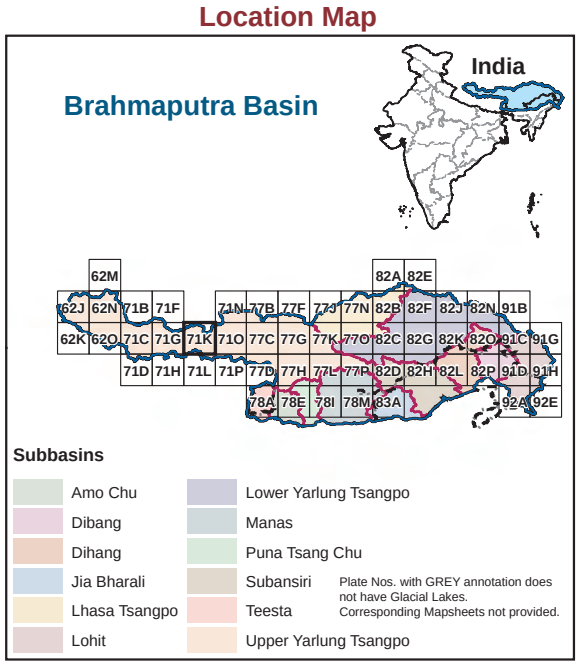
Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	1	0.7
4	> 5,000	145	228.7
	Total	**146**	**229.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 25** | Plate No: 71L

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	0	0	**0**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	1	0	**1**
3	**1 - 5**	0	0	0	0	0	0	0	0	4	0	**4**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	0	**0**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

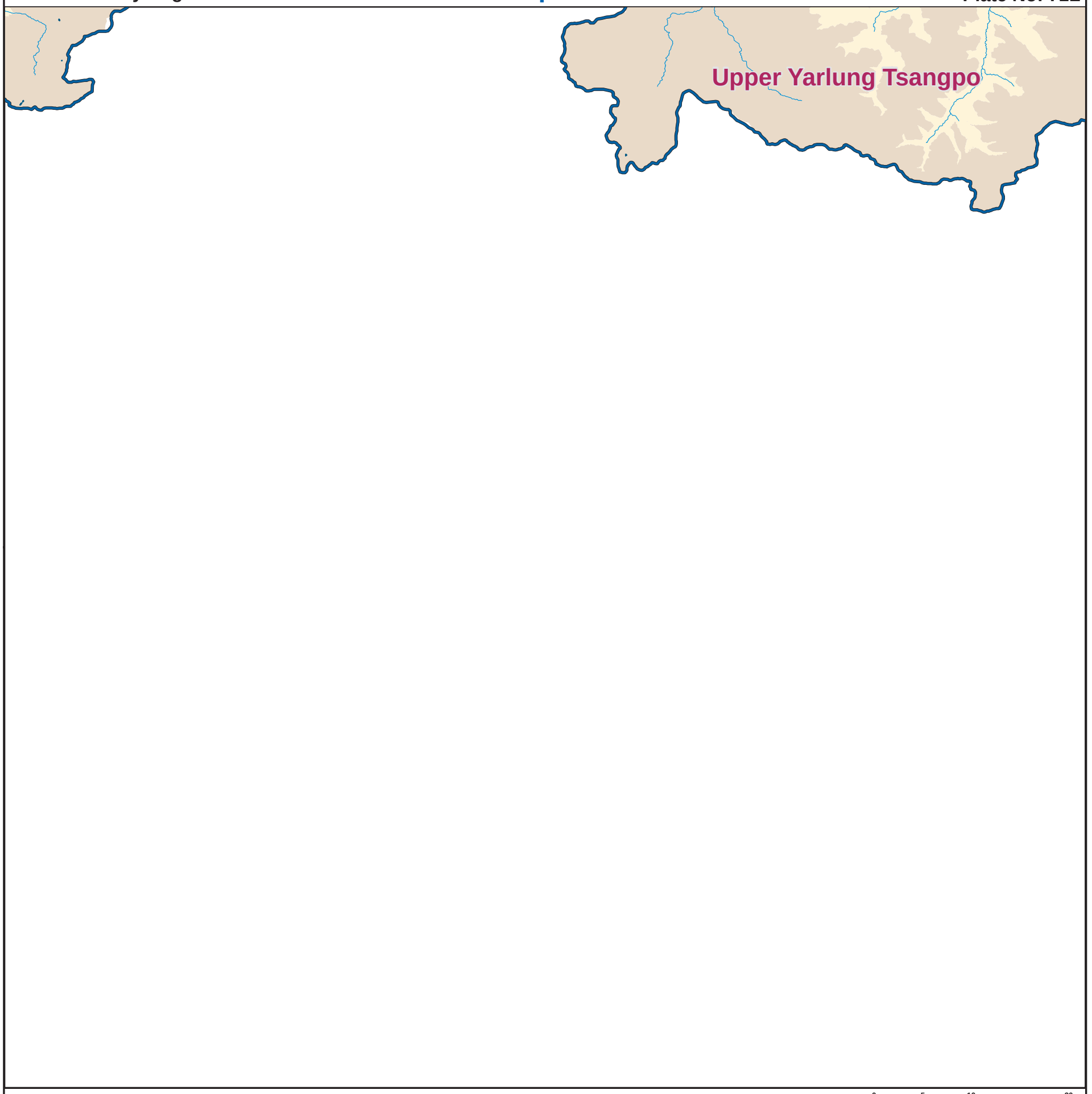
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

Map 26

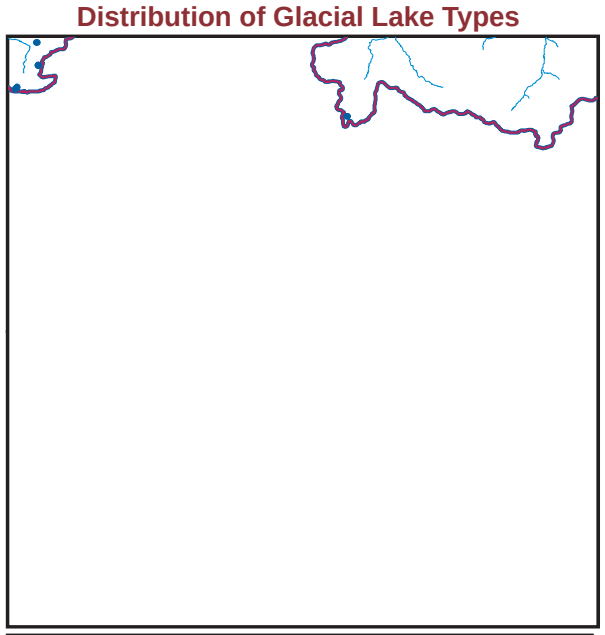
Plate No: 71L



Data Source: Resourcesat-2 LISS-IV

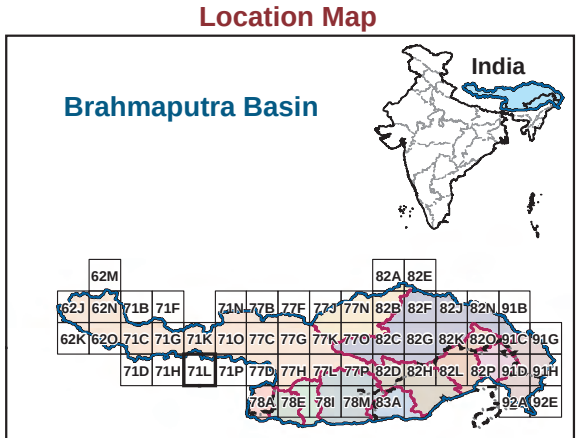
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	5	8.7
	Total	**5**	**8.7**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

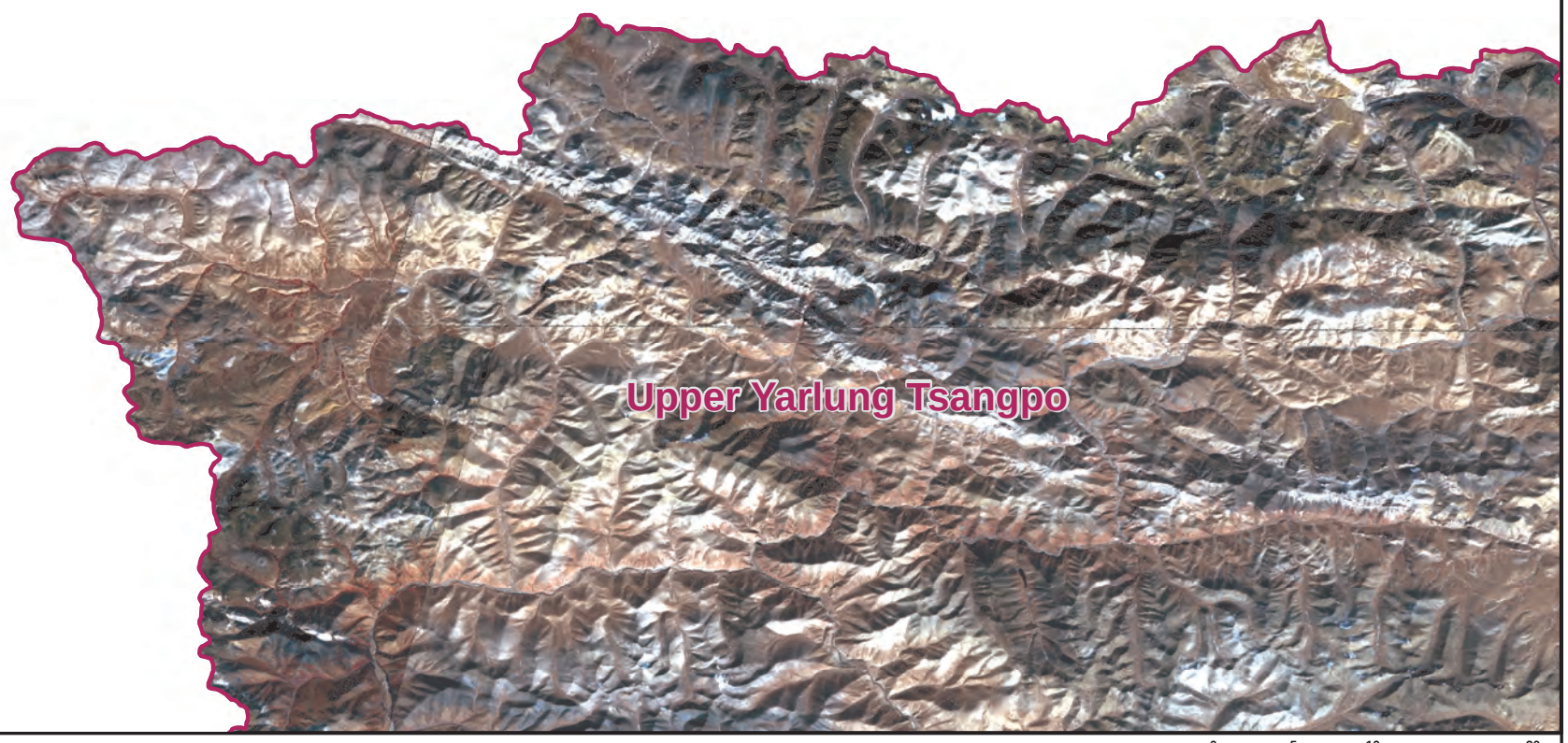
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 27** | Plate No: 71N



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	0	0	**0**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	2	0	**2**
3	**1 - 5**	0	0	0	0	0	0	0	0	1	0	**1**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	0	**0**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	2	**2**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**5**

Legend

Subbasin Boundary — District Boundary

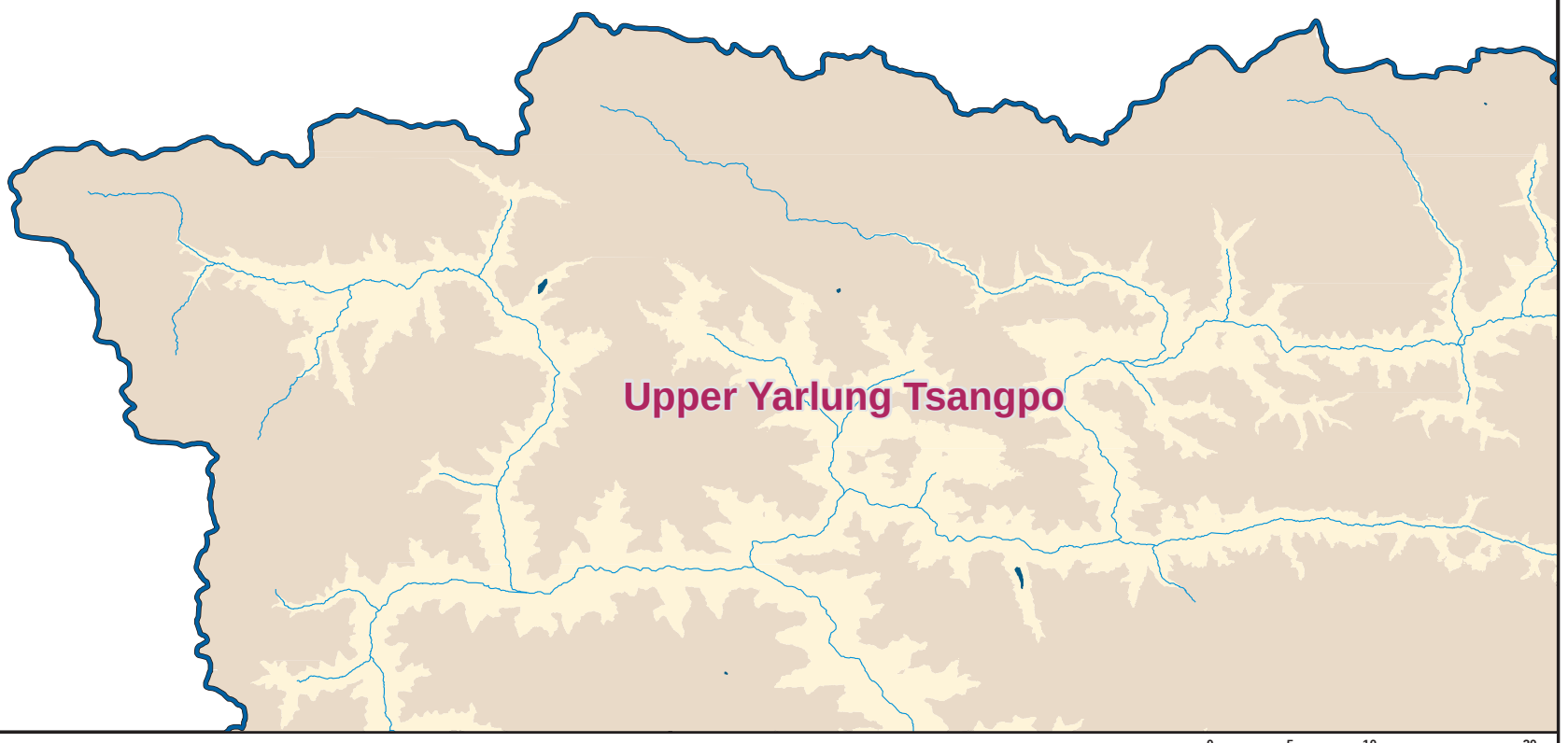
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

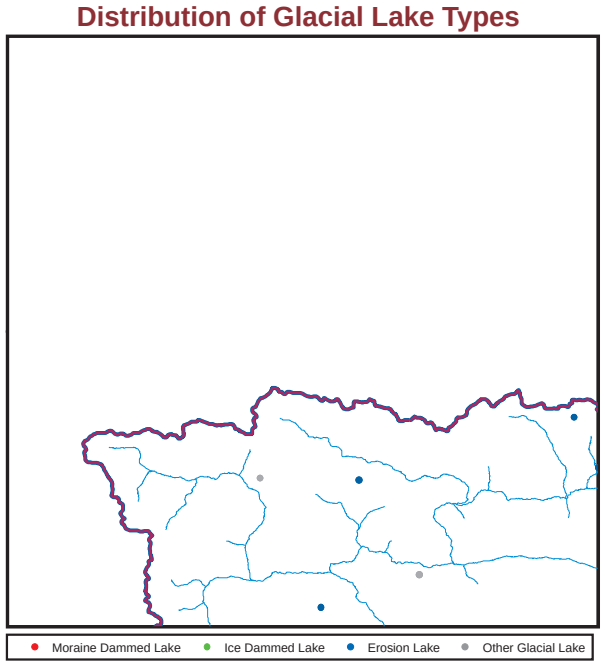
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 28** | **Plate No: 71N**

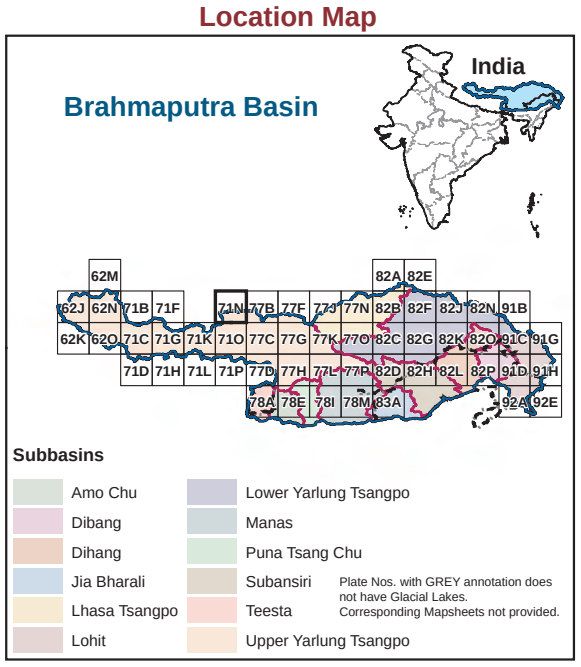


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	2	40.1
4	> 5,000	3	4.1
Total		**5**	**44.2**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

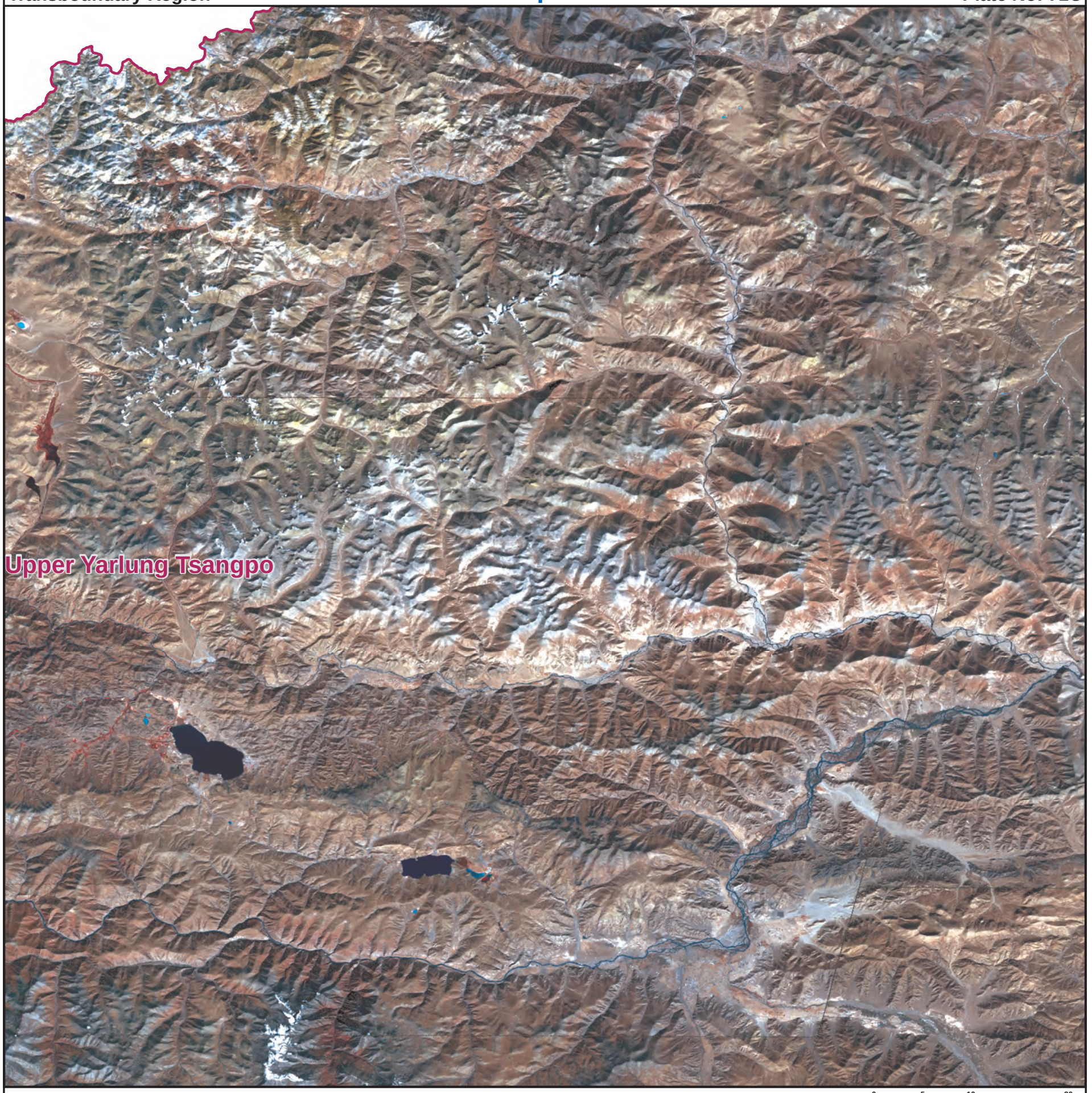
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 29** | Plate No: 71O



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	2	0	0	0	0	8	0	**10**
2	**0.5 - 1**	0	0	0	3	0	0	0	0	13	2	**18**
3	**1 - 5**	0	0	0	1	0	0	0	0	18	0	**19**
4	**5 - 10**	0	0	0	0	0	0	0	0	5	0	**5**
5	**10 - 50**	0	0	0	0	0	0	1	0	3	1	**5**
6	**> 50**	0	0	0	0	0	0	0	0	0	1	**1**
Total		**0**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**47**	**4**	**58**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

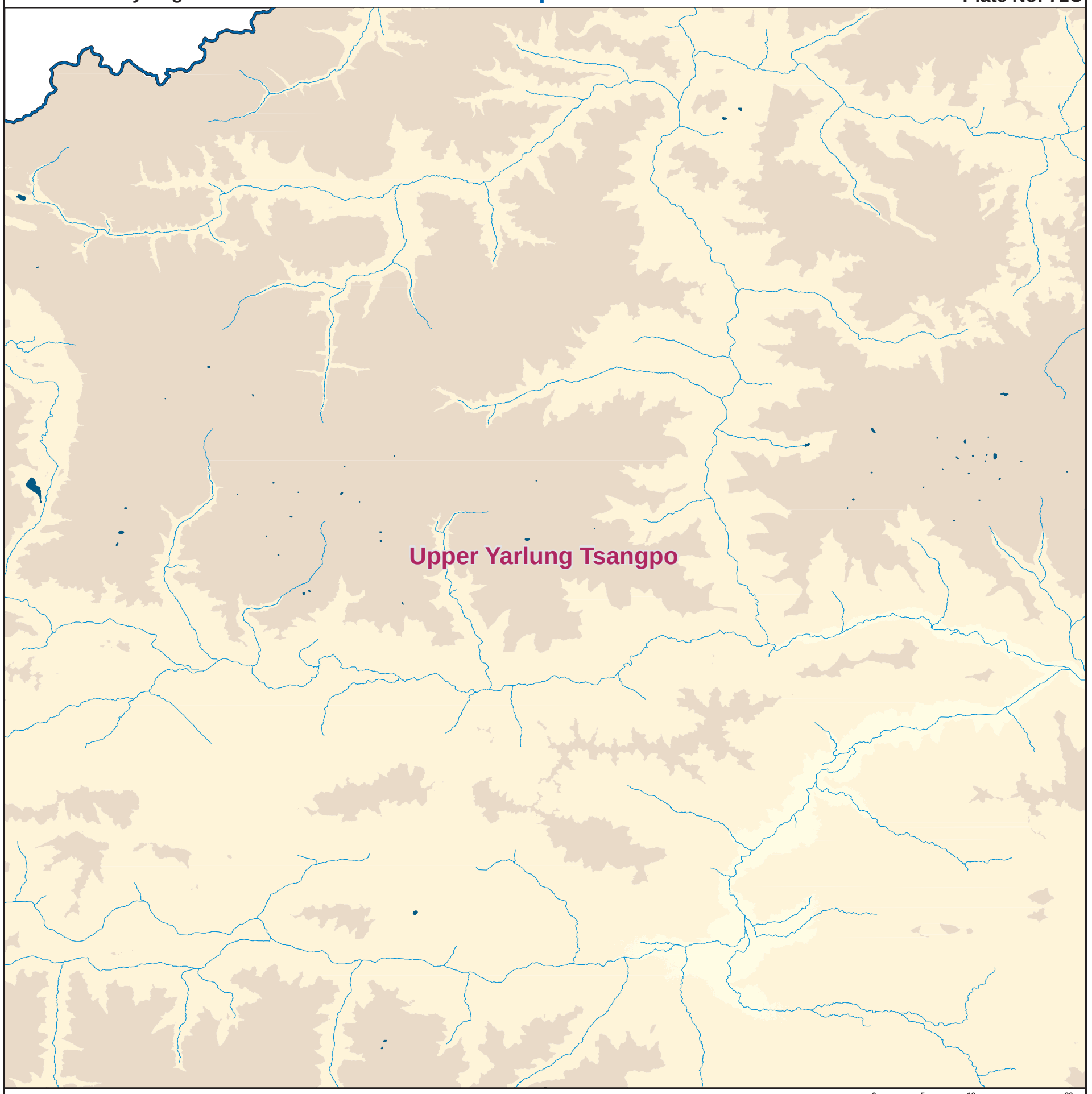
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

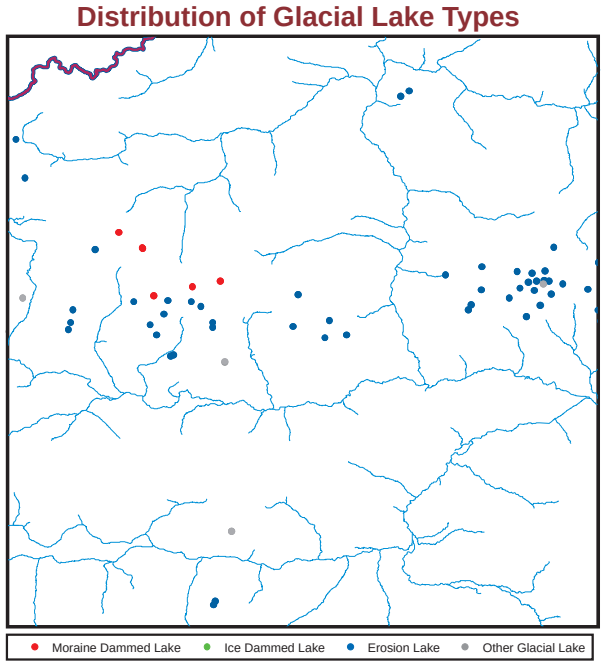
Transboundary Region

Map 30

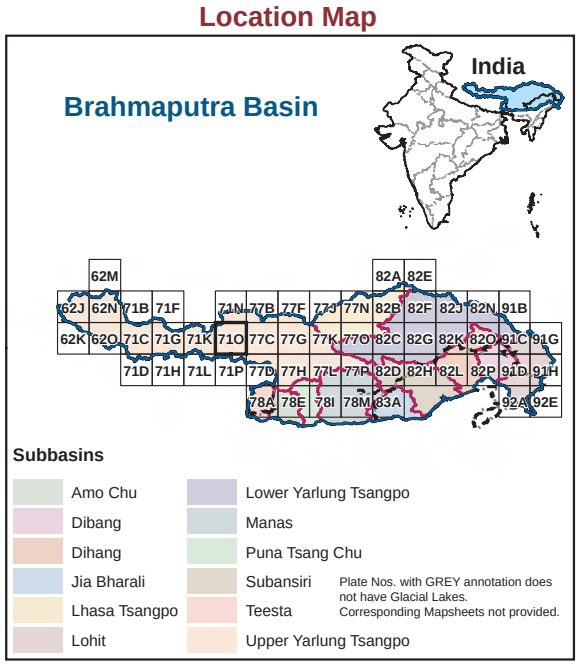
Plate No: 71O



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	6	176.4
4	> 5,000	52	107.3
	Total	**58**	**283.7**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 31** | Plate No: 71P

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	3	0	0	0	0	5	0	**8**
2	**0.5 - 1**	0	0	0	2	0	0	0	0	3	0	**5**
3	**1 - 5**	0	0	0	8	0	0	0	0	5	2	**15**
4	**5 - 10**	0	0	0	2	0	0	0	0	1	0	**3**
5	**10 - 50**	2	0	0	1	0	0	0	0	0	1	**4**
6	**> 50**	0	0	0	0	0	0	0	0	0	1	**1**
Total		**2**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**14**	**4**	**36**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

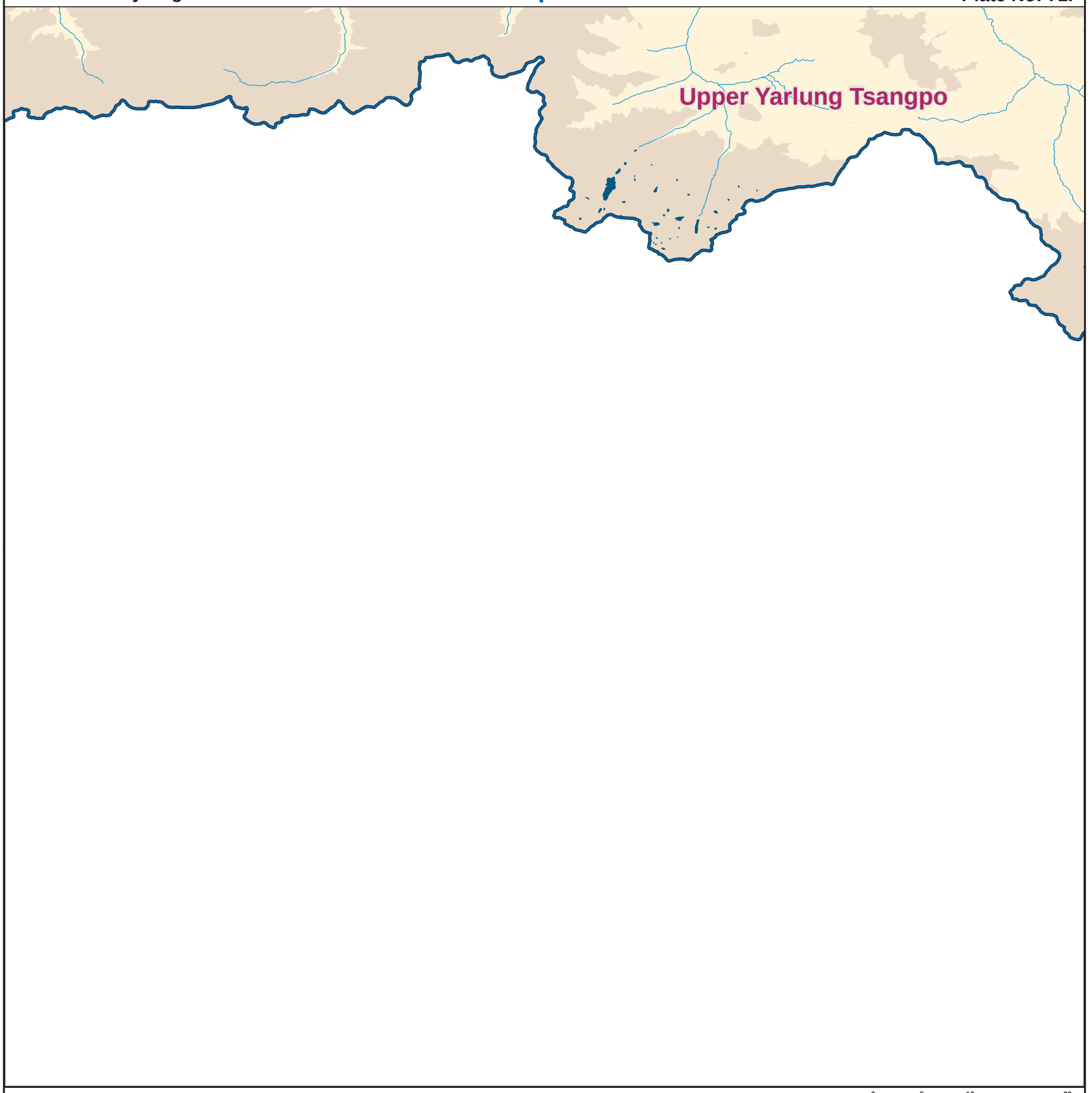
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

Map 32

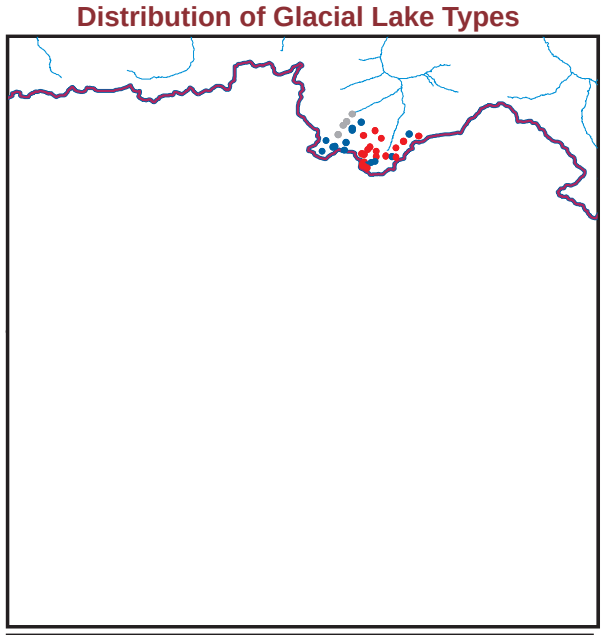
Plate No: 71P



Data Source: Resourcesat-2 LISS-IV

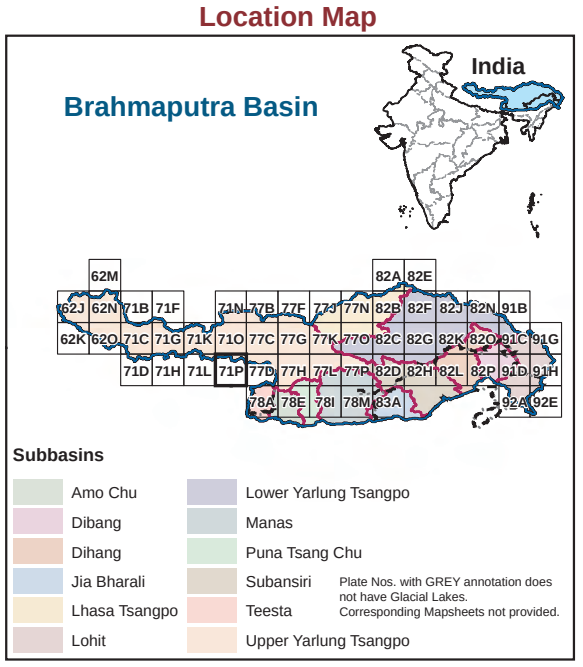
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	36	258.9
	Total	**36**	**258.9**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

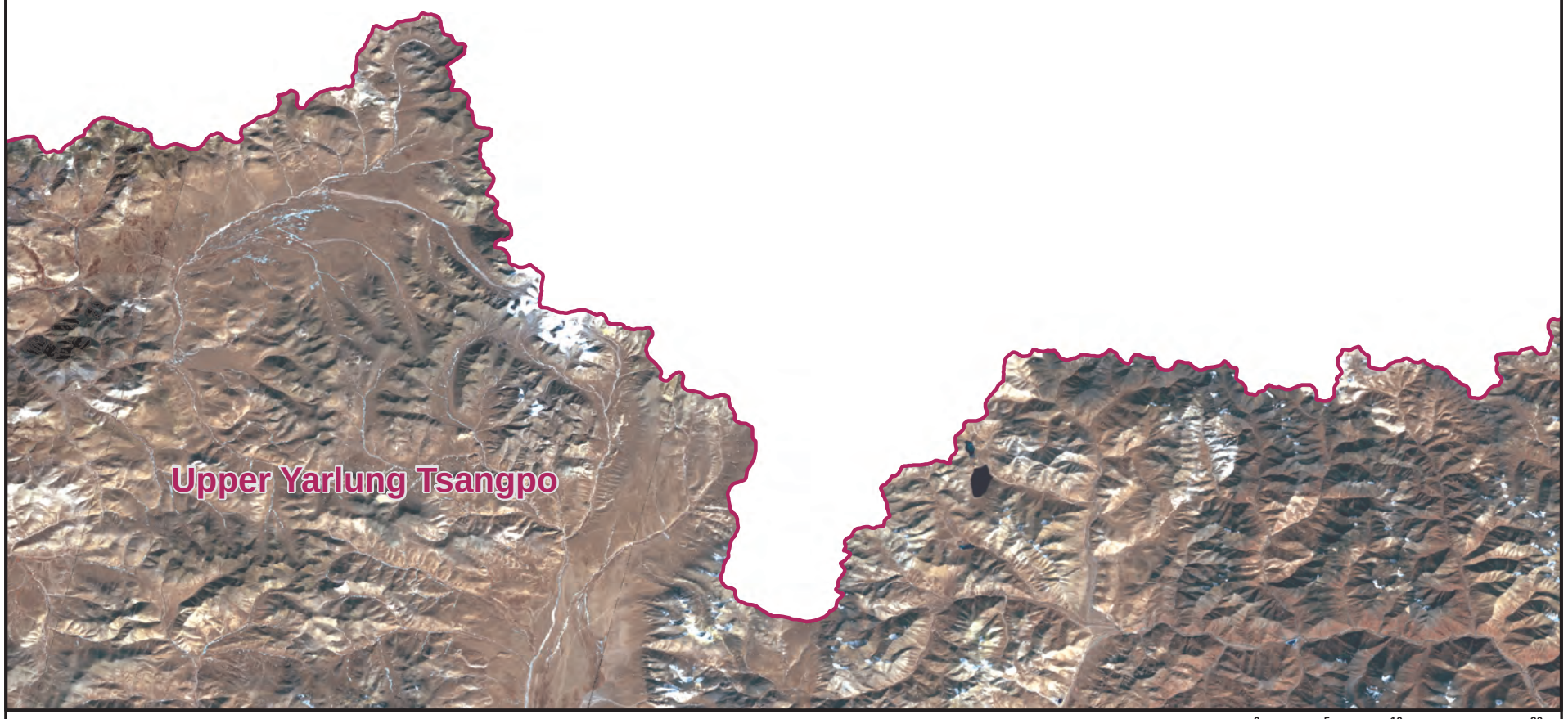
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 33** | Plate No: 77B



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	1	0	**1**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	4	0	**4**
3	**1 - 5**	0	0	0	0	0	0	0	0	1	0	**1**
4	**5 - 10**	0	0	0	0	0	0	0	0	2	0	**2**
5	**10 - 50**	0	0	0	0	0	0	0	0	1	0	**1**
6	**> 50**	0	0	0	0	0	0	0	0	2	0	**2**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**11**

Legend

Subbasin Boundary

District Boundary

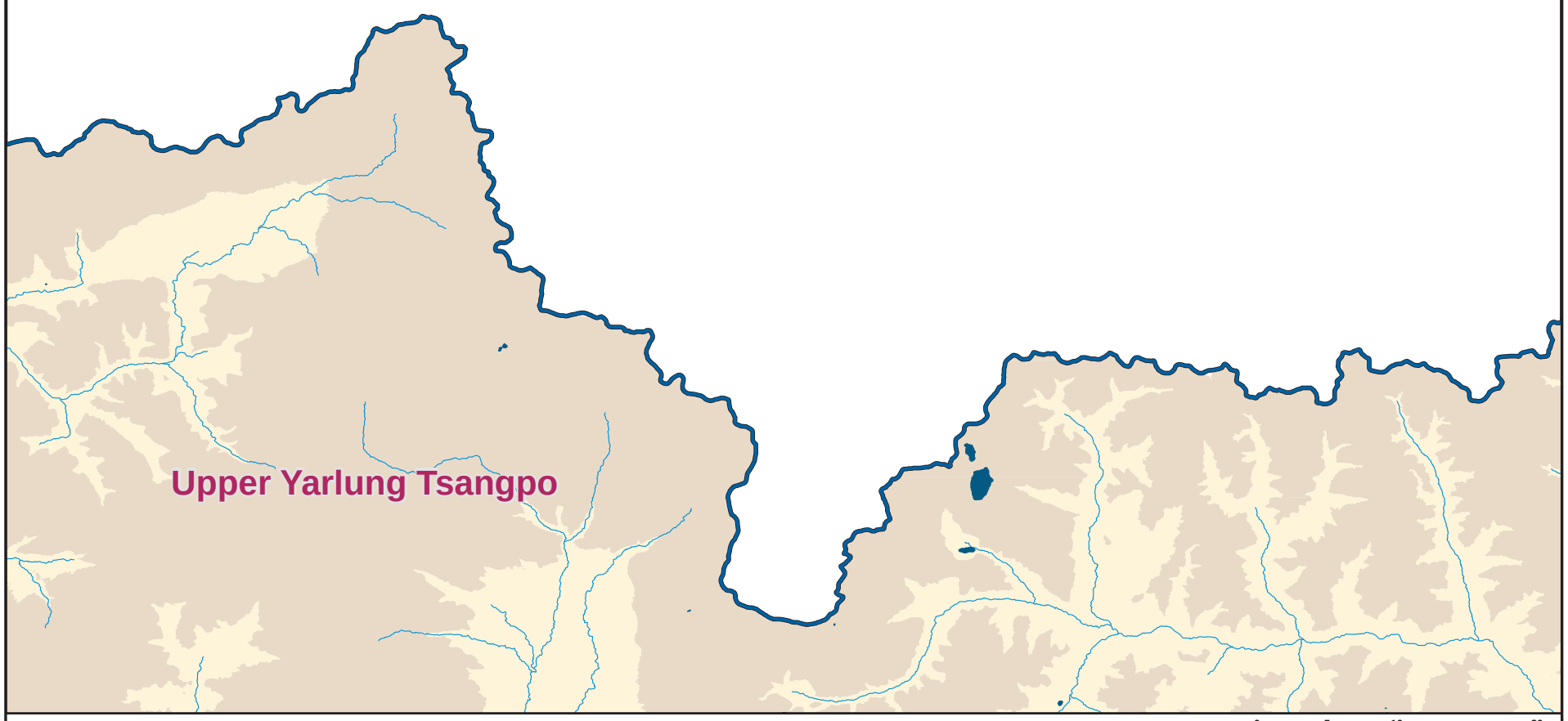
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

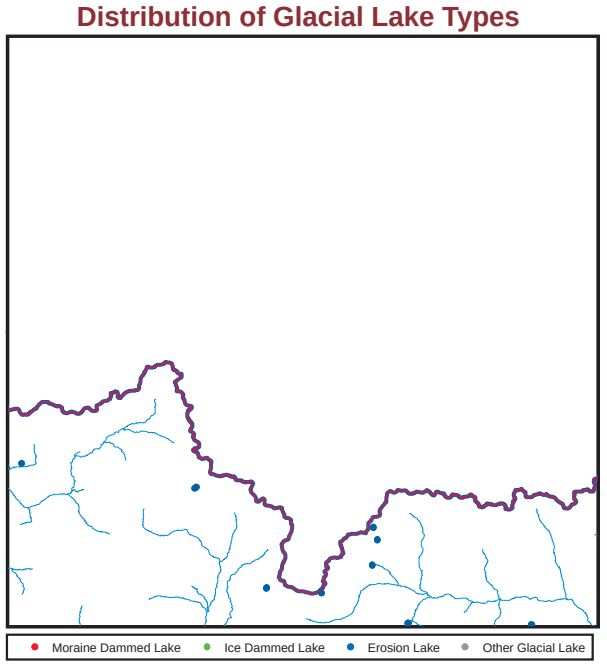
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

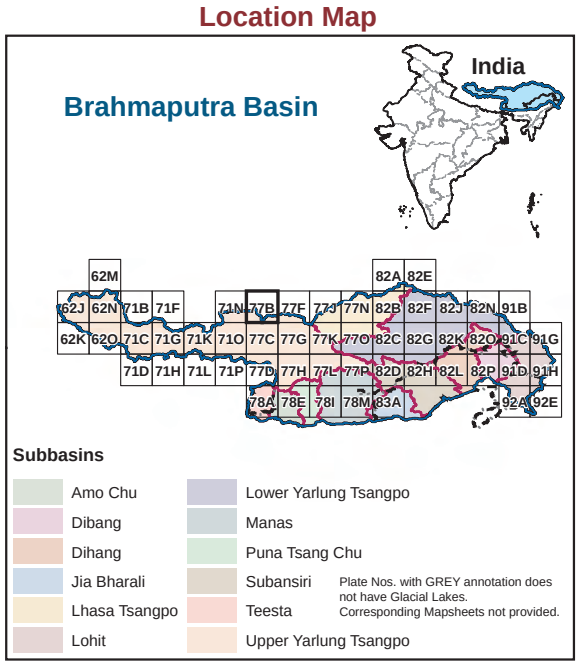
Transboundary Region | **Map 34** | **Plate No: 77B**



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	4	34.4
4	> 5,000	7	274.4
	Total	**11**	**308.8**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

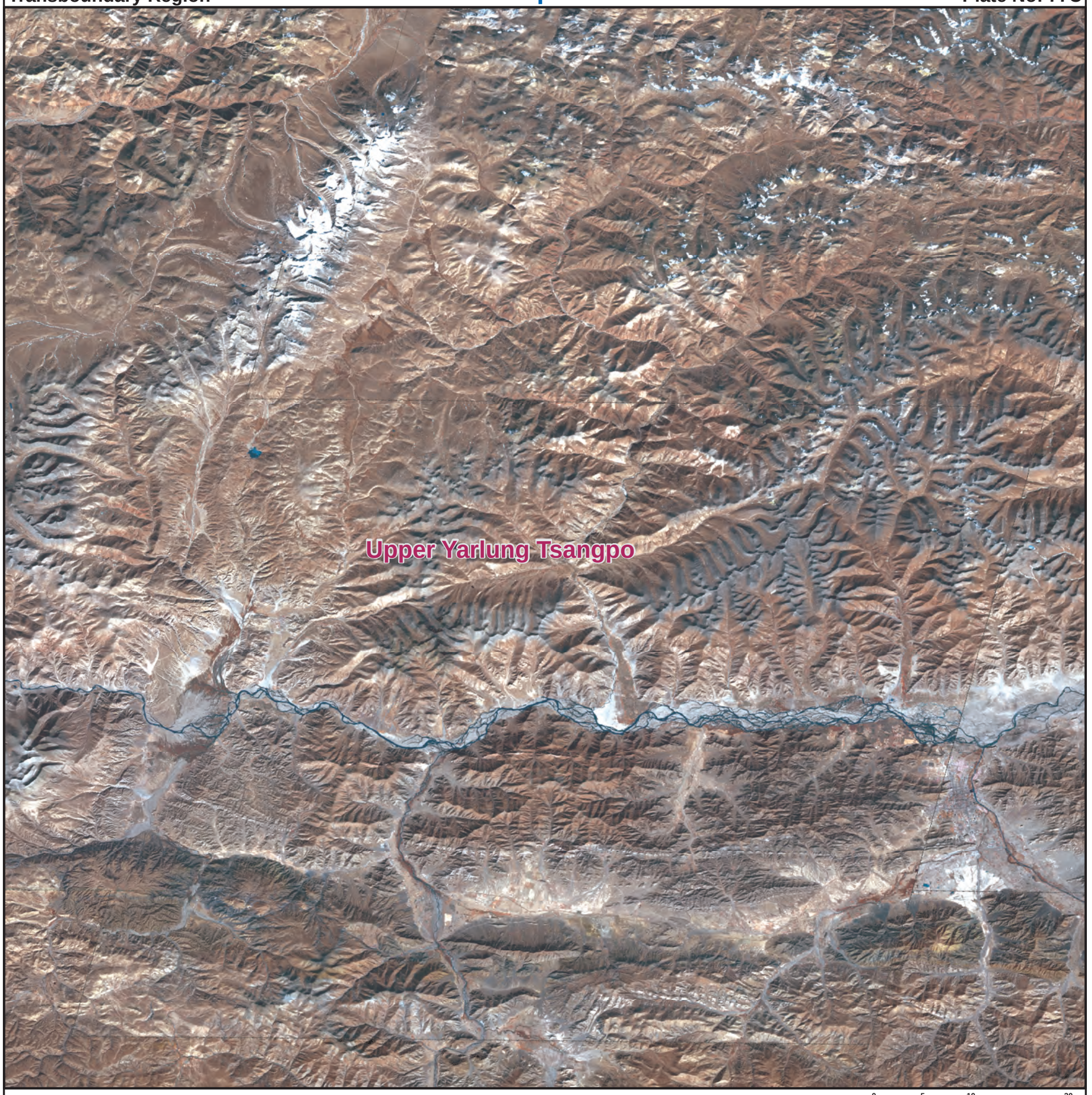
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 35** | Plate No: 77C



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	4	0	0	0	0	12	0	**16**
2	**0.5 - 1**	0	0	0	6	0	0	1	0	19	1	**27**
3	**1 - 5**	0	0	0	13	0	0	0	0	29	2	**44**
4	**5 - 10**	0	0	0	4	0	0	1	0	6	0	**11**
5	**10 - 50**	0	0	0	0	0	0	0	0	4	0	**4**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**27**	**0**	**0**	**2**	**0**	**70**	**3**	**102**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

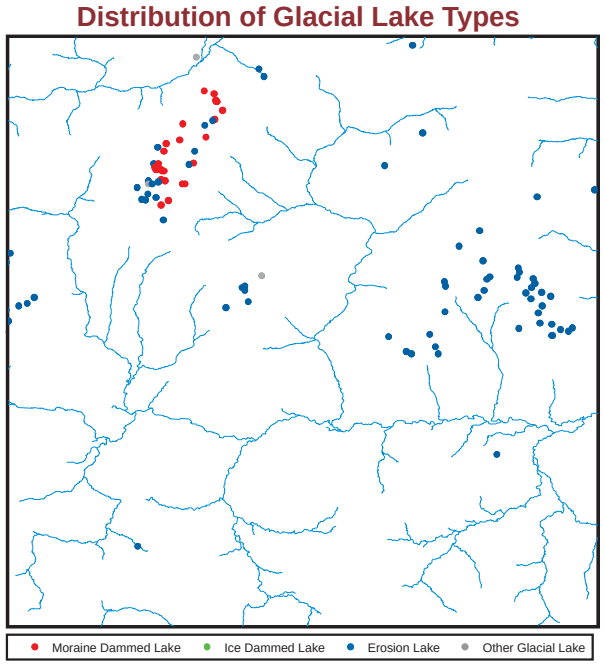
(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

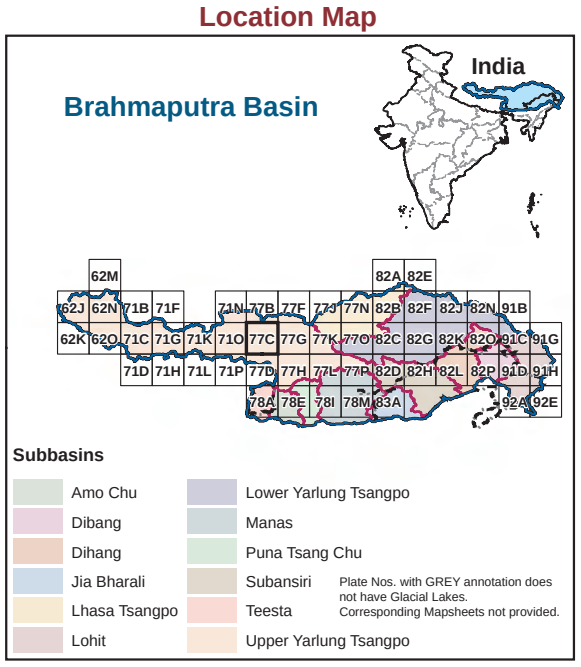
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 36** | Plate No: 77C

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	1	1.2
3	4,001 - 5,000	4	5.4
4	> 5,000	97	266.2
	Total	**102**	**272.8**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Sikkim | Map 37 | Plate No: 77D

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	2	1	0	0	0	28	1	**32**
2	**0.5 - 1**	0	0	0	4	0	0	0	0	22	2	**28**
3	**1 - 5**	0	0	0	7	0	0	3	0	32	4	**46**
4	**5 - 10**	0	0	0	2	0	0	0	0	1	0	**3**
5	**10 - 50**	3	0	0	1	0	0	1	0	1	0	**6**
6	**> 50**	3	0	0	1	0	0	0	0	0	0	**4**
Total		**6**	**0**	**0**	**17**	**1**	**0**	**4**	**0**	**84**	**7**	**119**

Legend

Subbasin Boundary

District Boundary

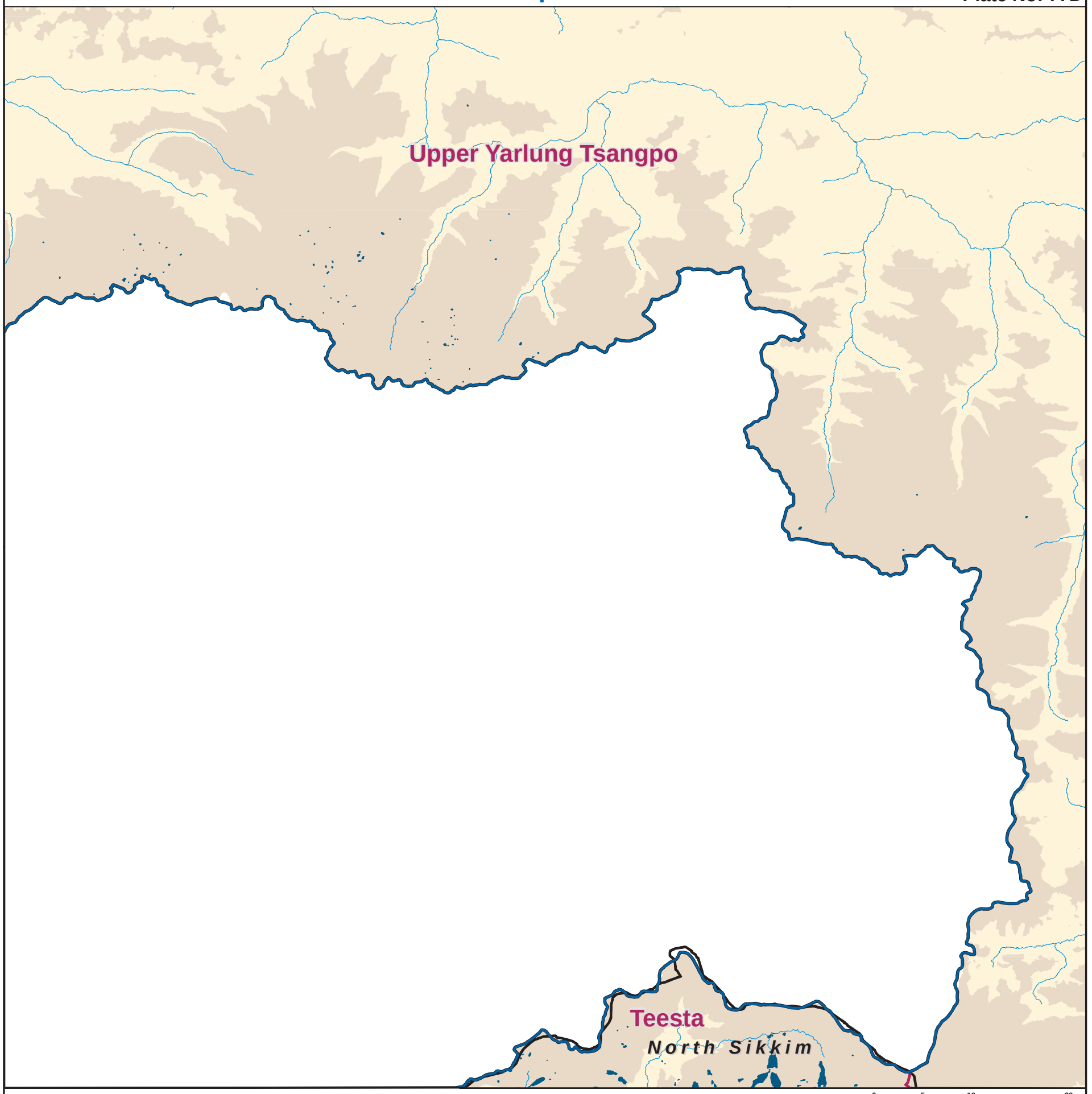
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

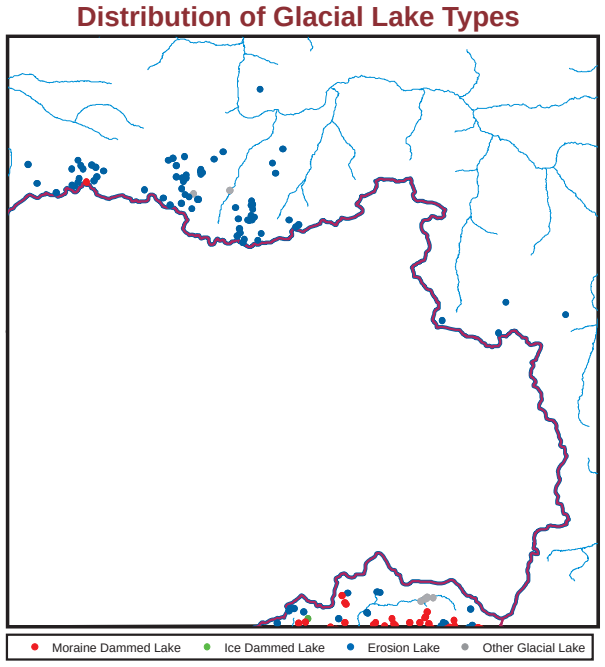
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Sikkim | **Map 38** | Plate No: 77D

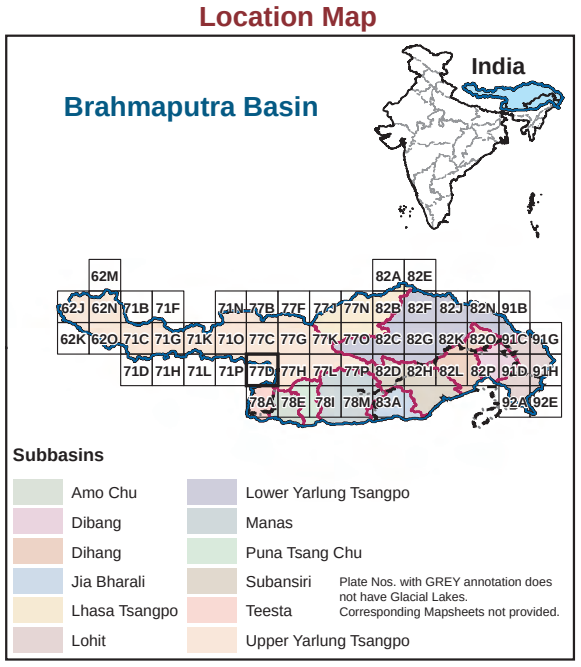


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	8	46.7
4	> 5,000	111	710.8
	Total	**119**	**757.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

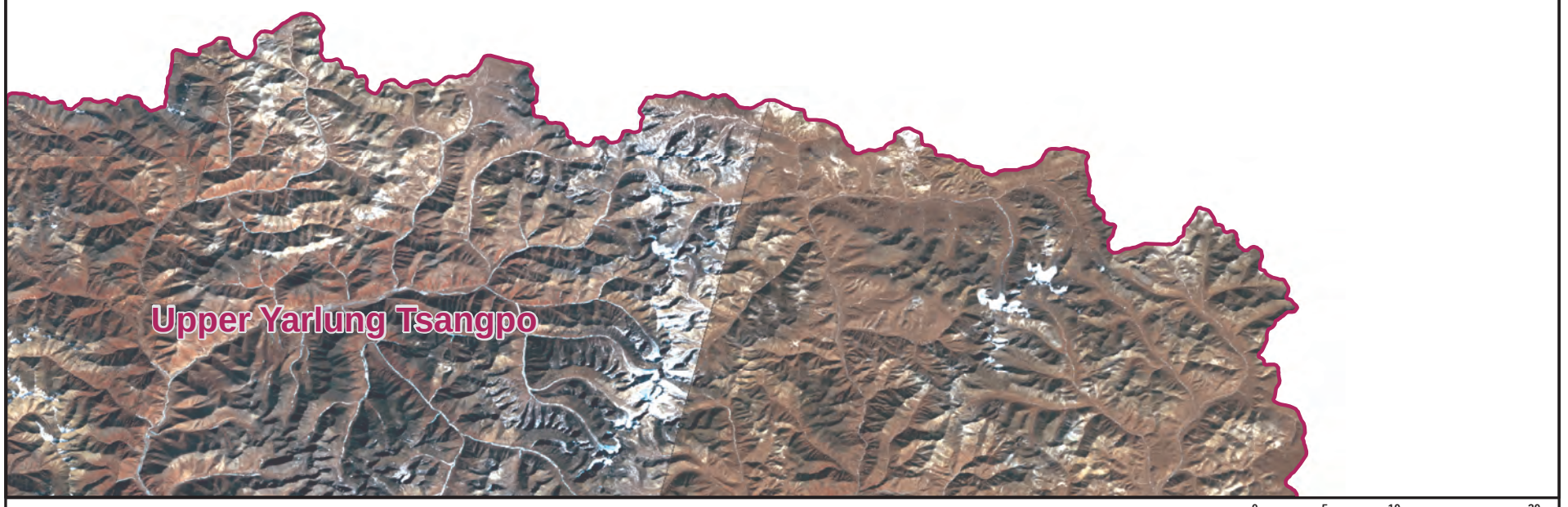
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 39** | Plate No: 77F



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	4	1	0	0	0	2	0	**7**
2	**0.5 - 1**	0	0	0	2	1	0	0	0	6	0	**9**
3	**1 - 5**	0	0	0	3	0	0	1	0	8	0	**12**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	0	**0**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**9**	**2**	**0**	**1**	**0**	**16**	**0**	**28**

Legend

Subbasin Boundary

District Boundary

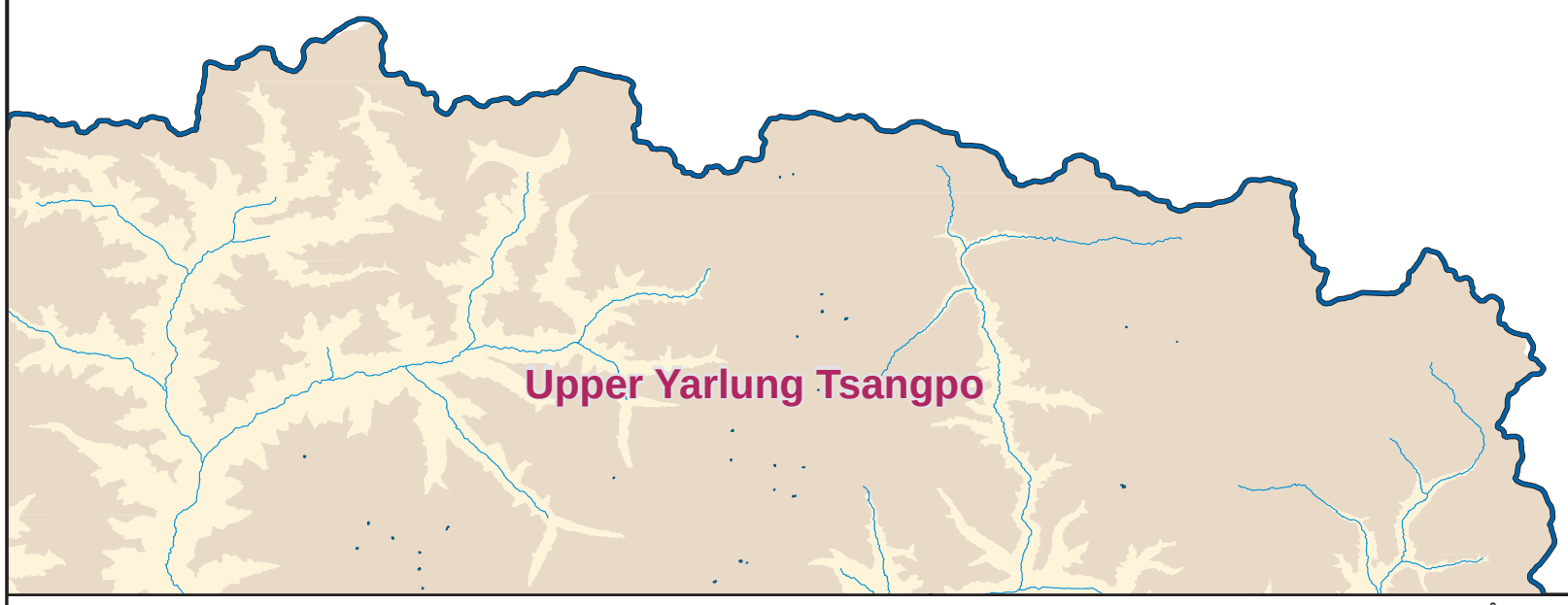
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

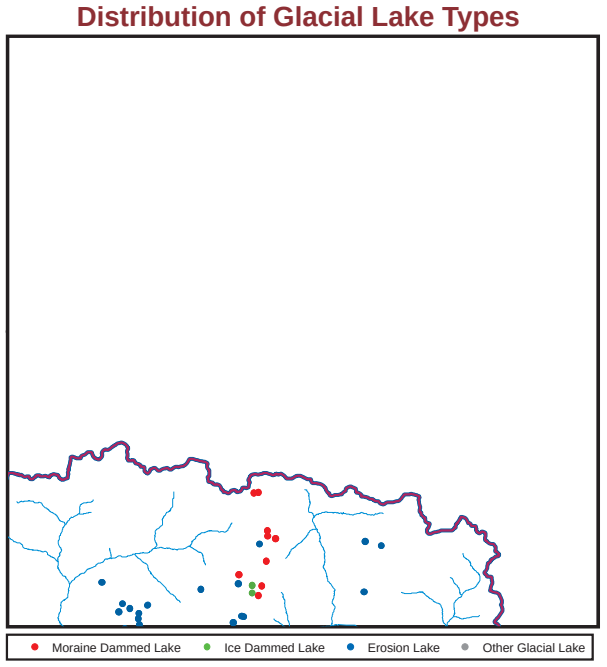
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 40** | **Plate No: 77F**

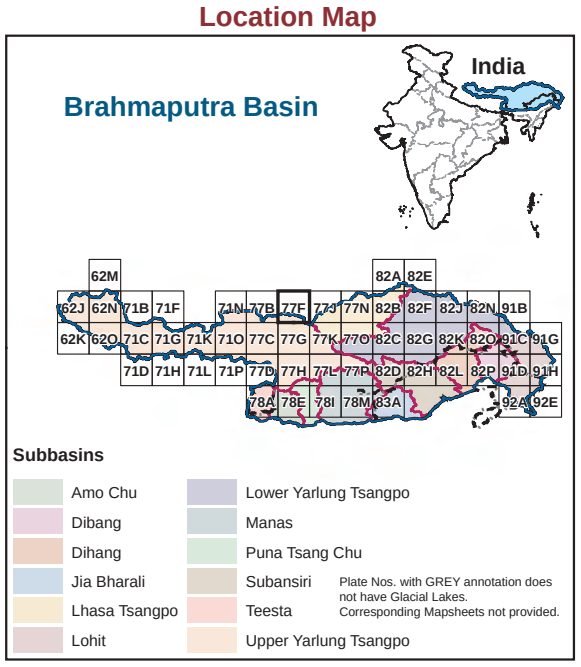


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	28	25.5
	Total	**28**	**25.5**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

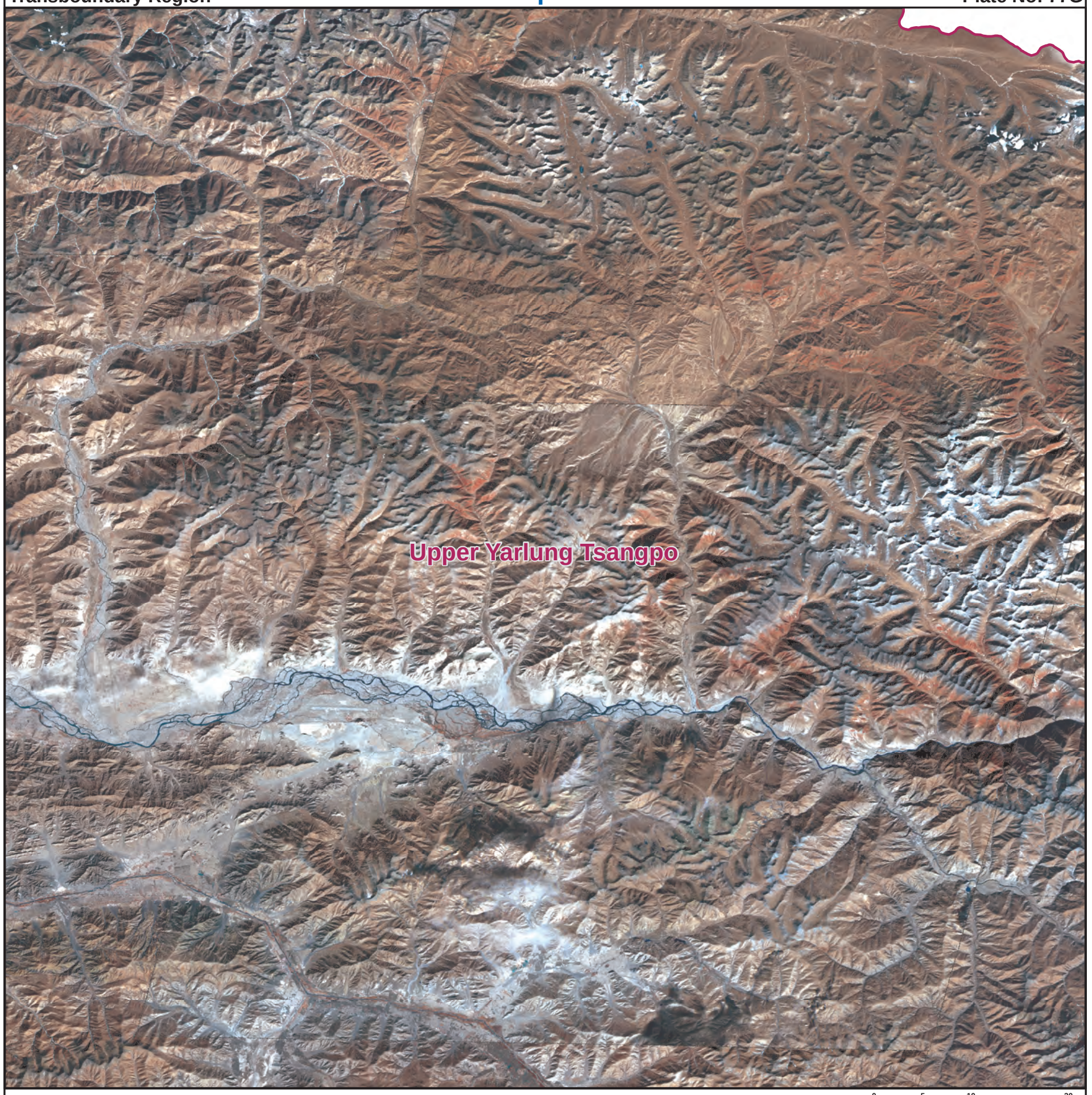
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 41** | Plate No: 77G



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	6	0	0	2	0	59	2	**69**
2	**0.5 - 1**	1	0	0	6	0	0	1	0	77	3	**88**
3	**1 - 5**	1	0	0	18	0	0	1	0	90	3	**113**
4	**5 - 10**	1	0	0	3	0	0	0	0	16	2	**22**
5	**10 - 50**	0	0	0	1	0	0	0	0	11	1	**13**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**3**	**0**	**0**	**34**	**0**	**0**	**4**	**0**	**253**	**11**	**305**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

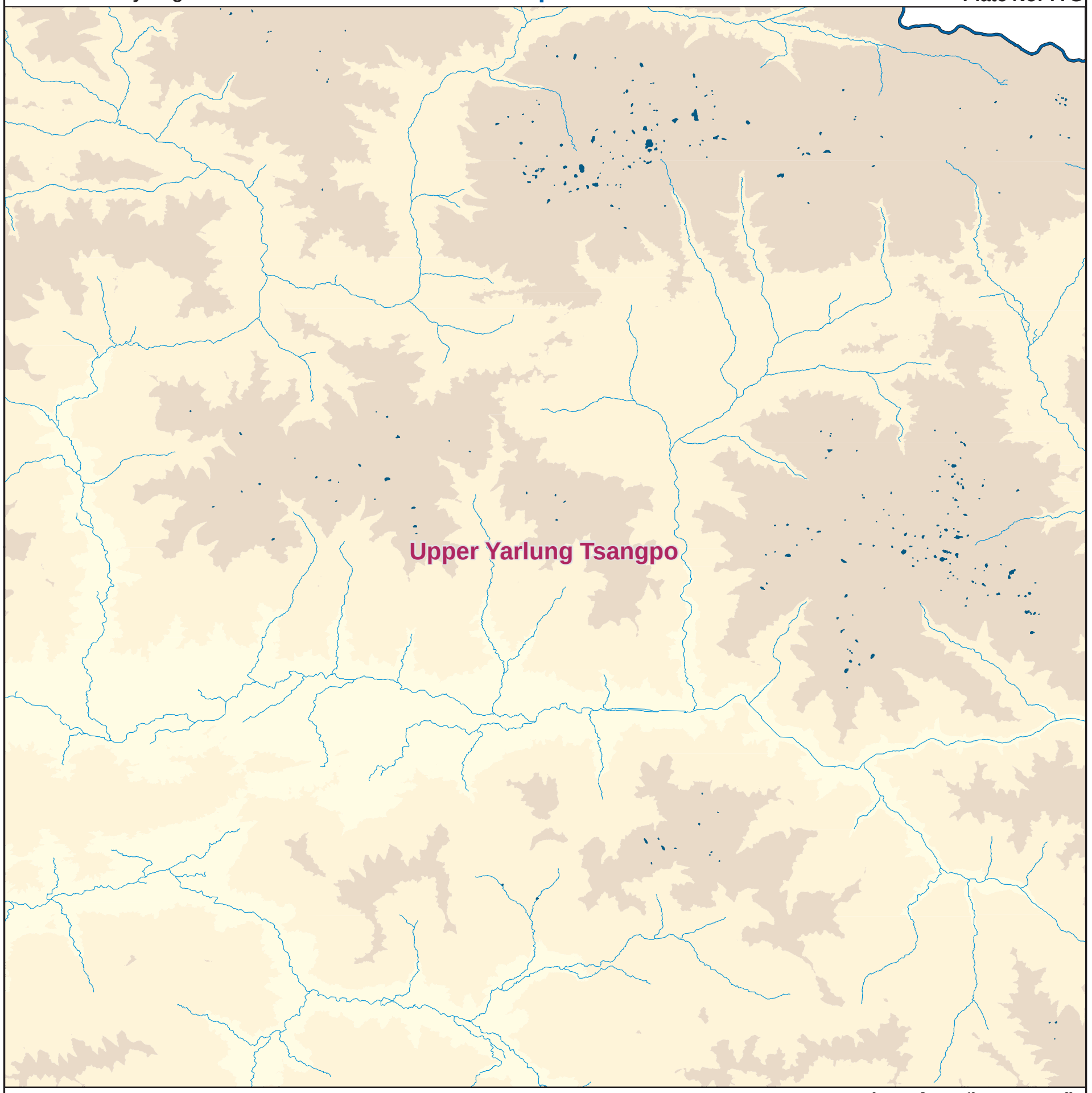
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

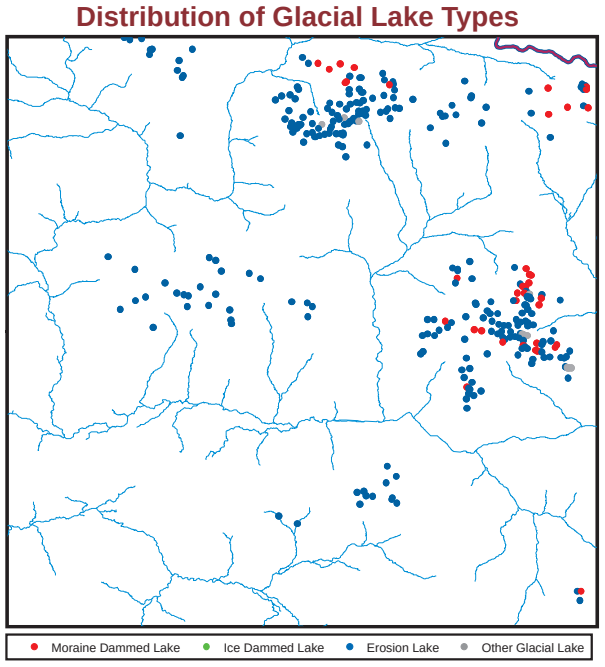
Transboundary Region

Map 42

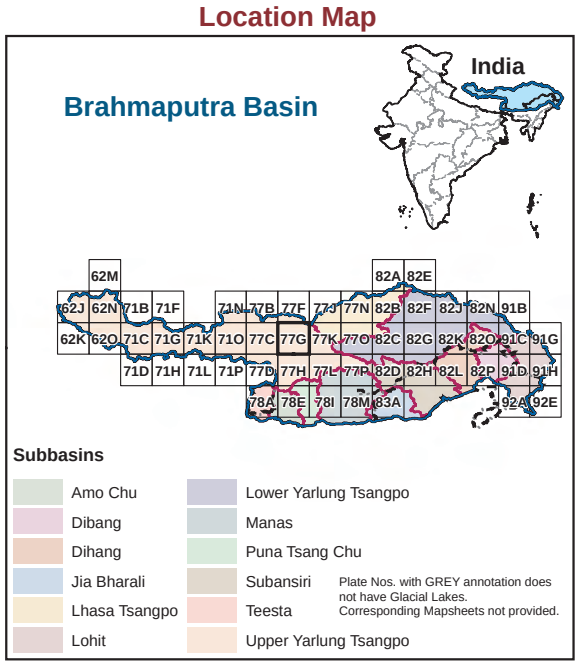
Plate No: 77G



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	2	4.8
4	> 5,000	303	734.6
Total		**305**	**739.3**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

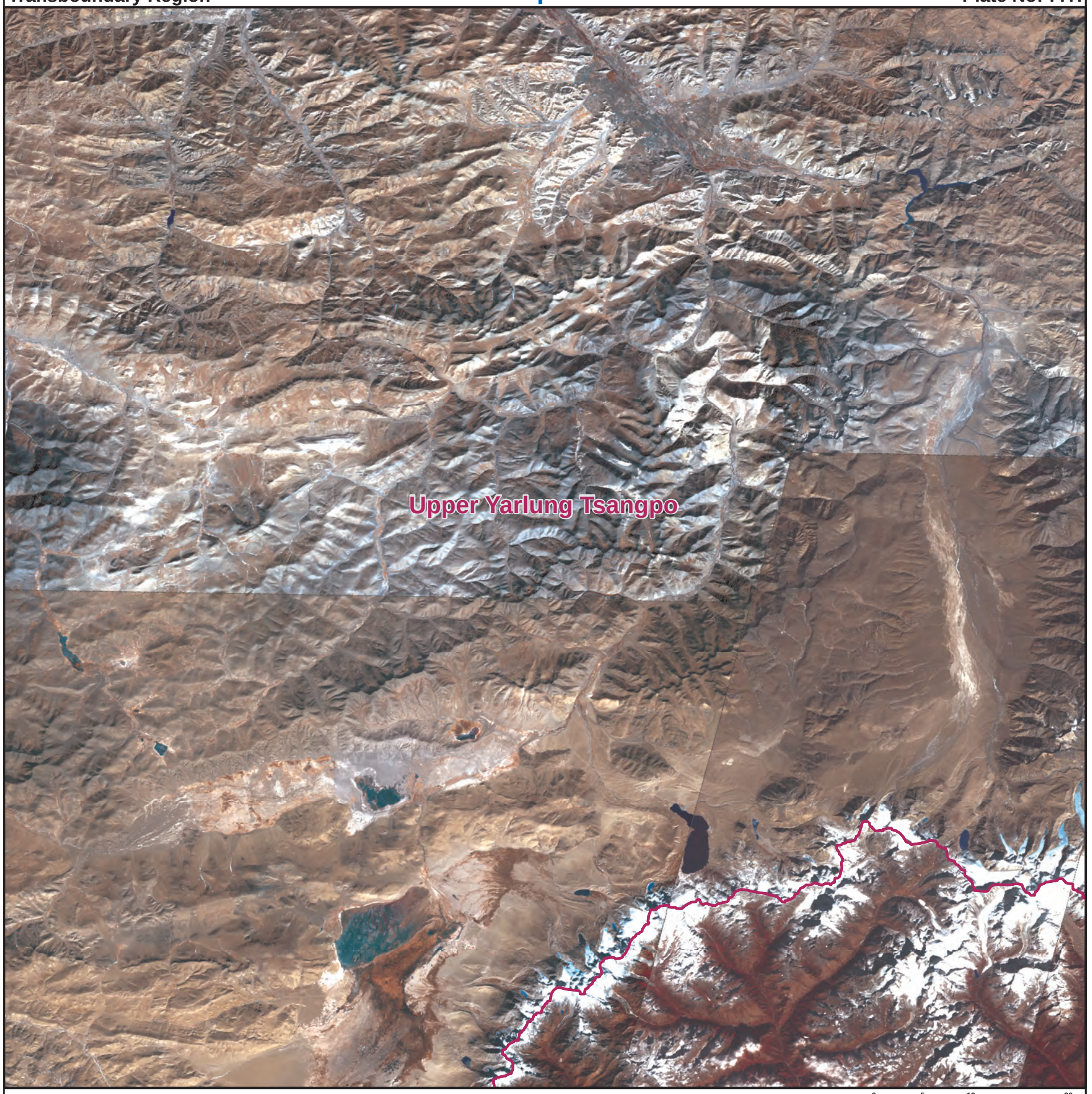
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 43** | Plate No: 77H



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 8)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	14	3	0	0	0	26	3	**46**
2	**0.5 - 1**	0	0	0	18	2	0	1	0	27	9	**57**
3	**1 - 5**	3	0	0	31	2	0	1	0	61	12	**110**
4	**5 - 10**	3	0	0	10	0	0	3	0	6	2	**24**
5	**10 - 50**	8	0	0	7	1	0	4	0	2	1	**23**
6	**> 50**	1	0	0	0	0	0	0	0	5	2	**8**
Total		**15**	**0**	**0**	**80**	**8**	**0**	**9**	**0**	**127**	**29**	**268**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

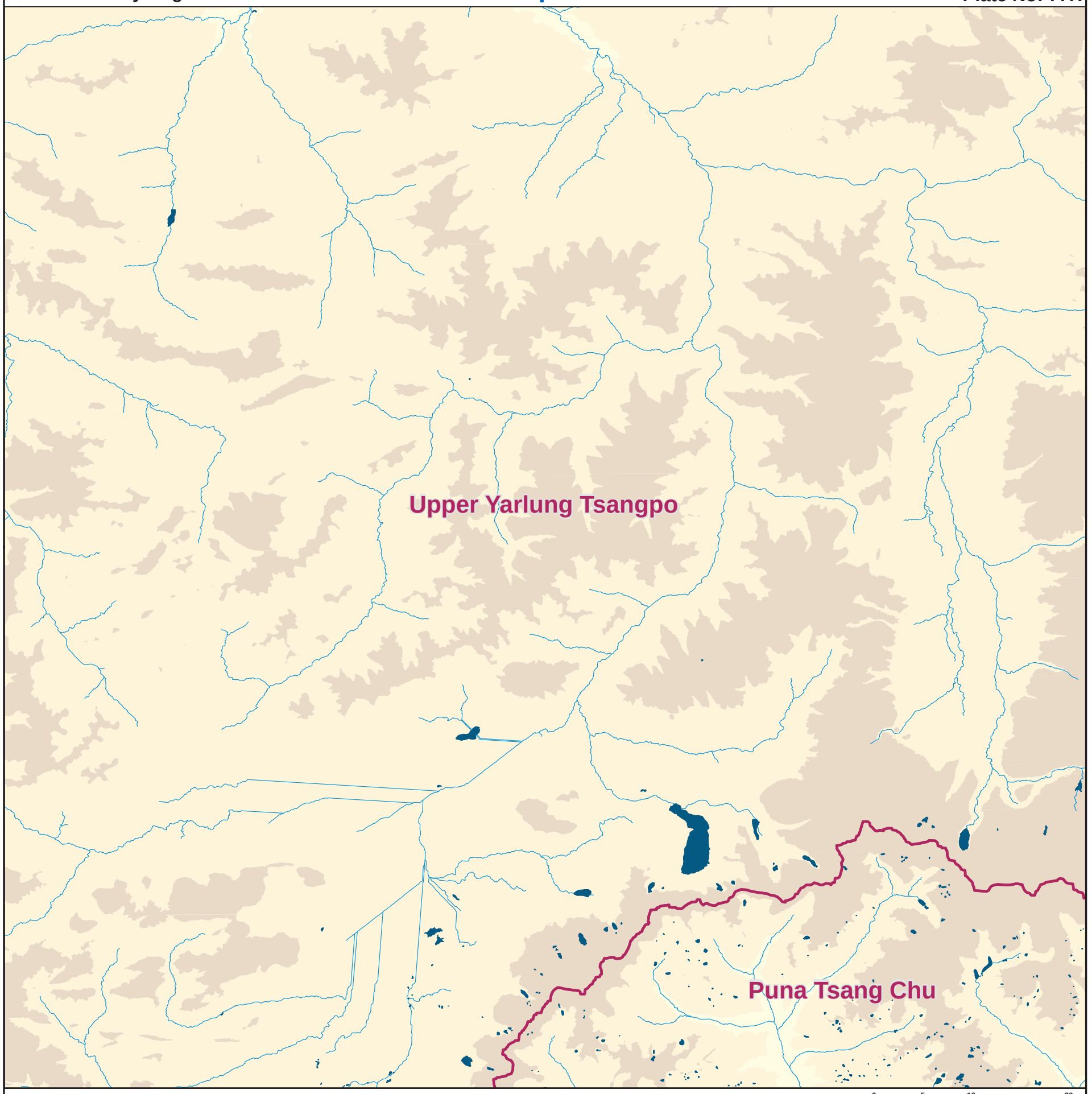
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

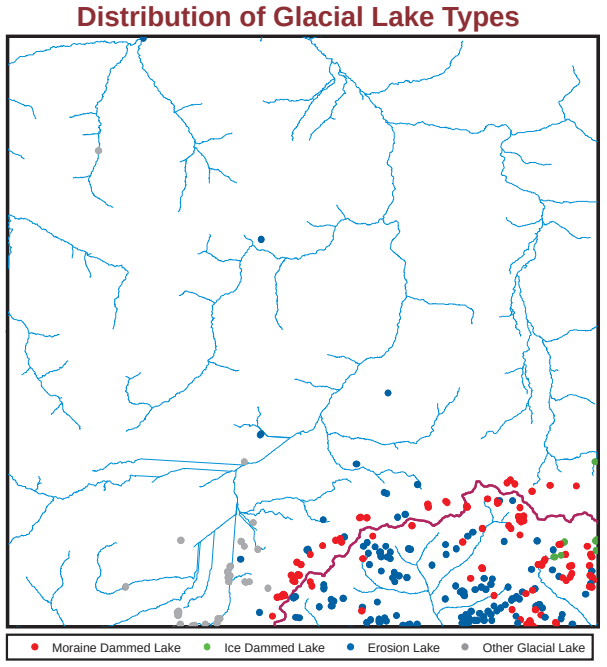
Map 44

Plate No: 77H

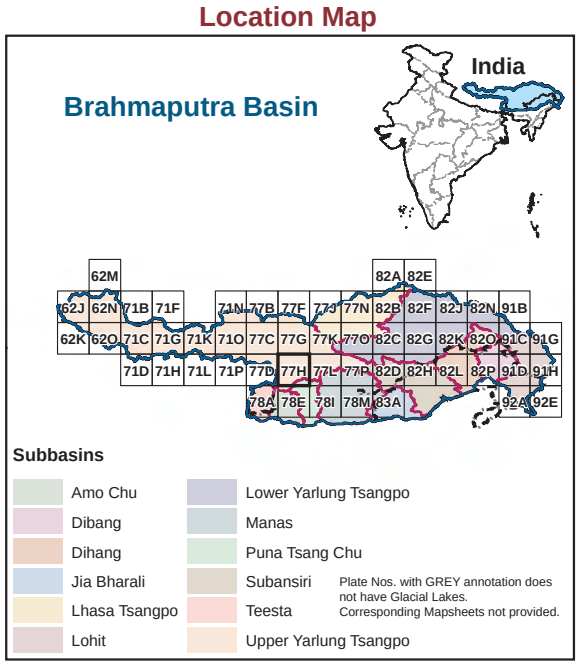


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	1	4.0
3	4,001 - 5,000	171	2,587.3
4	> 5,000	96	333.2
Total		**268**	**2,924.5**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

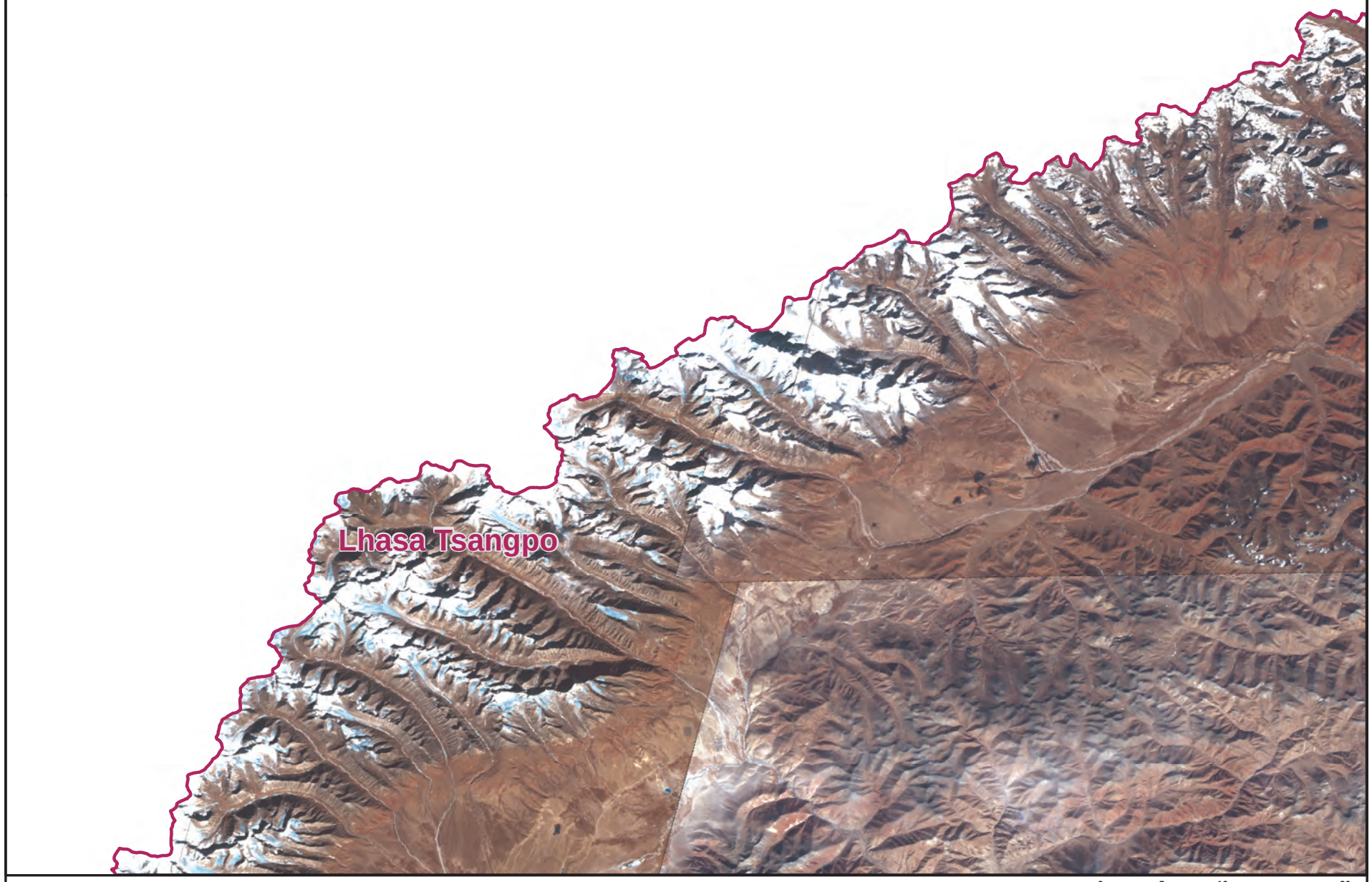
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 45** | Plate No: 77J



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 3)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	13	2	0	0	0	18	2	**35**
2	**0.5 - 1**	0	0	0	19	2	0	0	0	18	3	**42**
3	**1 - 5**	1	0	0	42	0	0	1	0	26	2	**72**
4	**5 - 10**	1	0	0	4	0	0	0	0	4	1	**10**
5	**10 - 50**	3	1	0	3	0	0	0	0	2	1	**10**
6	**> 50**	0	0	0	0	0	0	0	0	1	0	**1**
Total		**5**	**1**	**0**	**81**	**4**	**0**	**1**	**0**	**69**	**9**	**170**

Legend

Subbasin Boundary — District Boundary

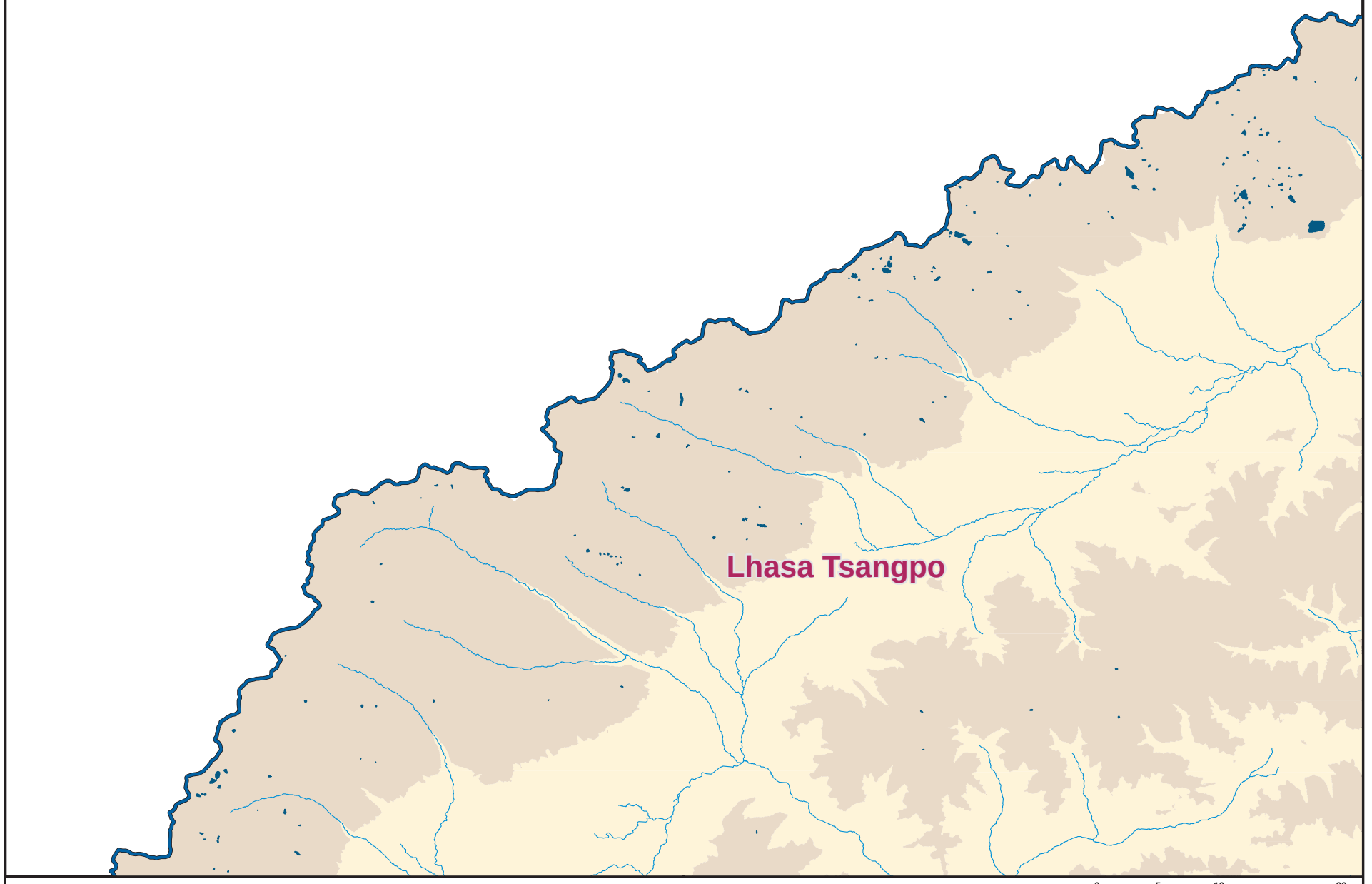
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

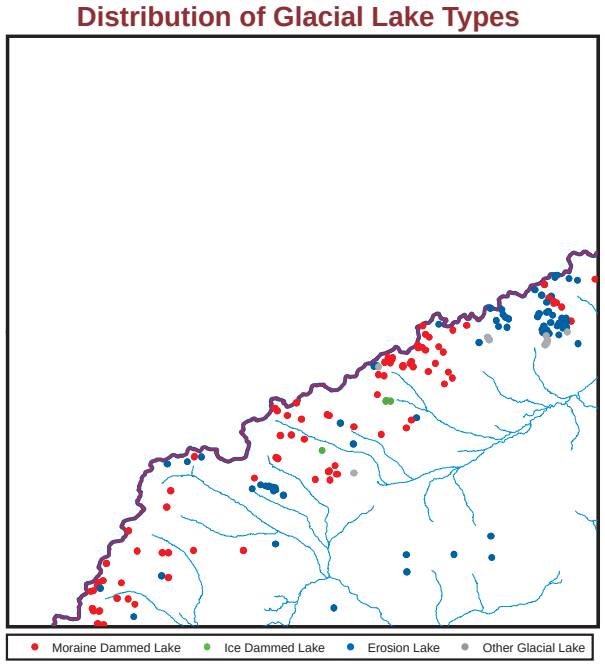
Transboundary Region | **Map 46** | Plate No: 77J



Data Source: Resourcesat-2 LISS-IV

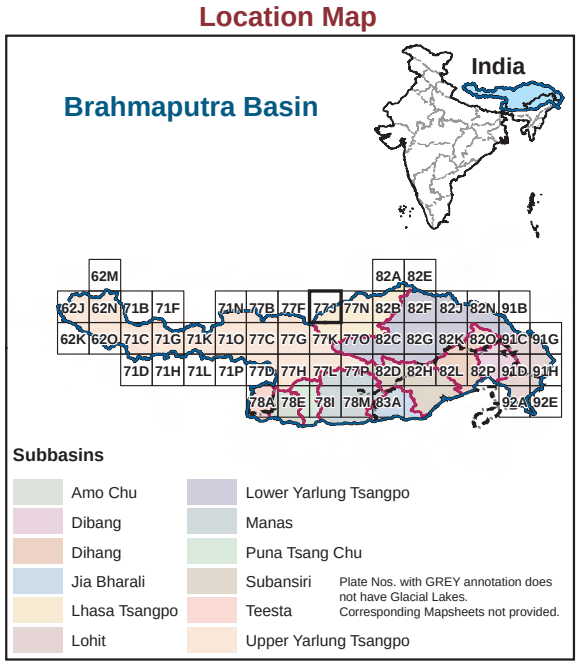
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	0	0.0
4	> 5,000	170	514.1
Total		**170**	**514.1**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

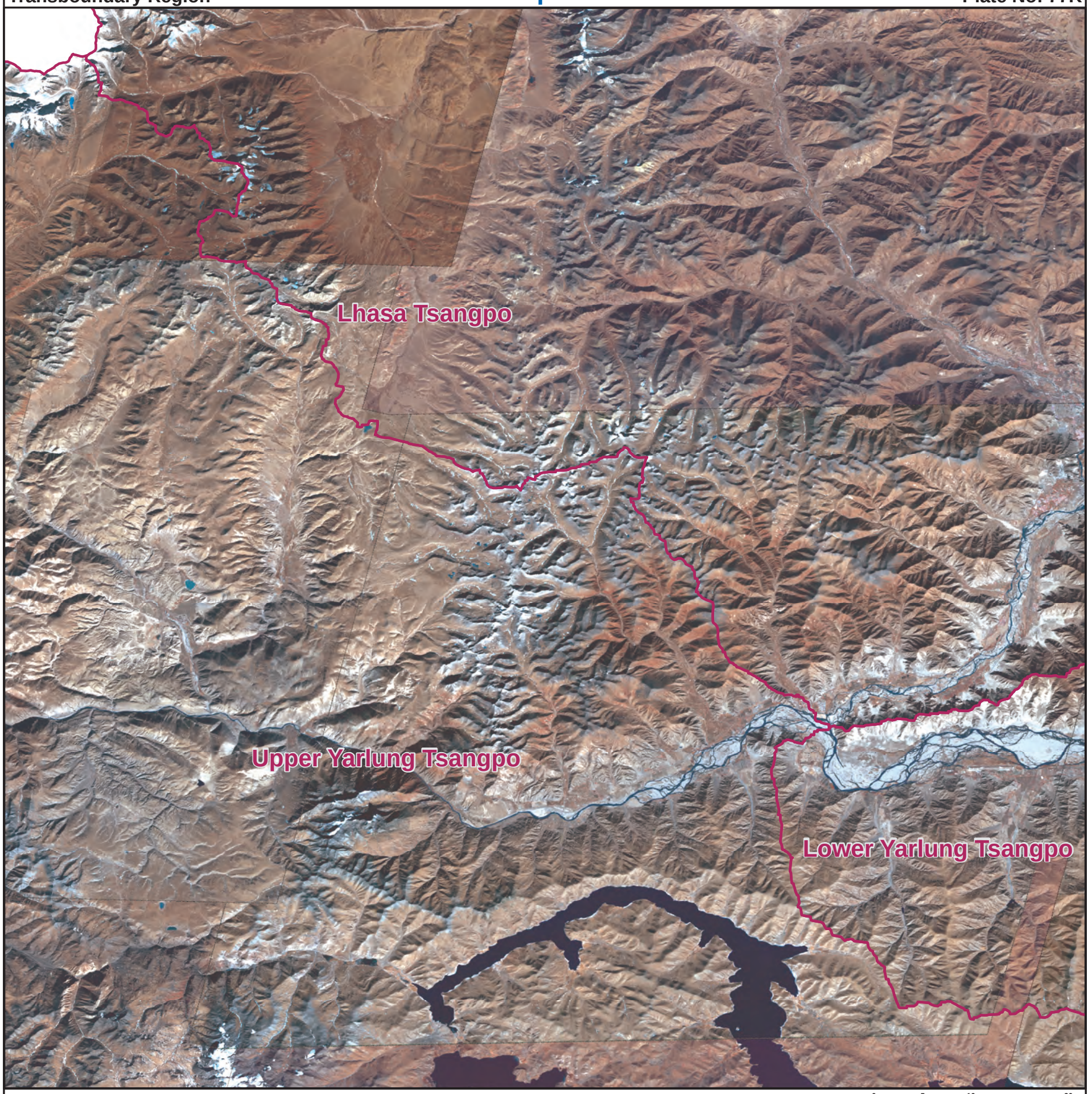
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | Map 47 | Plate No: 77K



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	13	0	0	0	0	37	4	**54**
2	**0.5 - 1**	0	0	0	21	0	0	0	0	71	1	**93**
3	**1 - 5**	3	0	0	18	0	0	1	0	88	6	**116**
4	**5 - 10**	2	0	0	4	0	0	2	0	8	0	**16**
5	**10 - 50**	2	0	0	0	0	0	0	0	7	2	**11**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**7**	**0**	**0**	**56**	**0**	**0**	**3**	**0**	**211**	**13**	**290**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

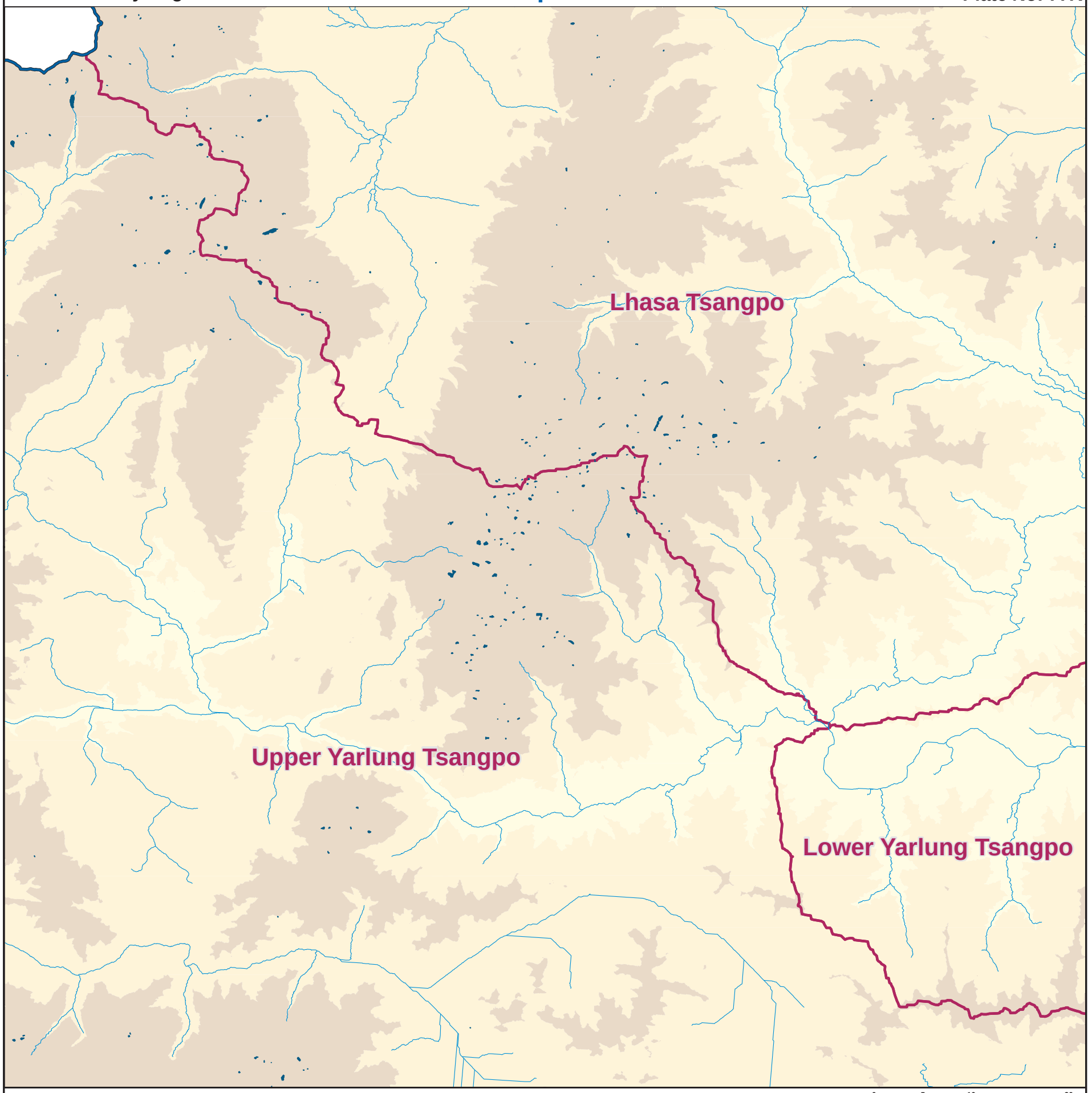
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

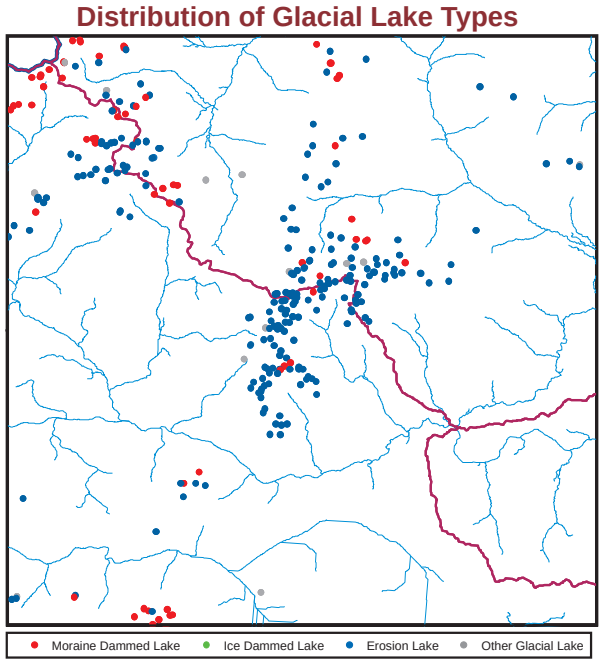
Map 48

Plate No: 77K

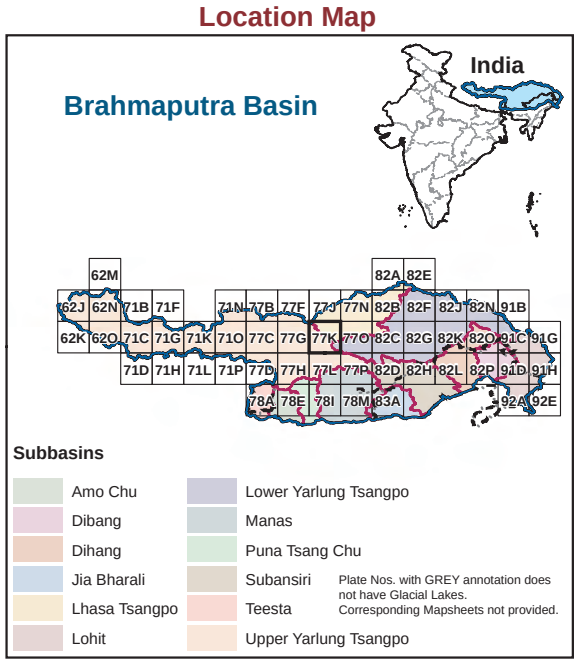


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	4	2.8
4	> 5,000	286	639.0
Total		**290**	**641.8**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

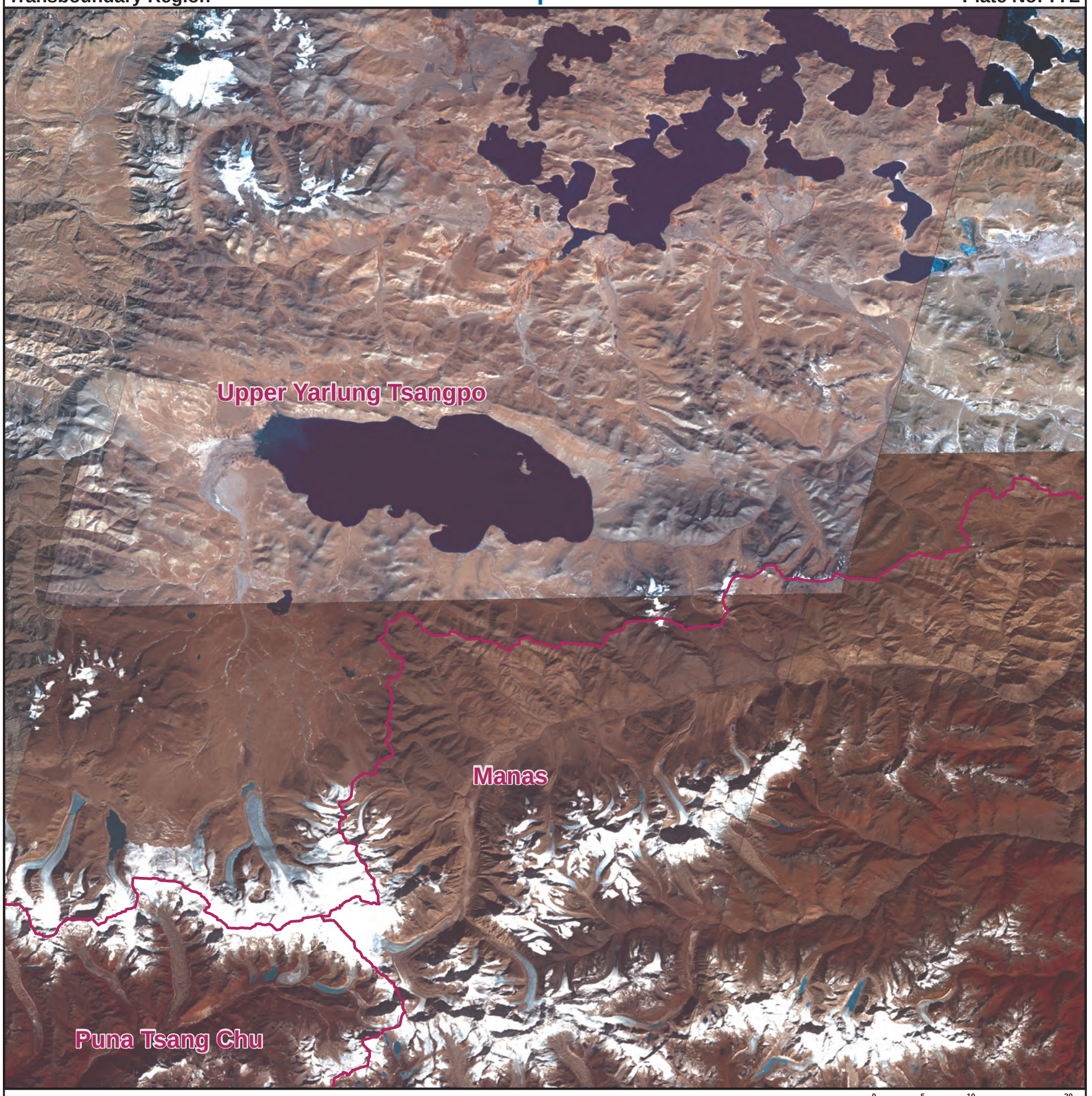
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 49** | Plate No: 77L



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	79	62	0	0	0	64	4	**209**
2	**0.5 - 1**	0	0	0	58	31	0	0	0	39	2	**130**
3	**1 - 5**	7	2	0	69	14	0	2	0	69	5	**168**
4	**5 - 10**	10	0	0	15	3	0	3	0	14	0	**45**
5	**10 - 50**	24	0	0	18	1	0	4	0	13	0	**60**
6	**> 50**	14	0	0	0	0	0	0	0	3	0	**17**
Total		**55**	**2**	**0**	**239**	**111**	**0**	**9**	**0**	**202**	**11**	**629**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

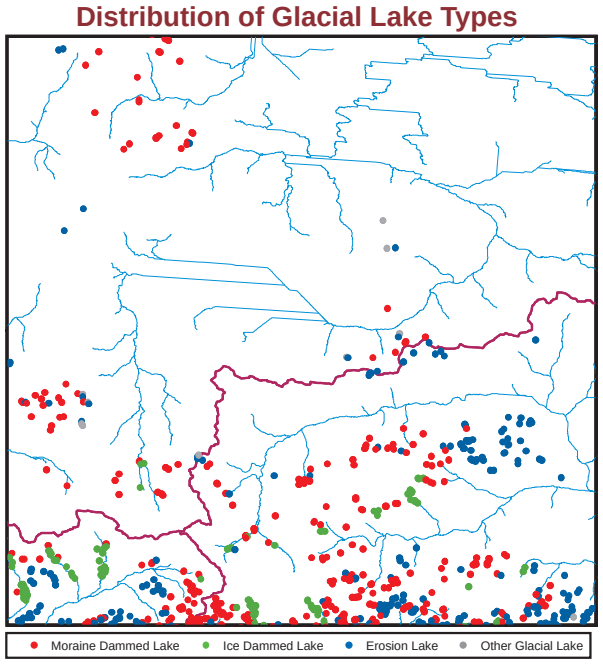
Map 50

Plate No: 77L

Data Source: Resourcesat-2 LISS-IV

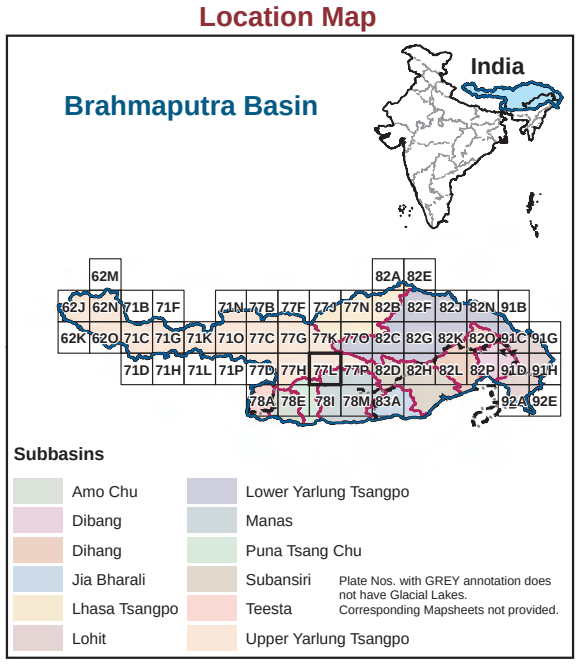
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	223	1,700.1
4	> 5,000	406	2,744.4
Total		**629**	**4,444.5**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

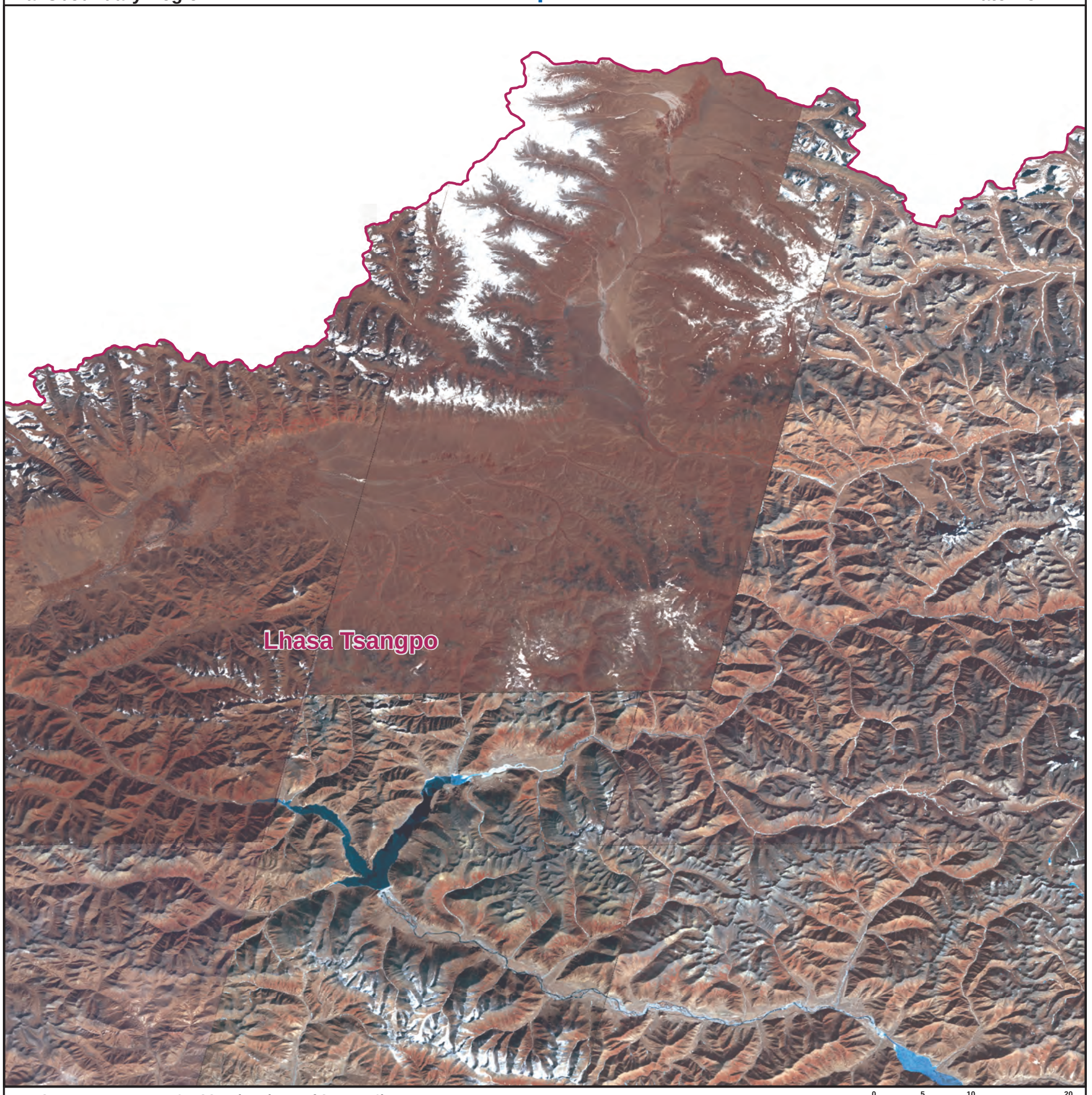
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 51** | Plate No: 77N



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	3	0	0	0	0	18	1	**22**
2	**0.5 - 1**	0	0	0	5	0	0	1	0	26	0	**32**
3	**1 - 5**	0	0	0	4	0	0	3	0	40	2	**49**
4	**5 - 10**	0	0	0	1	0	0	0	0	3	0	**4**
5	**10 - 50**	0	0	0	0	0	0	1	0	2	0	**3**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**13**	**0**	**0**	**5**	**0**	**89**	**3**	**110**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

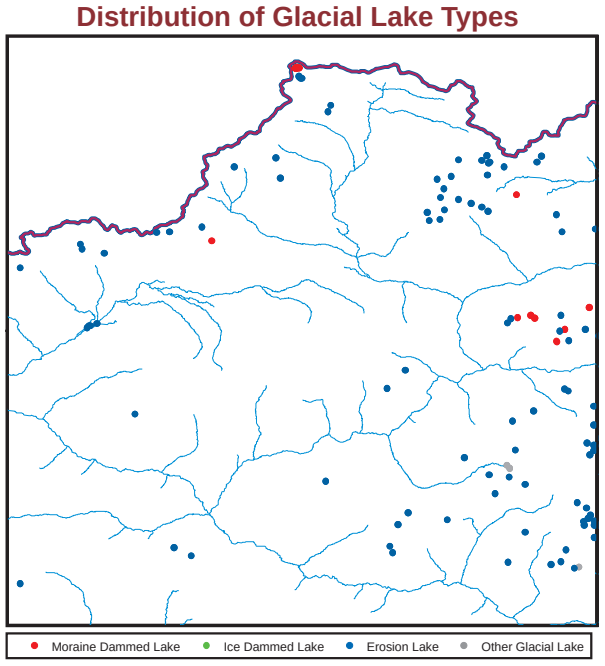
Transboundary Region | **Map 52** | Plate No: 77N

Lhasa Tsangpo

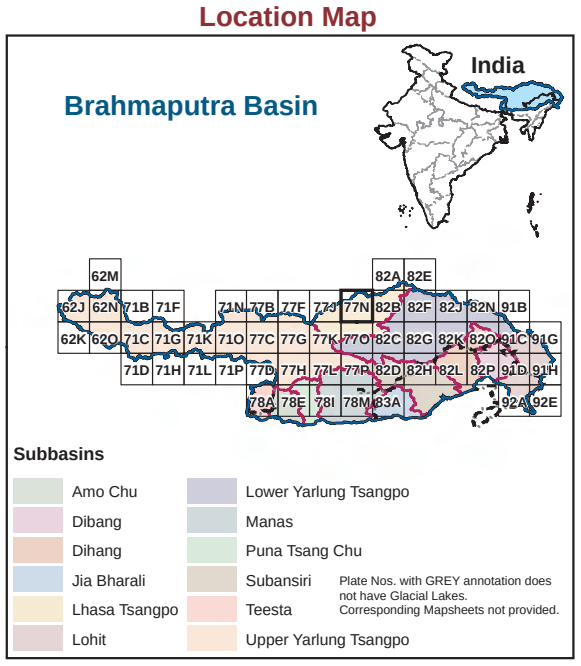
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	9	25.5
4	> 5,000	101	166.8
Total		**110**	**192.3**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 53** | Plate No: 77O

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	12	1	**13**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	19	0	**19**
3	**1 - 5**	0	0	0	0	0	0	2	0	57	0	**59**
4	**5 - 10**	0	0	0	0	0	0	0	0	9	1	**10**
5	**10 - 50**	0	0	0	0	0	0	0	0	3	0	**3**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**100**	**2**	**104**

Legend

Subbasin Boundary — District Boundary

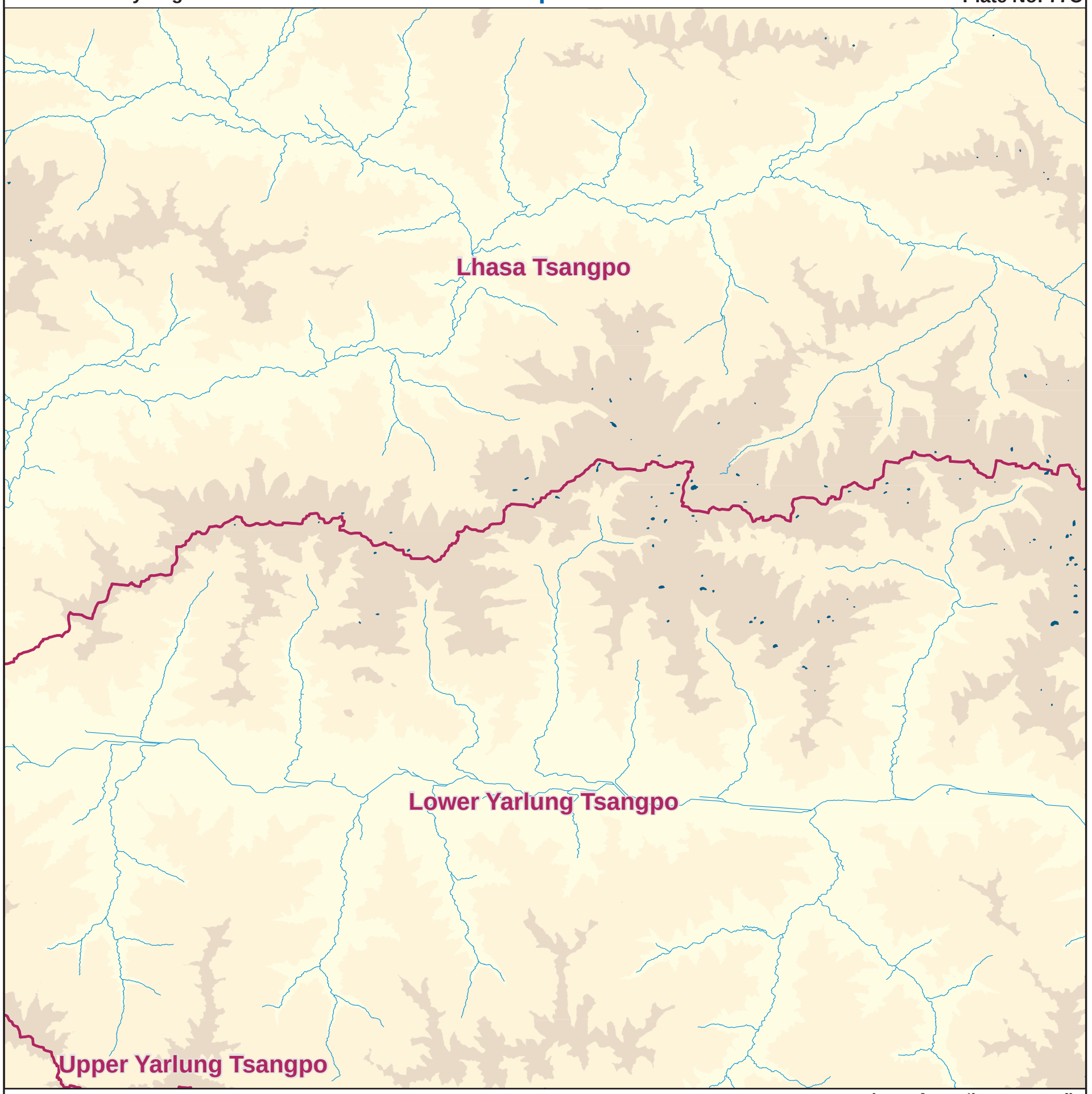
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

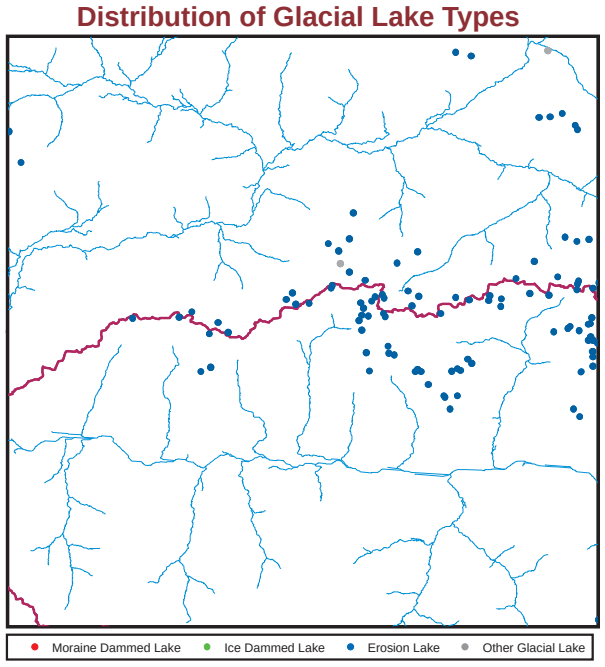
Transboundary Region | **Map 54** | Plate No: 77O



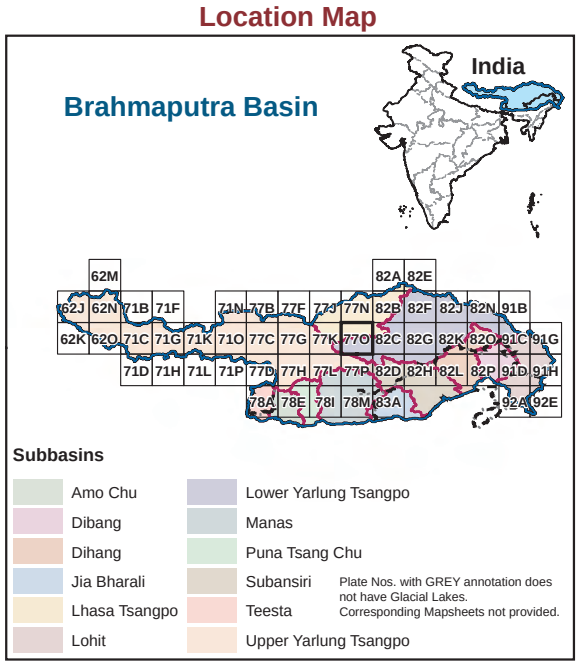
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	1	0.5
3	4,001 - 5,000	1	1.7
4	> 5,000	102	288.2
Total		**104**	**290.4**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

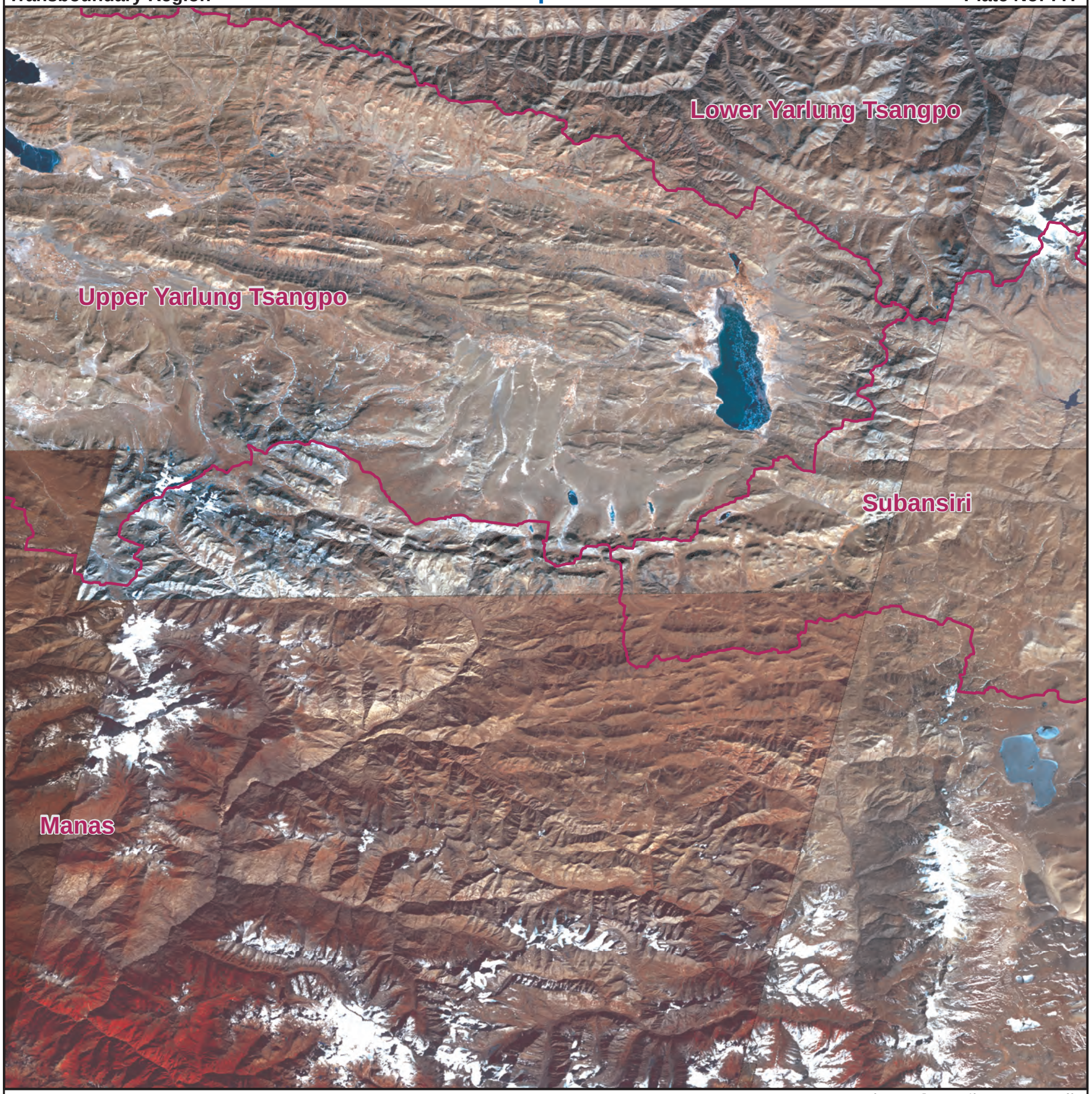
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | Map 55 | Plate No: 77P



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	18	1	0	0	0	42	7	**68**
2	**0.5 - 1**	0	0	0	21	1	0	2	0	53	3	**80**
3	**1 - 5**	3	0	0	45	0	0	6	0	66	9	**129**
4	**5 - 10**	3	0	0	7	0	0	7	0	12	0	**29**
5	**10 - 50**	5	0	0	1	0	0	2	0	11	3	**22**
6	**> 50**	1	0	0	1	0	0	0	0	4	1	**7**
Total		**12**	**0**	**0**	**93**	**2**	**0**	**17**	**0**	**188**	**23**	**335**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

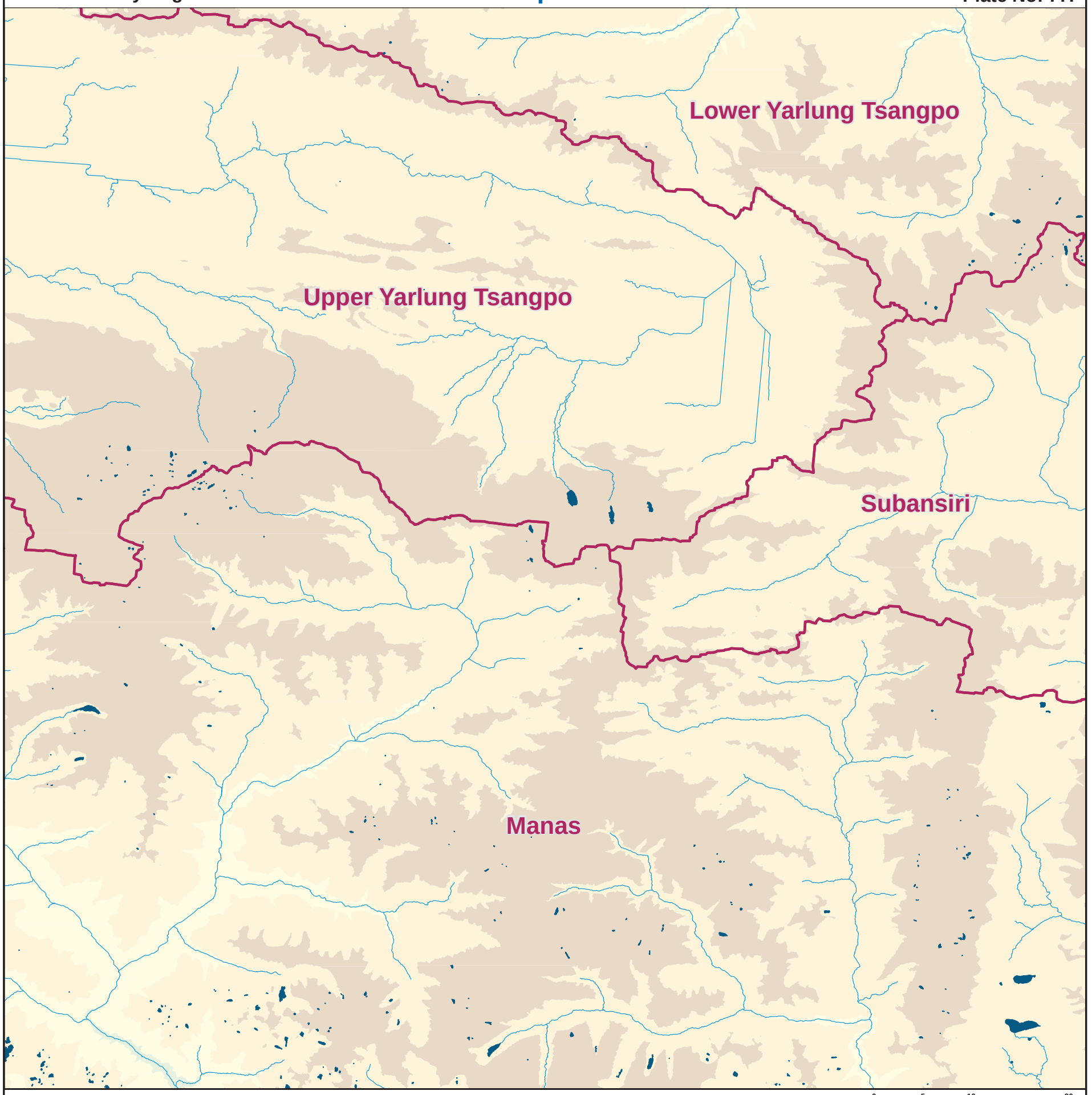
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

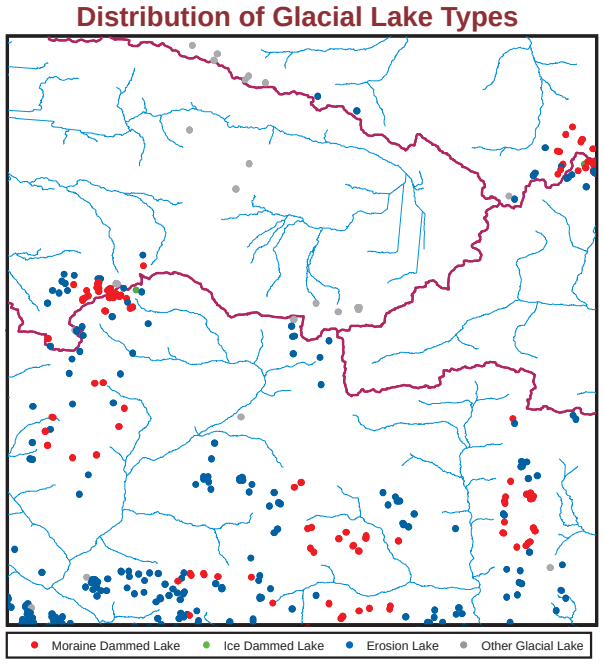
Transboundary Region

Map 56

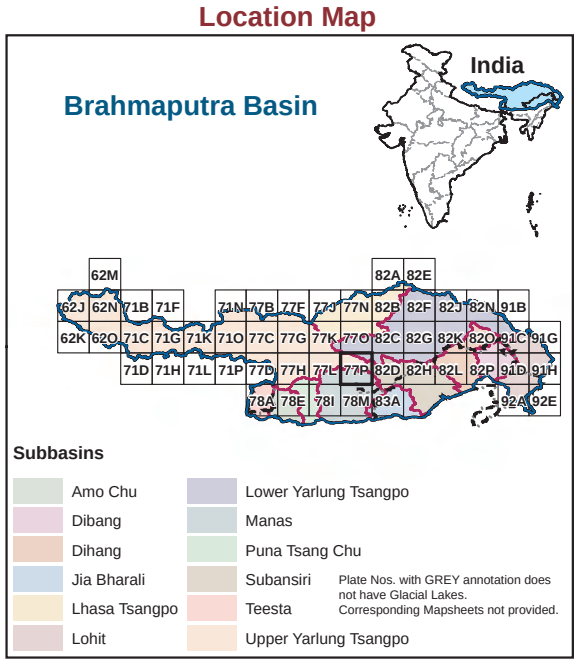
Plate No: 77P



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	3	8.9
3	4,001 - 5,000	127	1,079.2
4	> 5,000	205	613.5
Total		**335**	**1,701.7**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

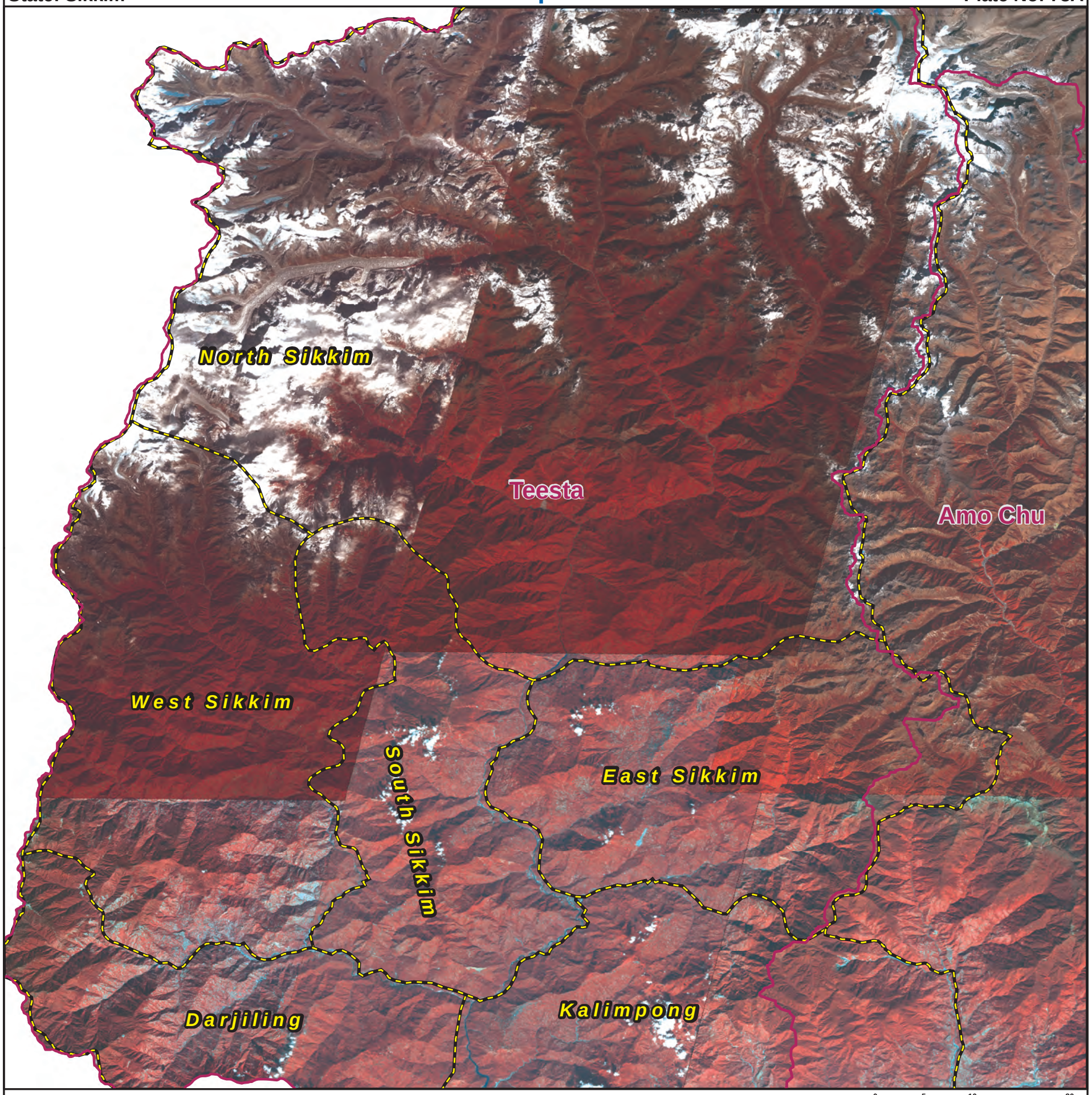
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Sikkim | **Map 57** | Plate No: 78A



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	38	51	0	0	0	148	1	**238**
2	**0.5 - 1**	0	1	0	34	13	0	4	0	151	0	**203**
3	**1 - 5**	1	5	0	51	8	0	30	0	202	2	**299**
4	**5 - 10**	4	0	0	11	1	0	14	0	32	0	**62**
5	**10 - 50**	15	0	0	11	0	0	18	0	14	1	**59**
6	**> 50**	6	0	0	1	0	0	0	0	0	0	**7**
Total		**26**	**6**	**0**	**146**	**73**	**0**	**66**	**0**	**547**	**4**	**868**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

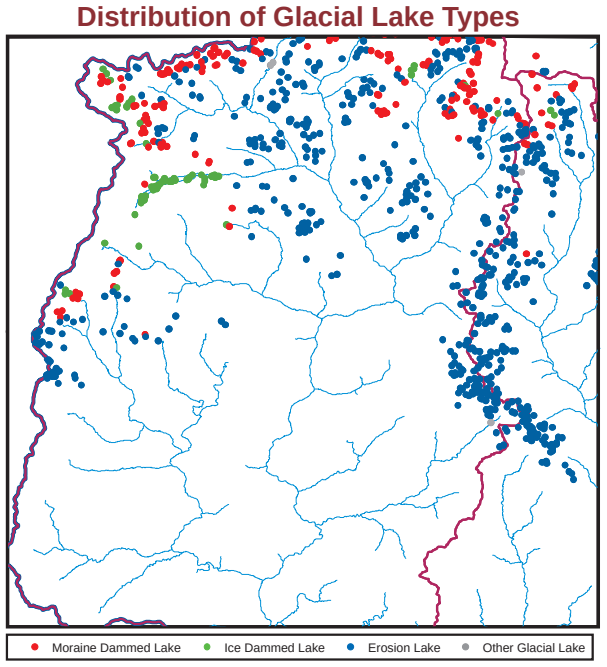
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Sikkim

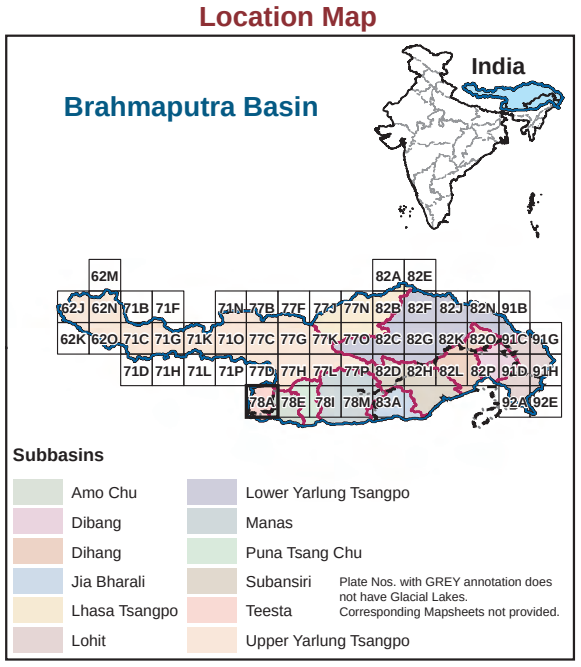
Map 58

Plate No: 78A

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	31	172.0
3	4,001 - 5,000	565	1,568.6
4	> 5,000	272	1,396.7
Total		**868**	**3,137.3**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

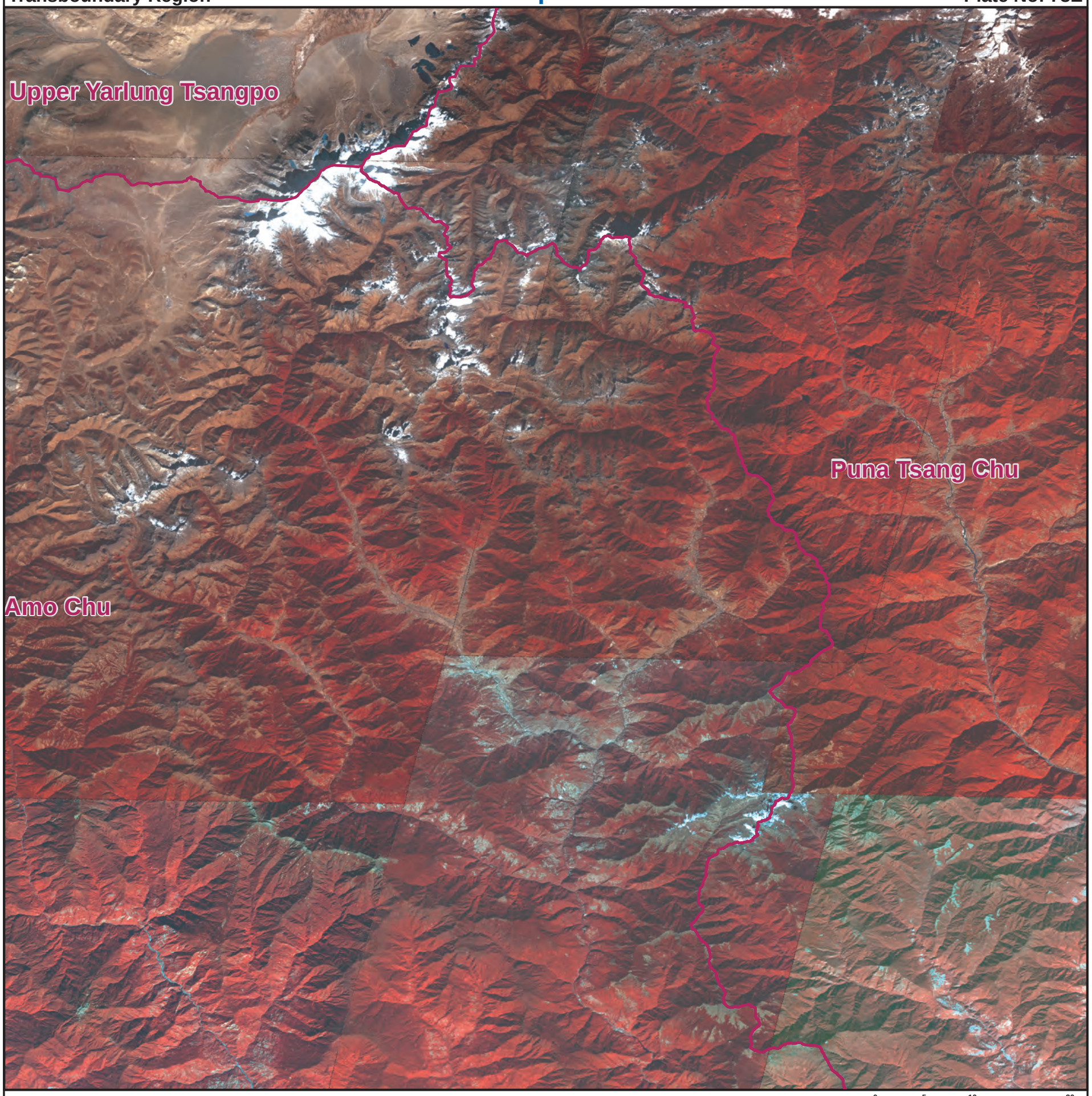
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 59** | Plate No: 78E



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	3	1	0	0	0	123	6	**133**
2	**0.5 - 1**	0	1	0	11	3	0	5	0	128	9	**157**
3	**1 - 5**	1	2	0	29	3	0	21	0	220	9	**285**
4	**5 - 10**	0	0	0	5	0	0	21	0	34	0	**60**
5	**10 - 50**	4	0	0	6	0	0	12	0	26	0	**48**
6	**> 50**	2	0	0	1	0	0	1	0	3	0	**7**
Total		**7**	**3**	**0**	**55**	**7**	**0**	**60**	**0**	**534**	**24**	**690**

Legend

Subbasin Boundary — District Boundary

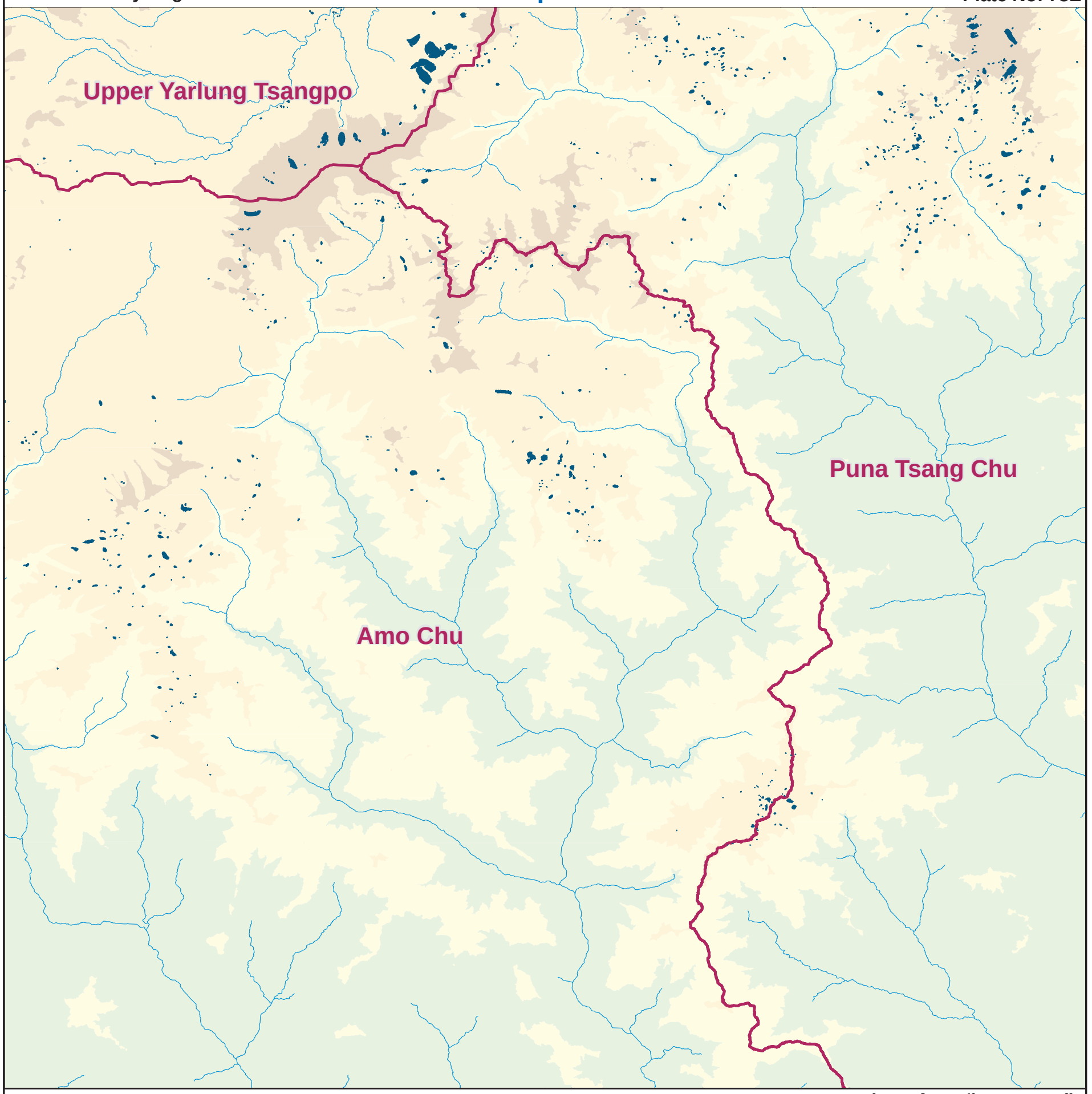
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

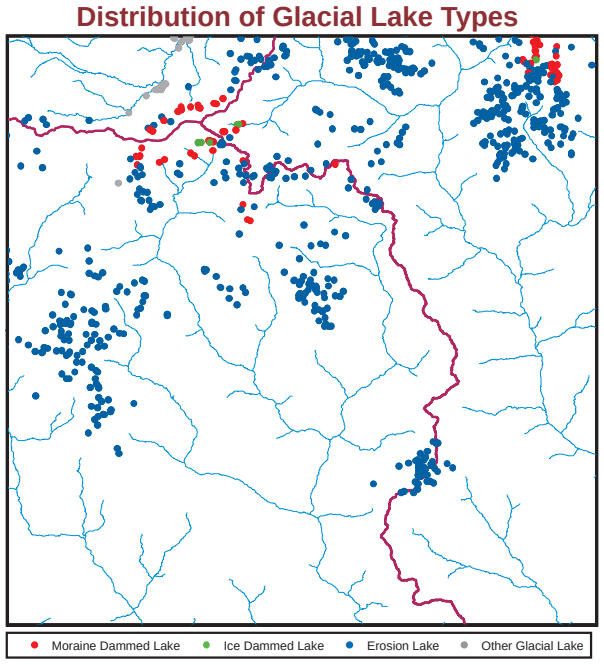
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

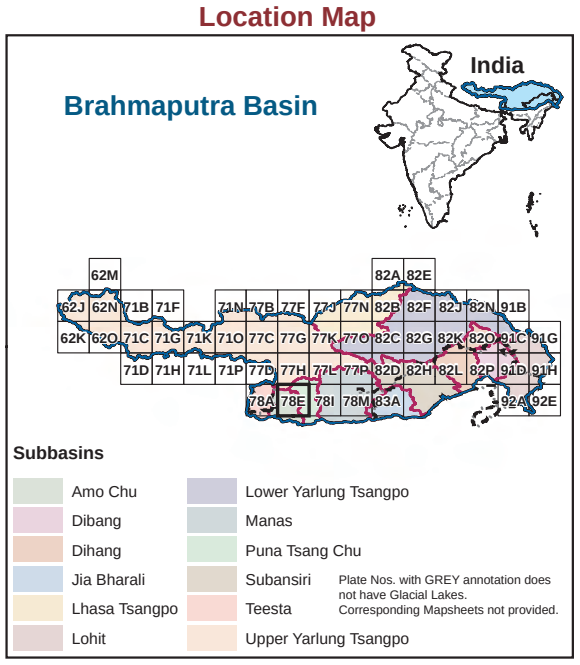
Transboundary Region | Map 60 | Plate No: 78E



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	16	65.8
3	4,001 - 5,000	610	2,341.0
4	> 5,000	64	525.9
Total		**690**	**2,932.7**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

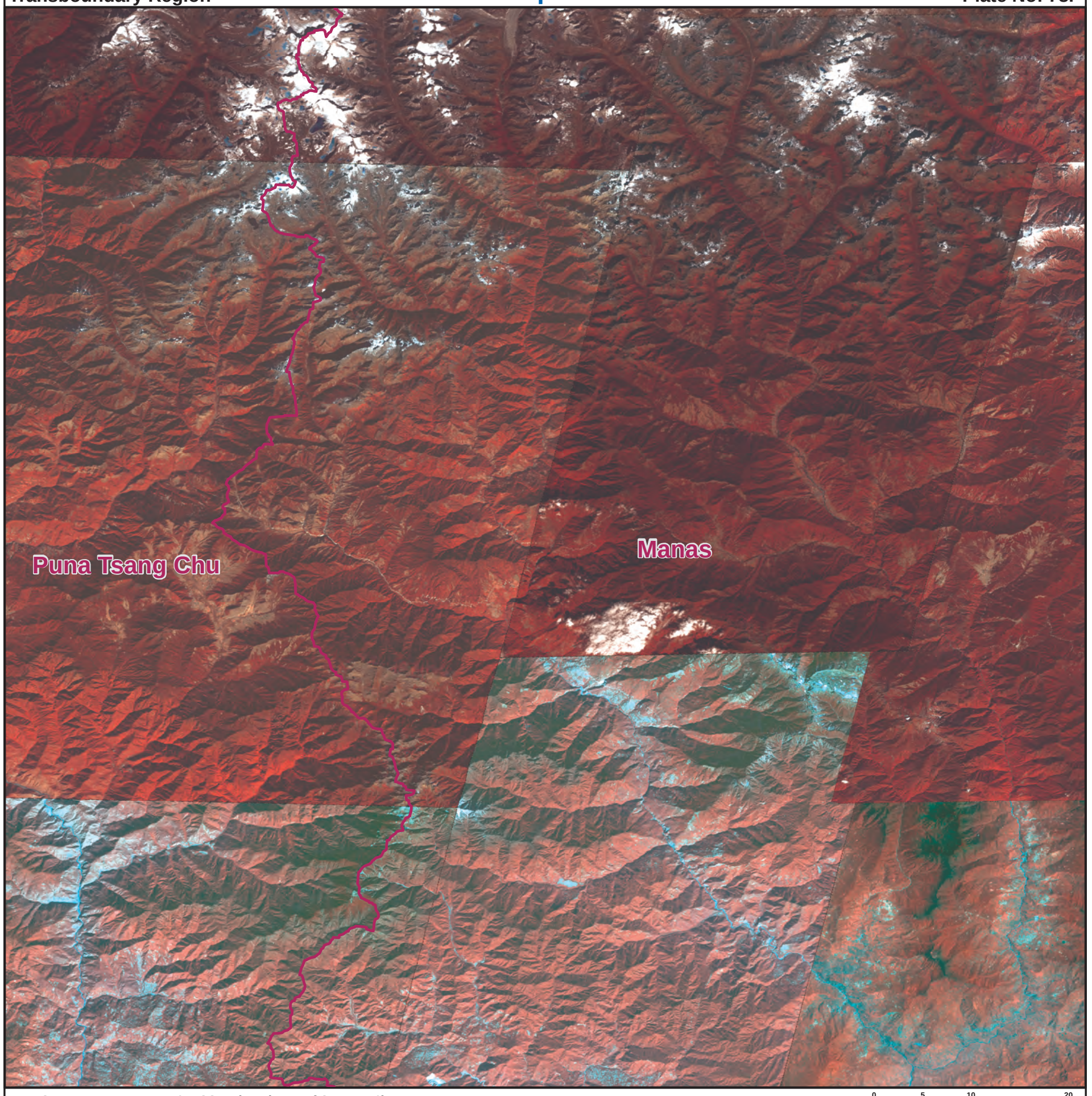
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region — **Map 61** — Plate No: 78I



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	44	4	0	0	0	166	0	**214**
2	**0.5 - 1**	0	0	0	52	3	0	7	0	157	0	**219**
3	**1 - 5**	1	0	0	77	1	0	60	0	330	0	**469**
4	**5 - 10**	3	1	0	20	0	0	33	0	59	0	**116**
5	**10 - 50**	11	2	0	21	0	0	32	0	59	0	**125**
6	**> 50**	1	0	0	1	0	0	1	0	3	0	**6**
Total		**16**	**3**	**0**	**215**	**8**	**0**	**133**	**0**	**774**	**0**	**1149**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

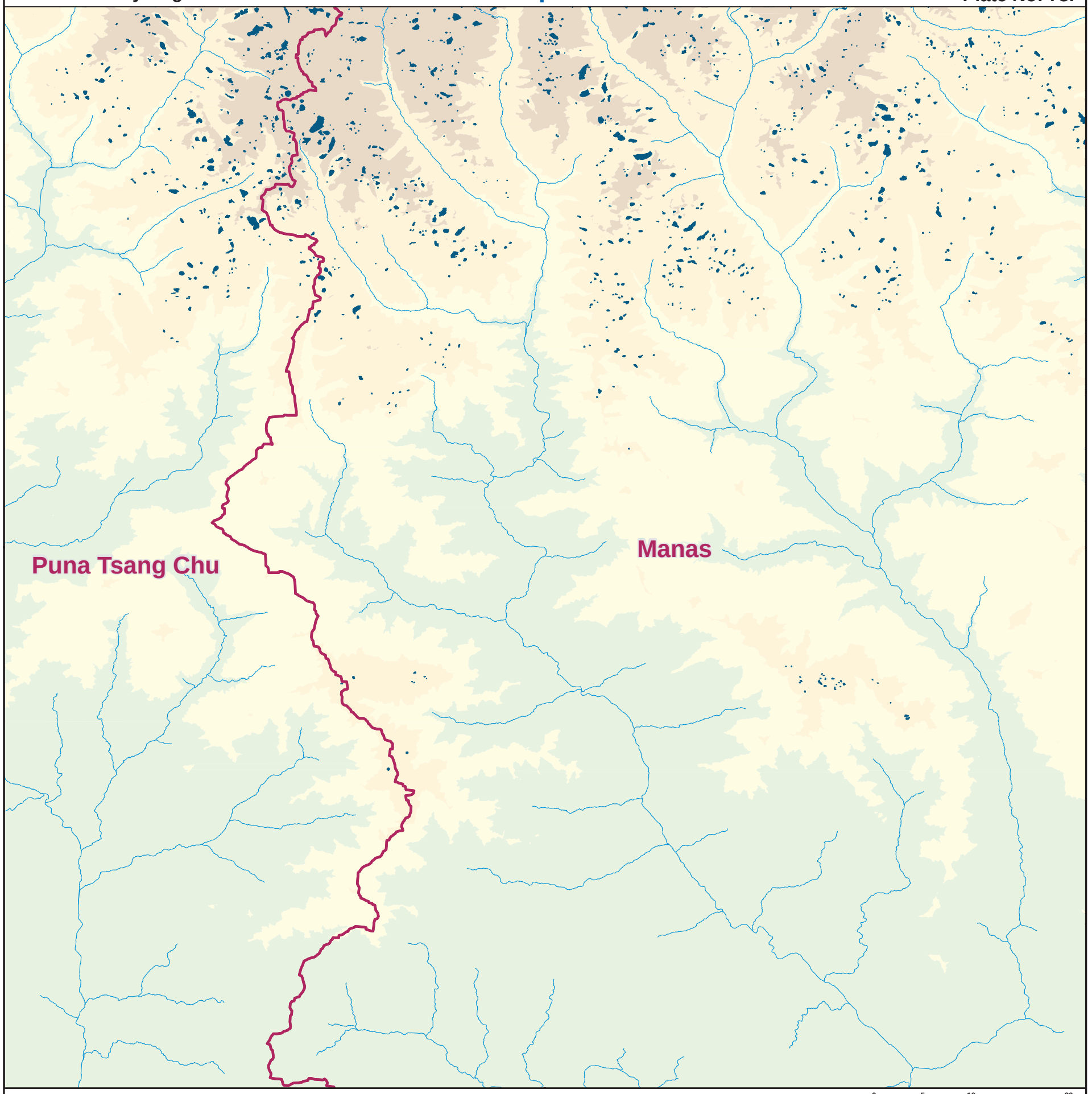
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

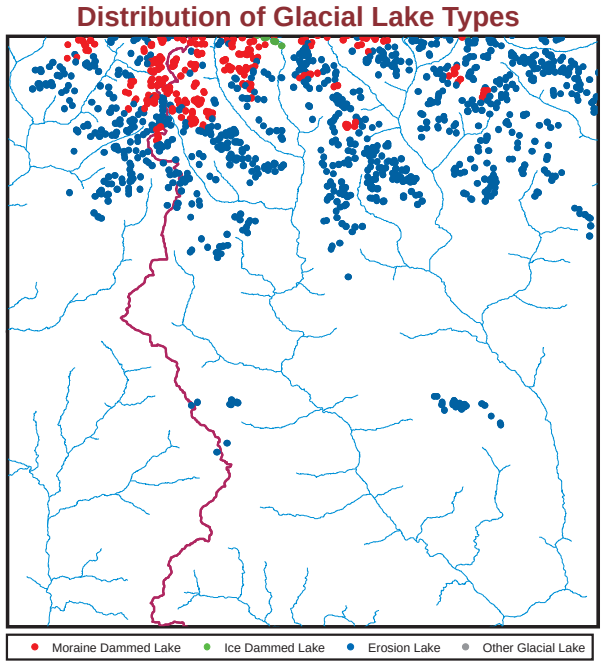
Map 62

Plate No: 78I

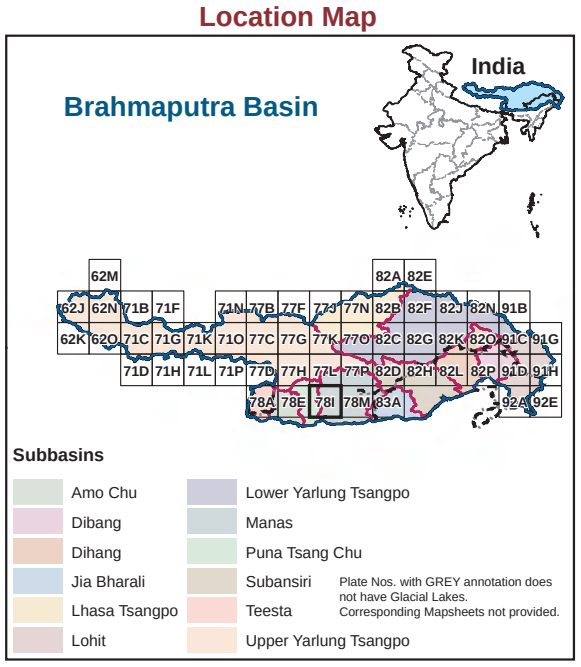


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	9	31.6
3	4,001 - 5,000	780	3,426.2
4	> 5,000	360	1,404.6
Total		**1149**	**4,862.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

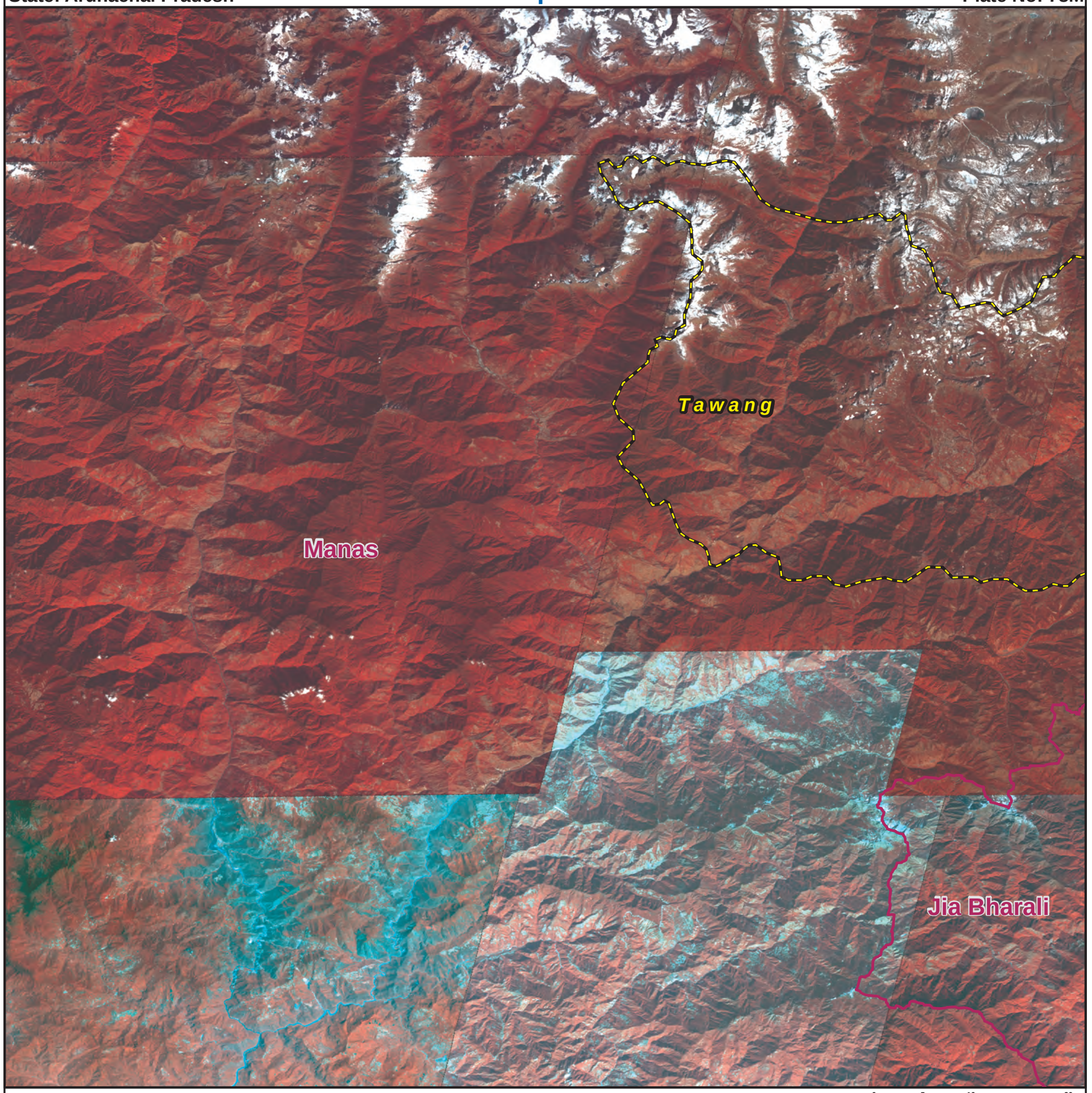
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 63** | Plate No: 78M



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	1	0	82	3	**86**
2	**0.5 - 1**	0	0	0	1	0	0	3	0	88	6	**98**
3	**1 - 5**	0	0	0	0	0	0	37	0	196	11	**244**
4	**5 - 10**	0	0	0	0	0	0	20	0	51	1	**72**
5	**10 - 50**	0	0	0	1	0	0	25	0	32	1	**59**
6	**> 50**	0	0	0	0	0	0	1	0	0	3	**4**
Total		**0**	**0**	**0**	**2**	**0**	**0**	**87**	**0**	**449**	**25**	**563**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

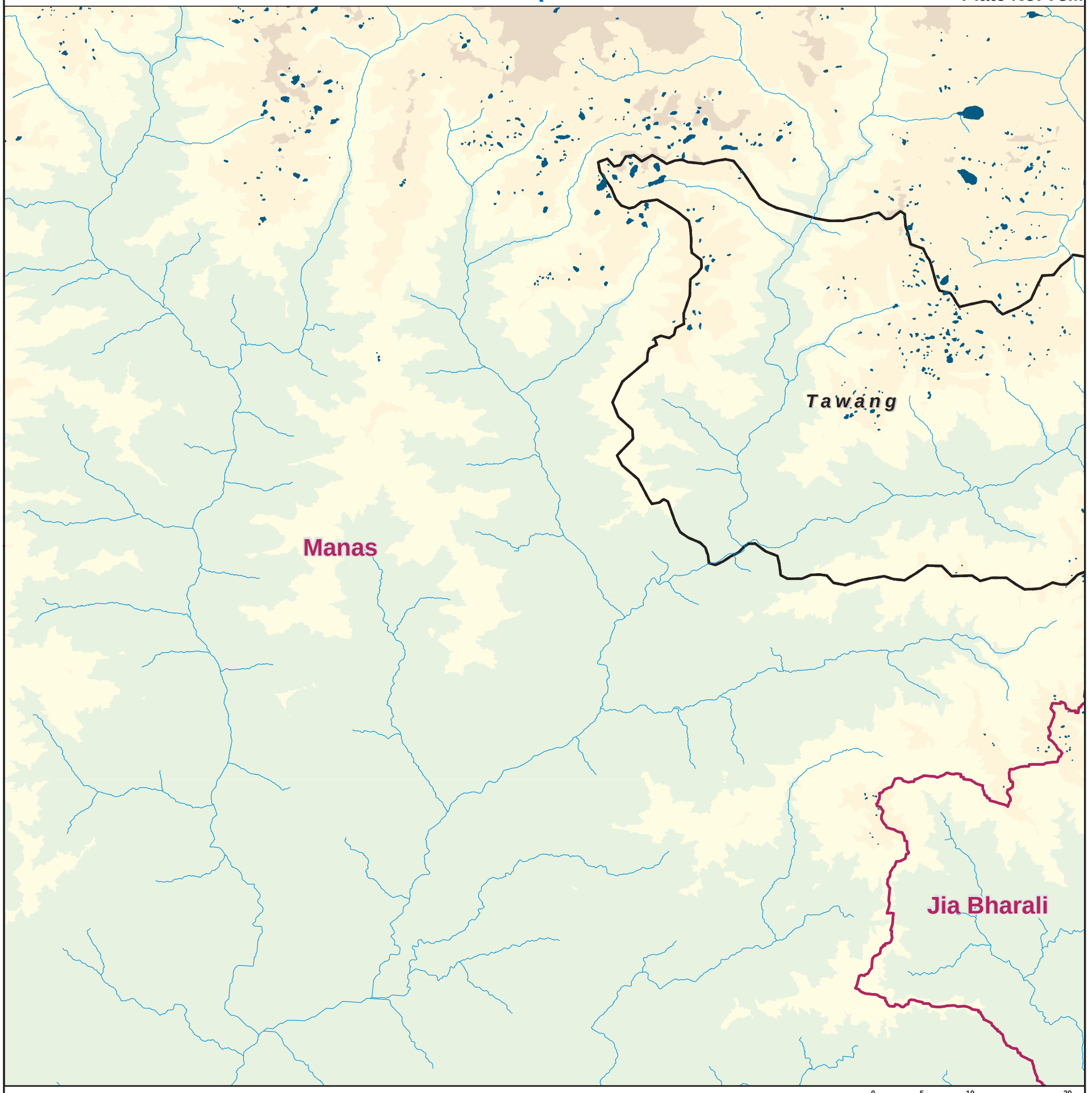
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

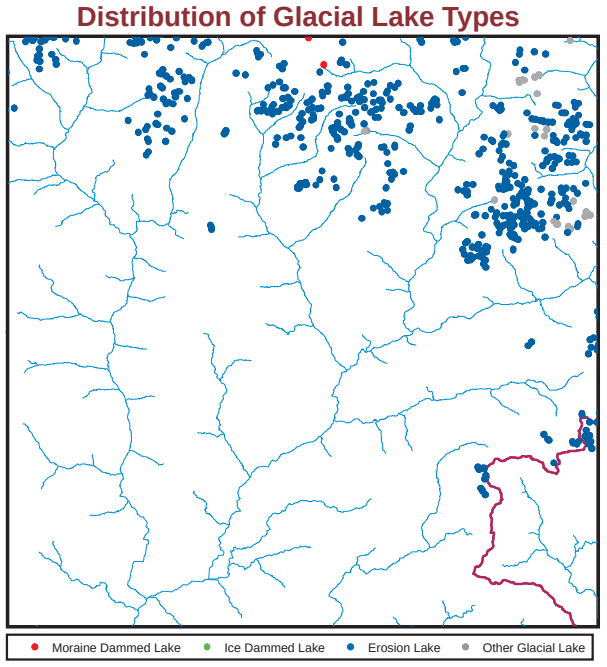
State: Arunachal Pradesh

Map 64

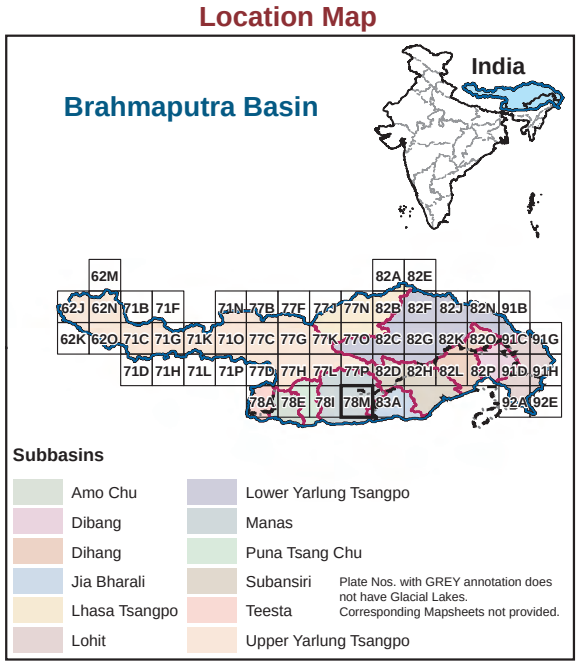
Plate No: 78M



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	38	185.8
3	4,001 - 5,000	522	2,681.4
4	> 5,000	3	17.9
	Total	**563**	**2,885.1**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

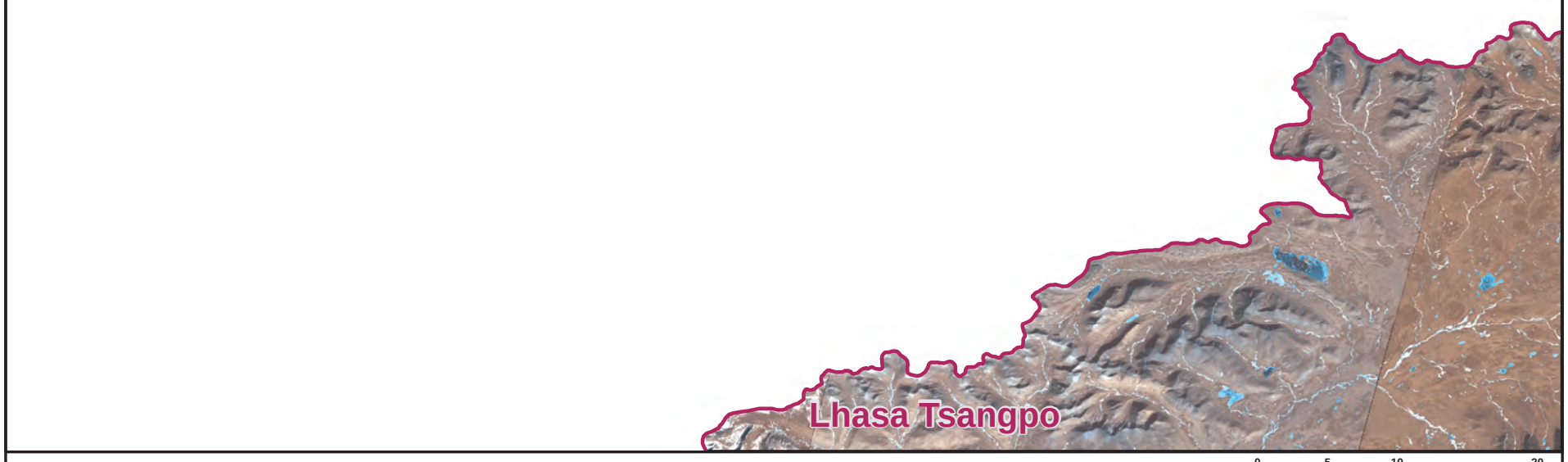
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 65** | Plate No: 82A



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 2)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	2	35	**37**
2	**0.5 - 1**	0	0	0	0	0	0	1	0	1	28	**30**
3	**1 - 5**	0	0	0	0	0	0	0	0	9	40	**49**
4	**5 - 10**	0	0	0	0	0	0	0	0	0	13	**13**
5	**10 - 50**	0	0	0	0	0	0	0	0	3	3	**6**
6	**> 50**	0	0	0	0	0	0	0	0	0	4	**4**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**15**	**123**	**139**

Legend

Subbasin Boundary

District Boundary

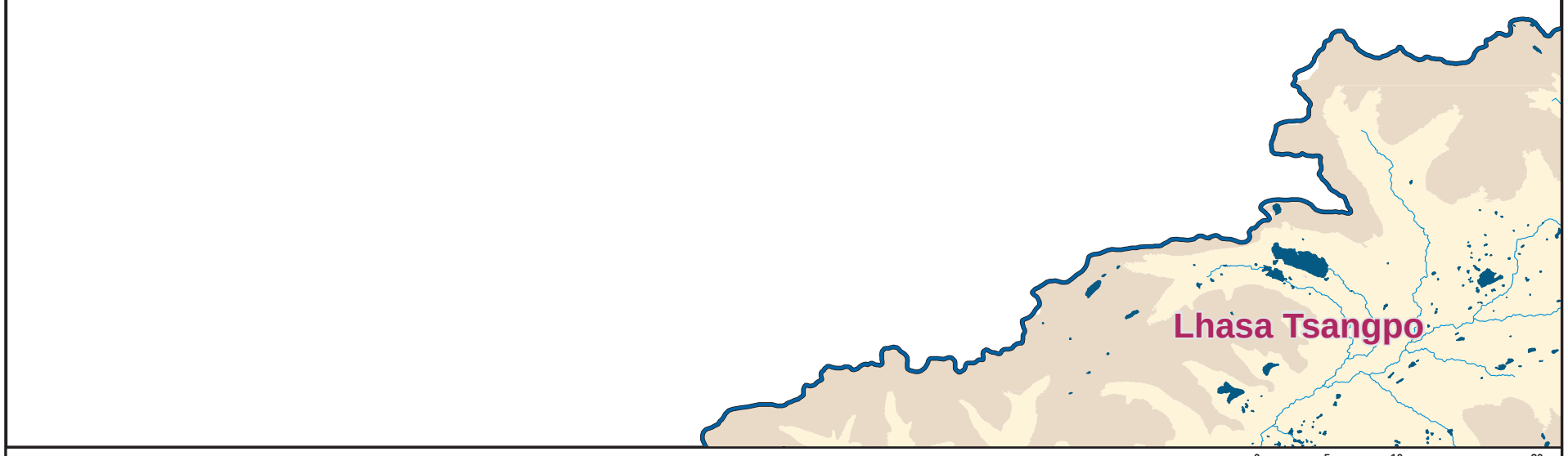
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

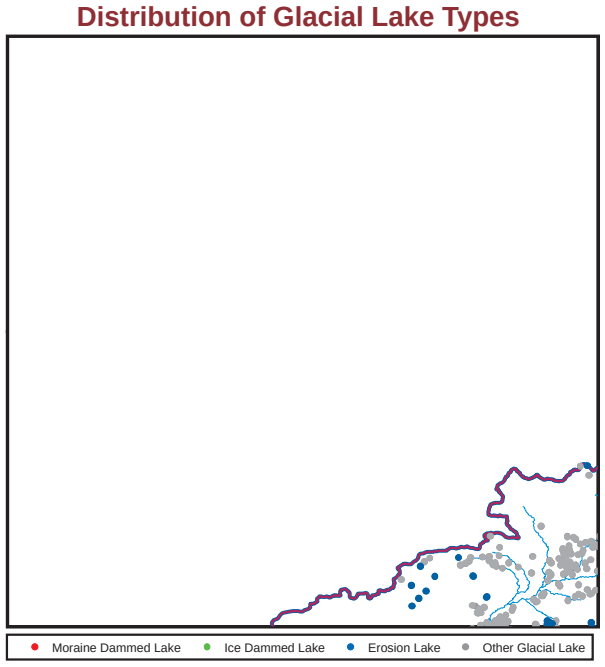
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 66** | **Plate No: 82A**

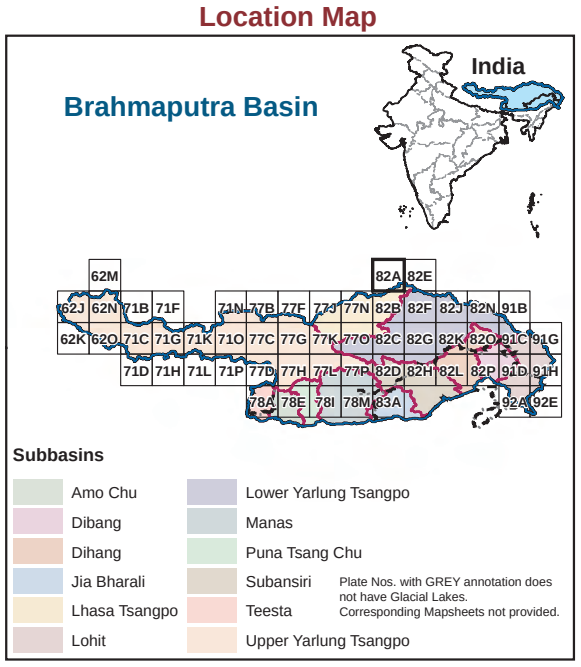


Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	125	920.8
4	> 5,000	14	115.8
	Total	**139**	**1,036.6**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

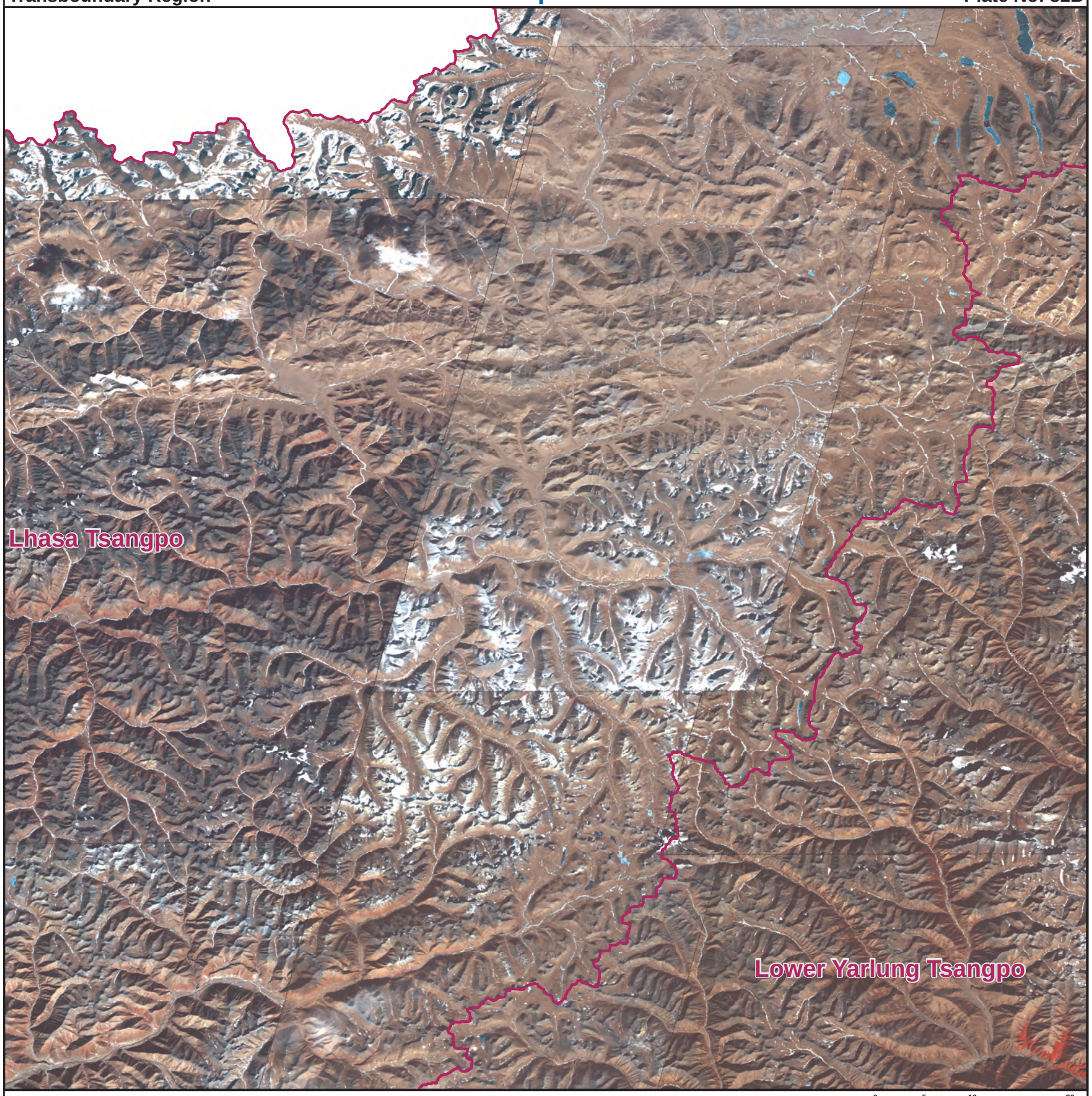
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 67** | Plate No: 82B



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	4	0	0	1	0	65	22	**92**
2	**0.5 - 1**	0	0	0	1	0	0	0	0	89	24	**114**
3	**1 - 5**	1	0	0	3	0	0	8	0	202	32	**246**
4	**5 - 10**	0	0	0	0	0	0	1	0	34	4	**39**
5	**10 - 50**	0	0	0	0	0	0	0	0	26	12	**38**
6	**> 50**	0	0	0	0	0	0	0	0	9	2	**11**
Total		**1**	**0**	**0**	**8**	**0**	**0**	**10**	**0**	**425**	**96**	**540**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

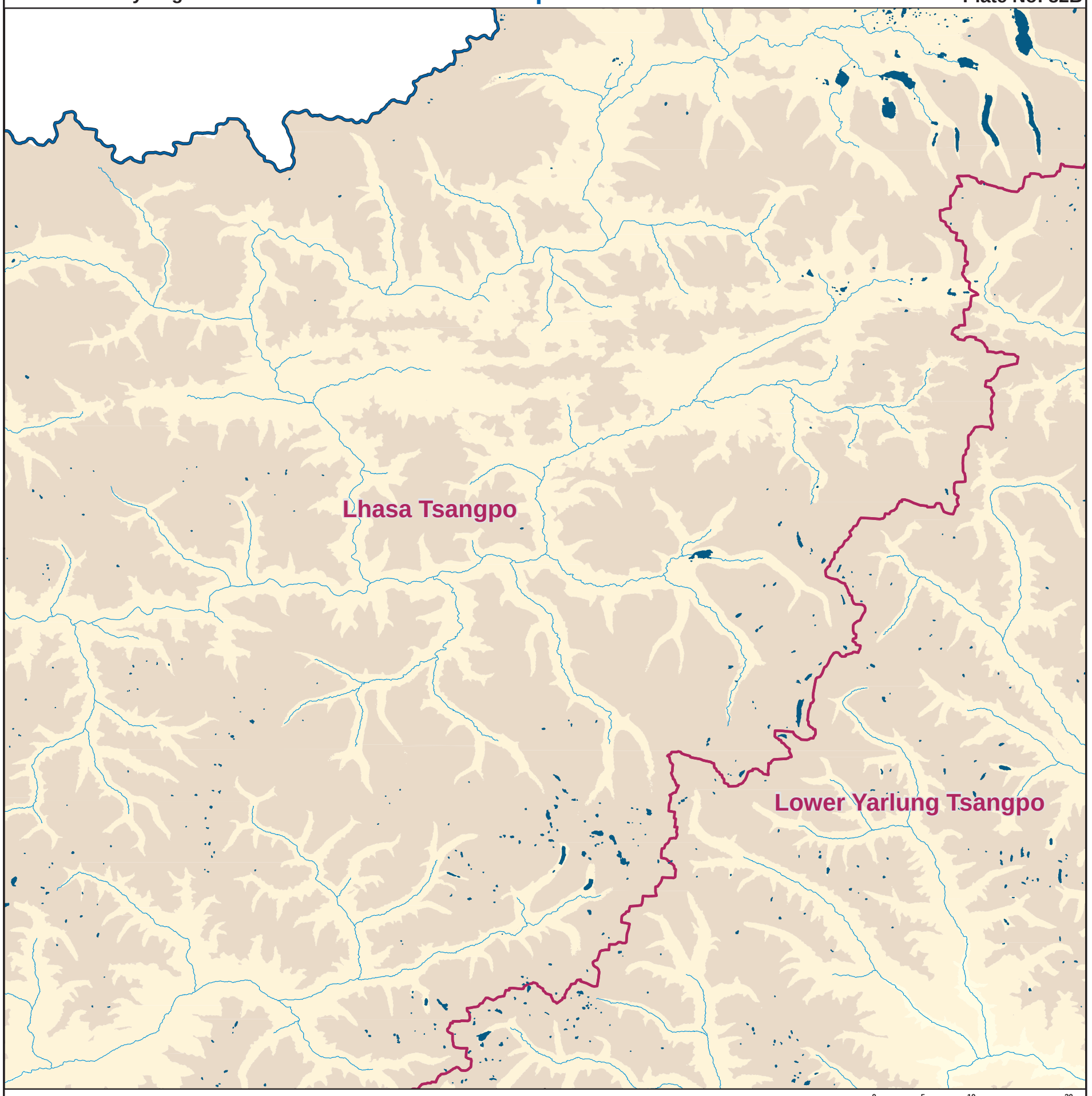
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

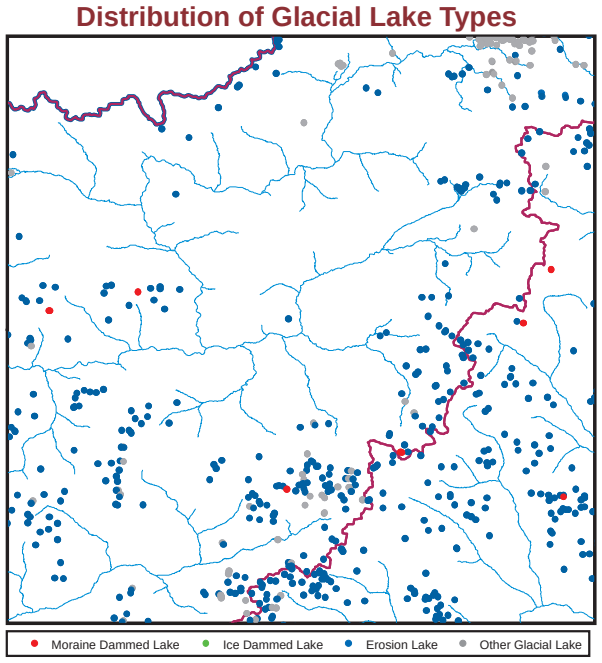
Transboundary Region

Map 68

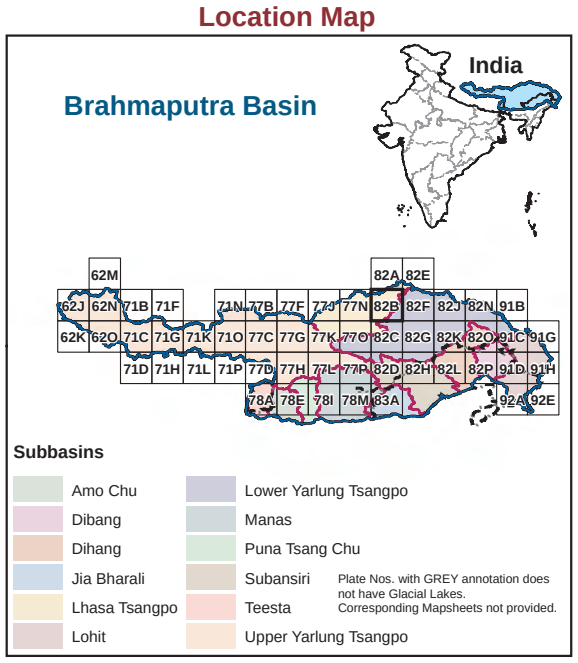
Plate No: 82B



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	115	2,154.4
4	> 5,000	425	1,370.9
Total		**540**	**3,525.3**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

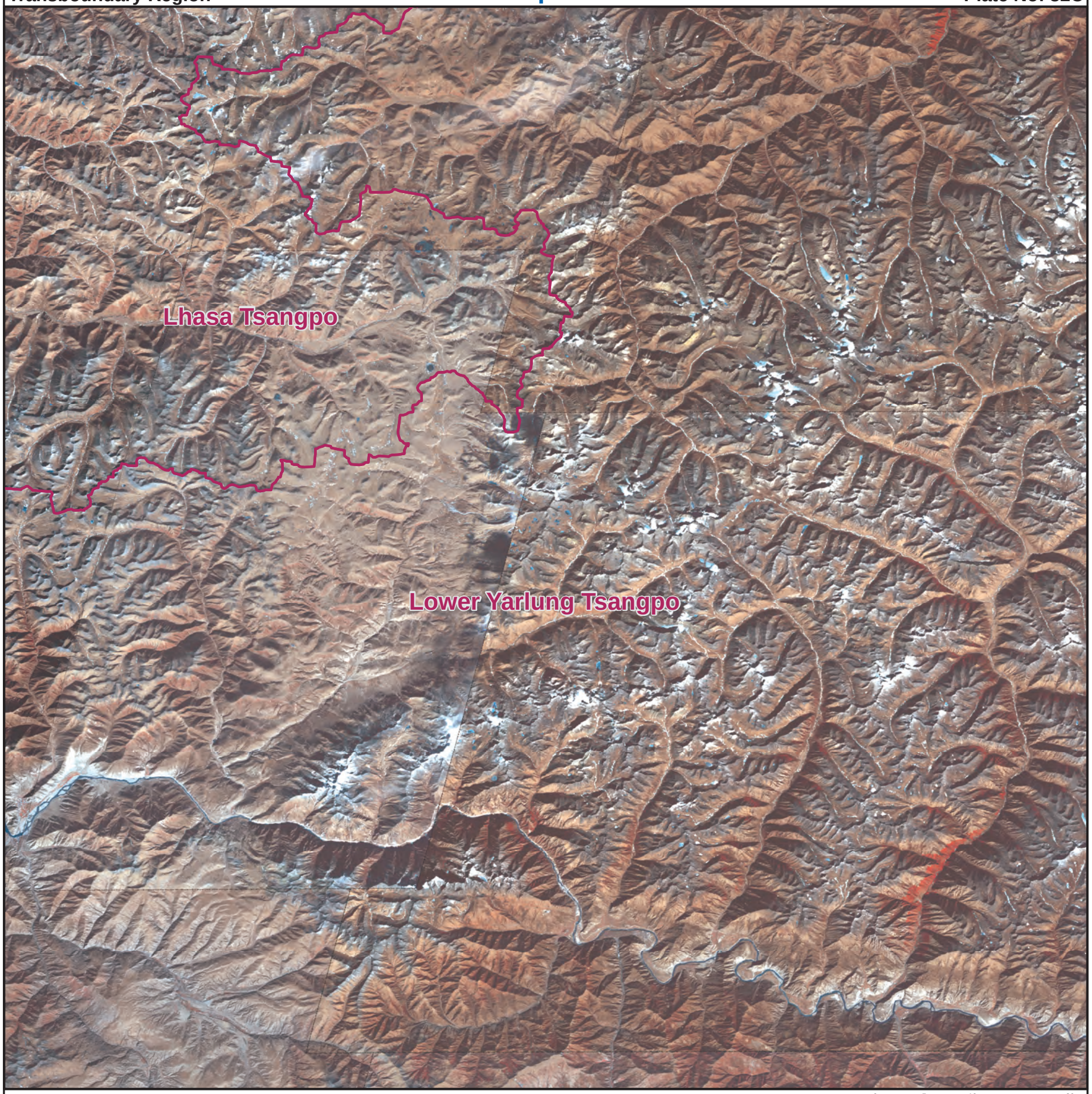
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 69** | Plate No: 82C



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	2	0	0	33	1	0	0	0	109	8	**153**
2	**0.5 - 1**	2	0	0	26	1	0	1	0	118	6	**154**
3	**1 - 5**	1	0	0	37	1	0	4	0	264	8	**315**
4	**5 - 10**	4	0	0	8	0	0	2	0	59	5	**78**
5	**10 - 50**	4	0	0	1	0	0	2	0	42	2	**51**
6	**> 50**	0	0	0	0	0	0	0	0	2	0	**2**
Total		**13**	**0**	**0**	**105**	**3**	**0**	**9**	**0**	**594**	**29**	**753**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

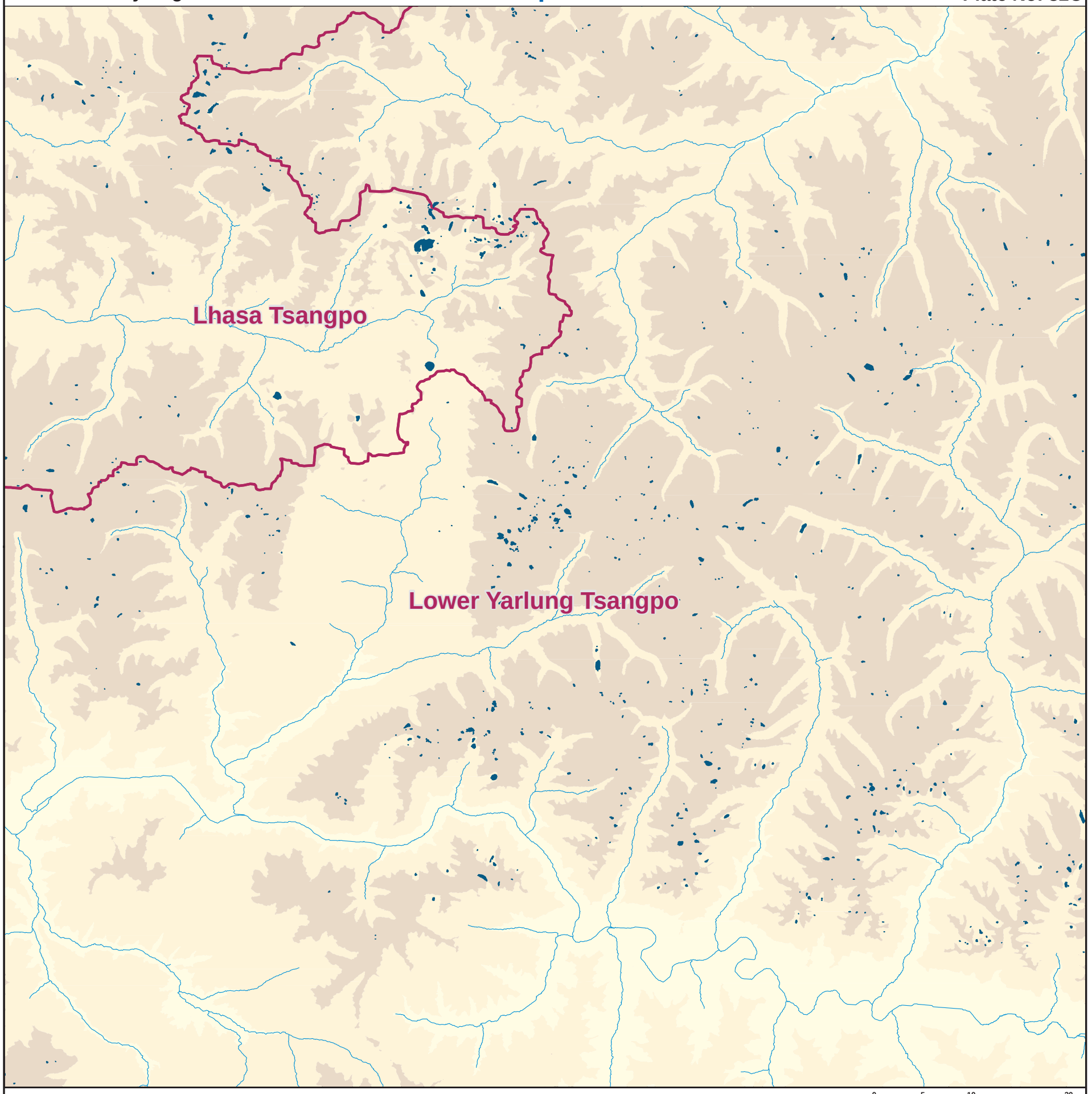
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

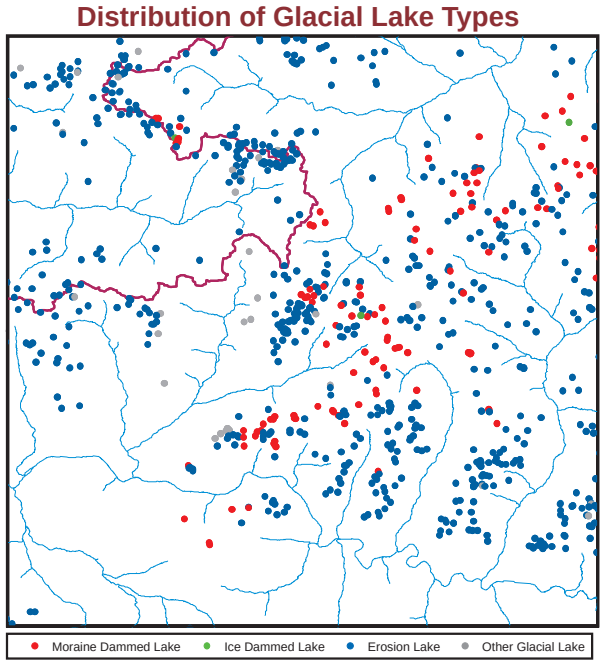
Transboundary Region

Map 70

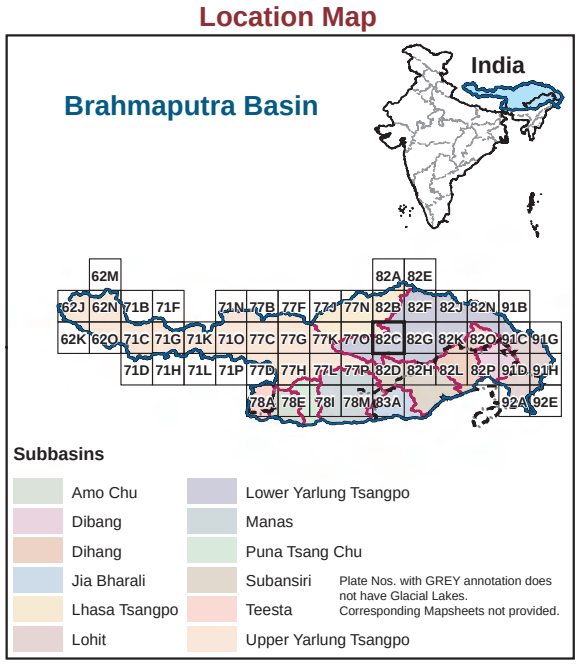
Plate No: 82C



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	158	871.0
4	> 5,000	595	1,705.1
Total		**753**	**2,576.0**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

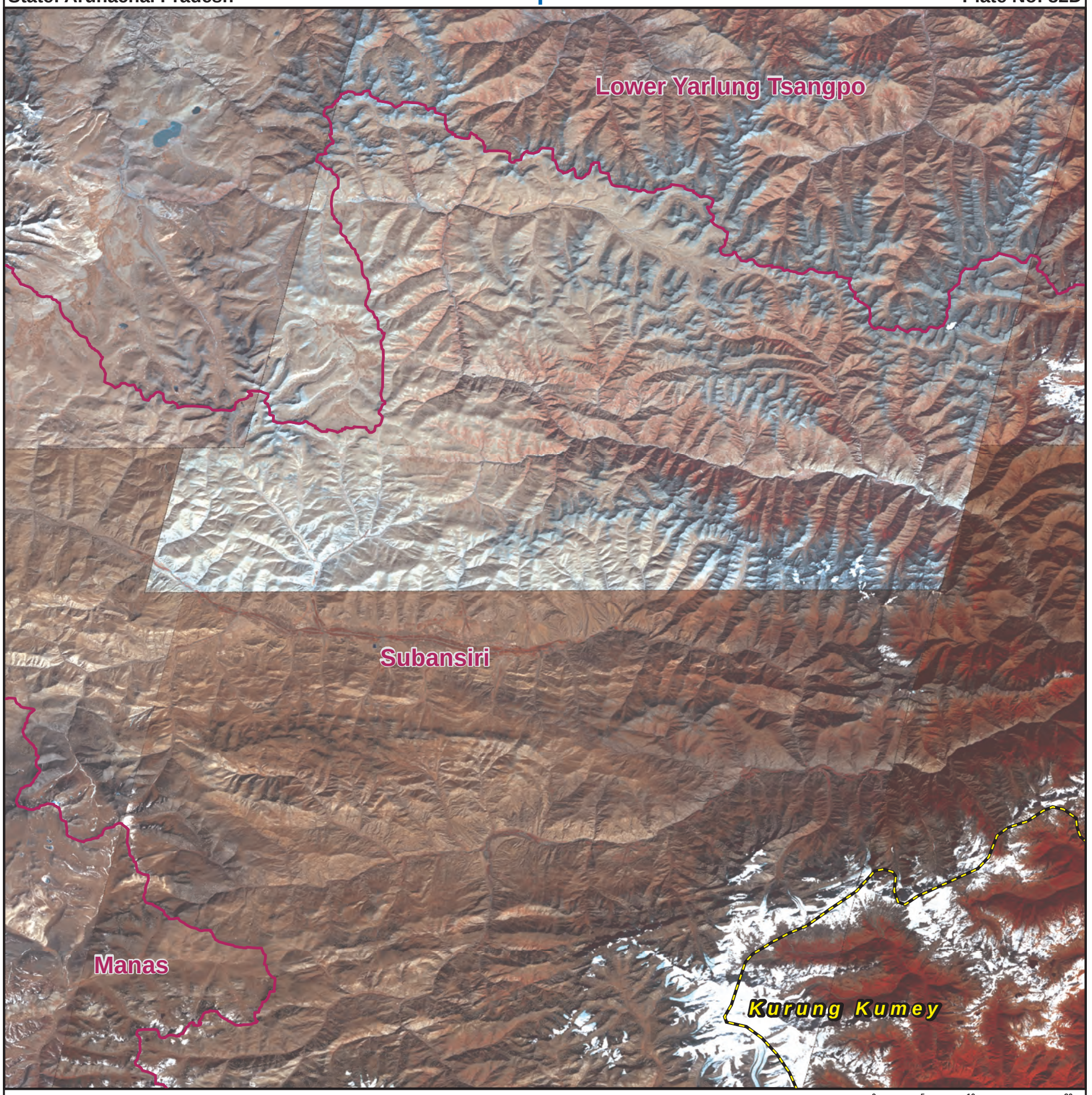
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 71** | Plate No: 82D



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	19	1	0	0	0	47	9	**76**
2	**0.5 - 1**	1	0	0	22	0	1	0	0	61	1	**86**
3	**1 - 5**	7	0	0	33	0	1	1	0	69	7	**118**
4	**5 - 10**	10	0	0	2	0	0	3	0	11	0	**26**
5	**10 - 50**	4	0	0	2	0	0	0	0	10	2	**18**
6	**> 50**	0	0	0	0	0	0	1	0	0	0	**1**
Total		**22**	**0**	**0**	**78**	**1**	**2**	**5**	**0**	**198**	**19**	**325**

Legend

Subbasin Boundary — District Boundary

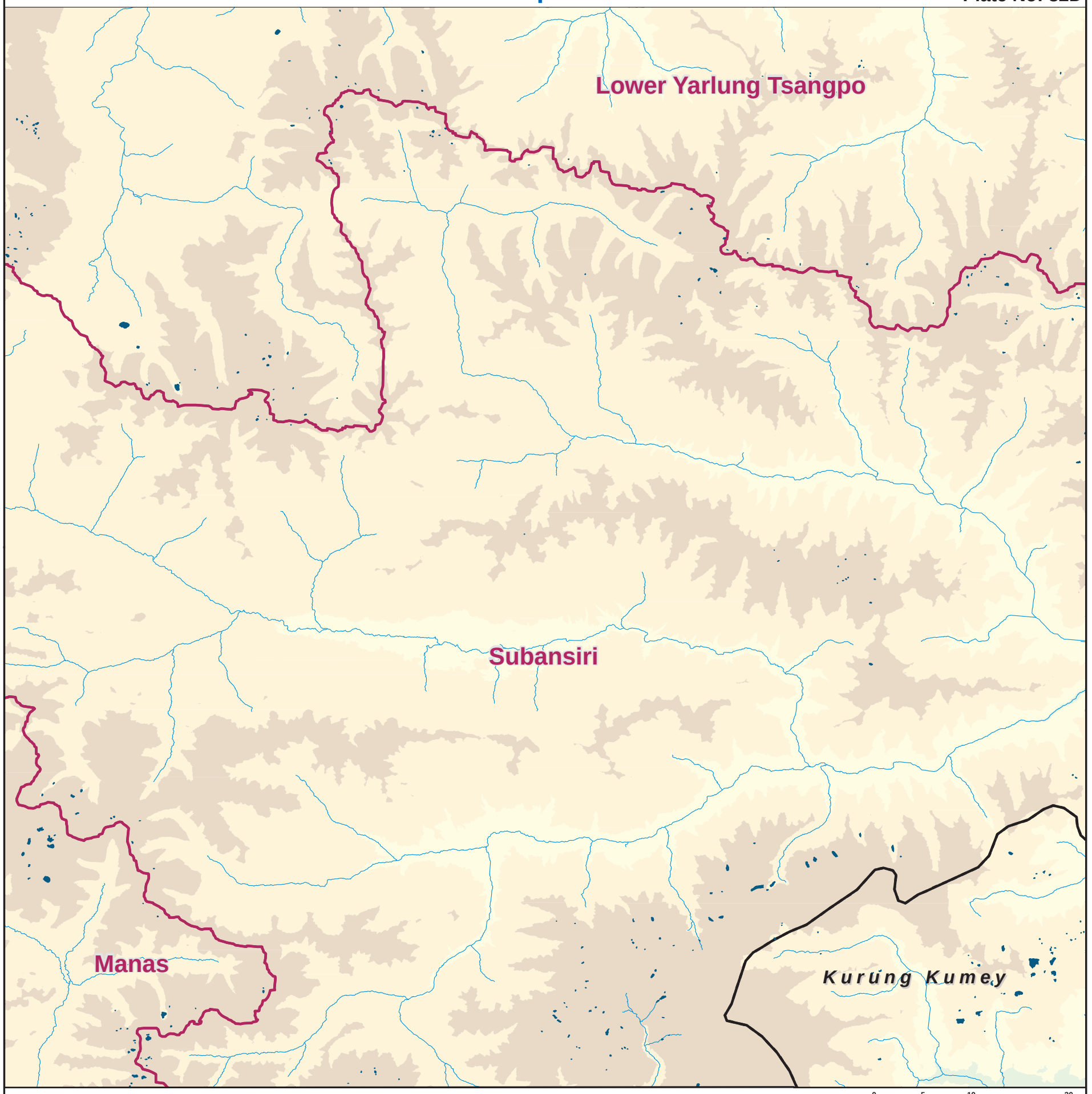
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

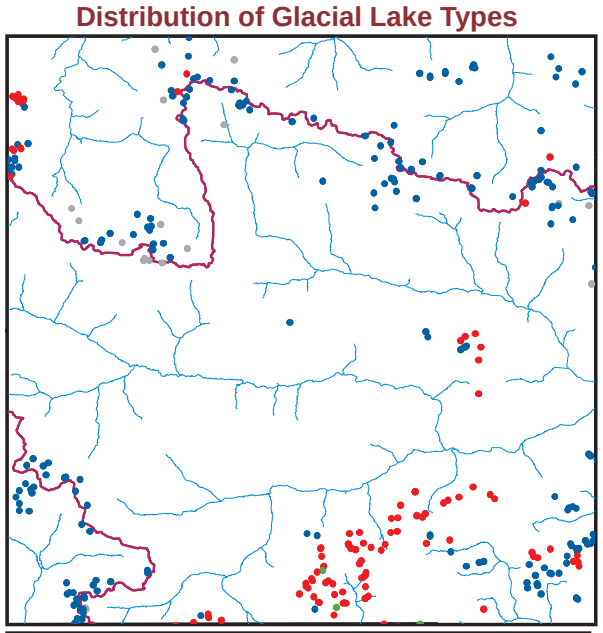
State: Arunachal Pradesh | **Map 72** | Plate No: 82D



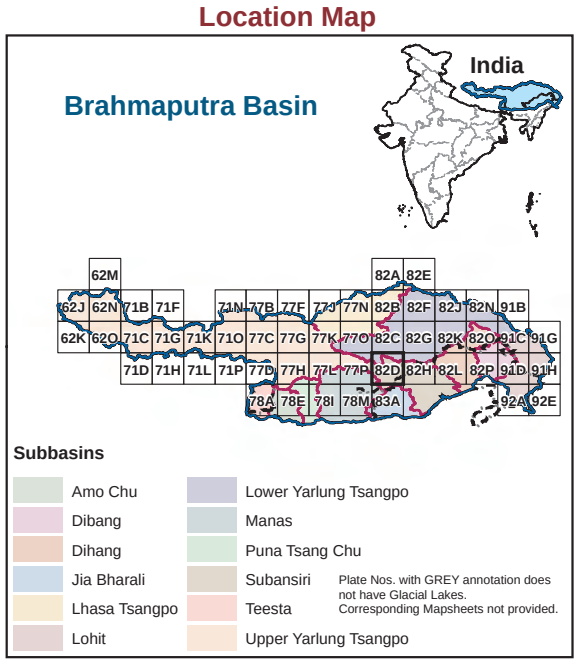
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	96	389.0
4	> 5,000	229	512.8
Total		**325**	**901.8**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

DISCLAIMER: The Administrative Boundaries shown are for scientific study and not for statutory purpose

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 73** | Plate No: 82E

Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 1)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	5	40	**45**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	9	30	**39**
3	**1 - 5**	0	0	0	0	0	0	0	0	9	62	**71**
4	**5 - 10**	0	0	0	0	0	0	0	0	1	11	**12**
5	**10 - 50**	0	0	0	0	0	0	0	0	2	4	**6**
6	**> 50**	0	0	0	0	0	0	0	0	3	1	**4**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**148**	**177**

Legend

Subbasin Boundary — District Boundary

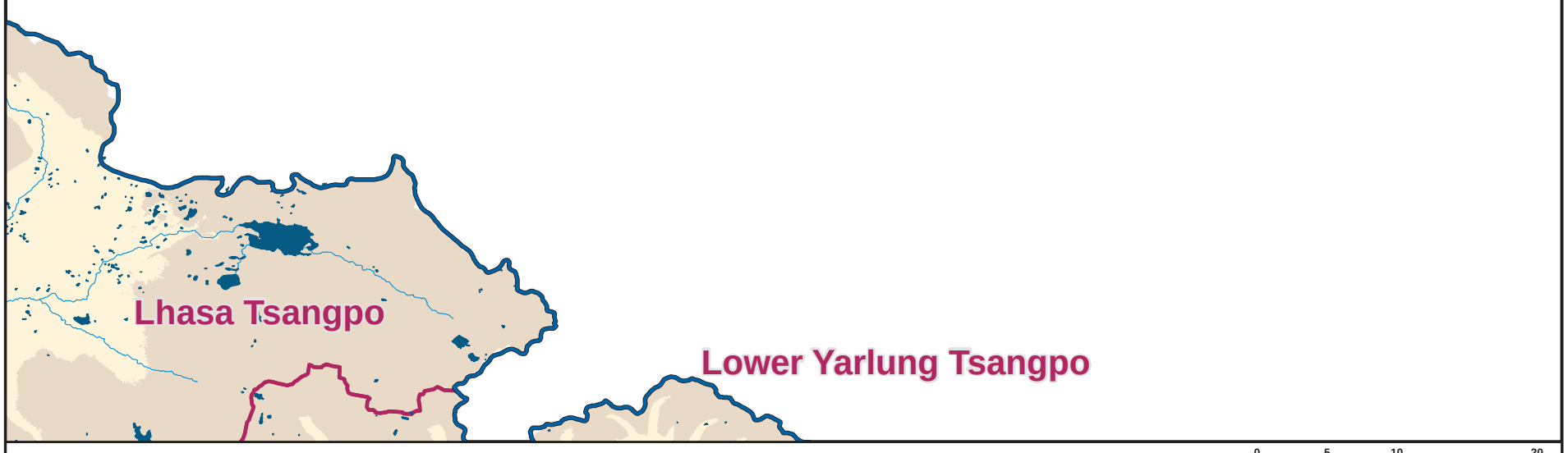
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

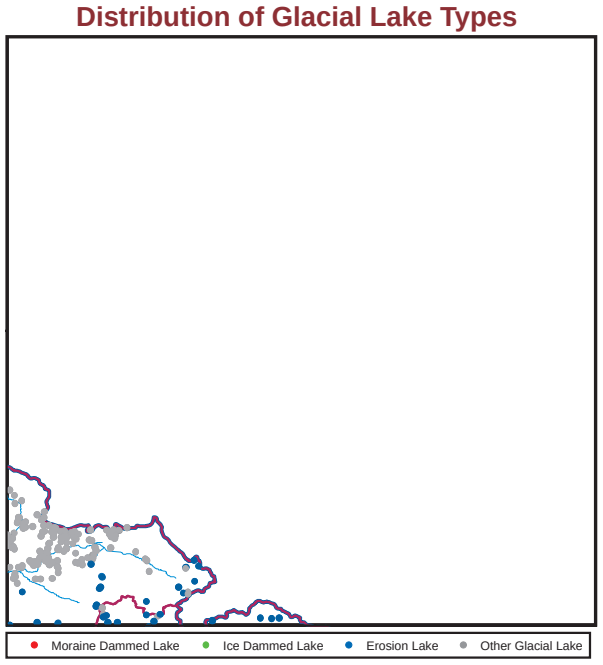
Transboundary Region | **Map 74** | **Plate No: 82E**



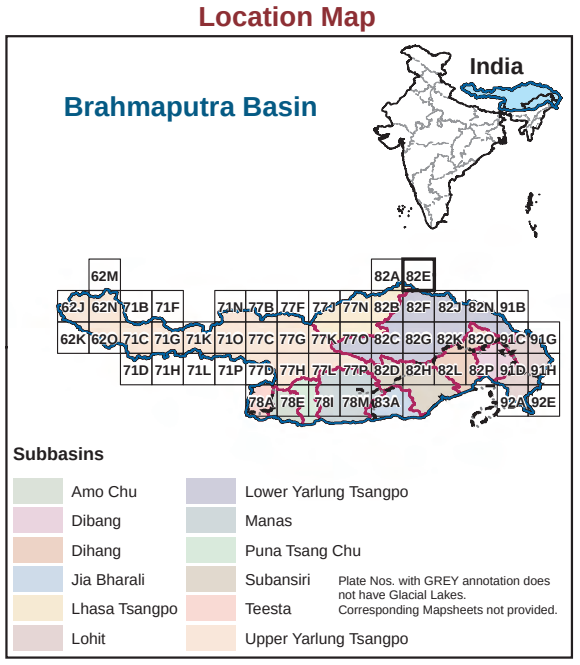
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	104	198.8
4	> 5,000	73	1,120.3
	Total	**177**	**1,319.1**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

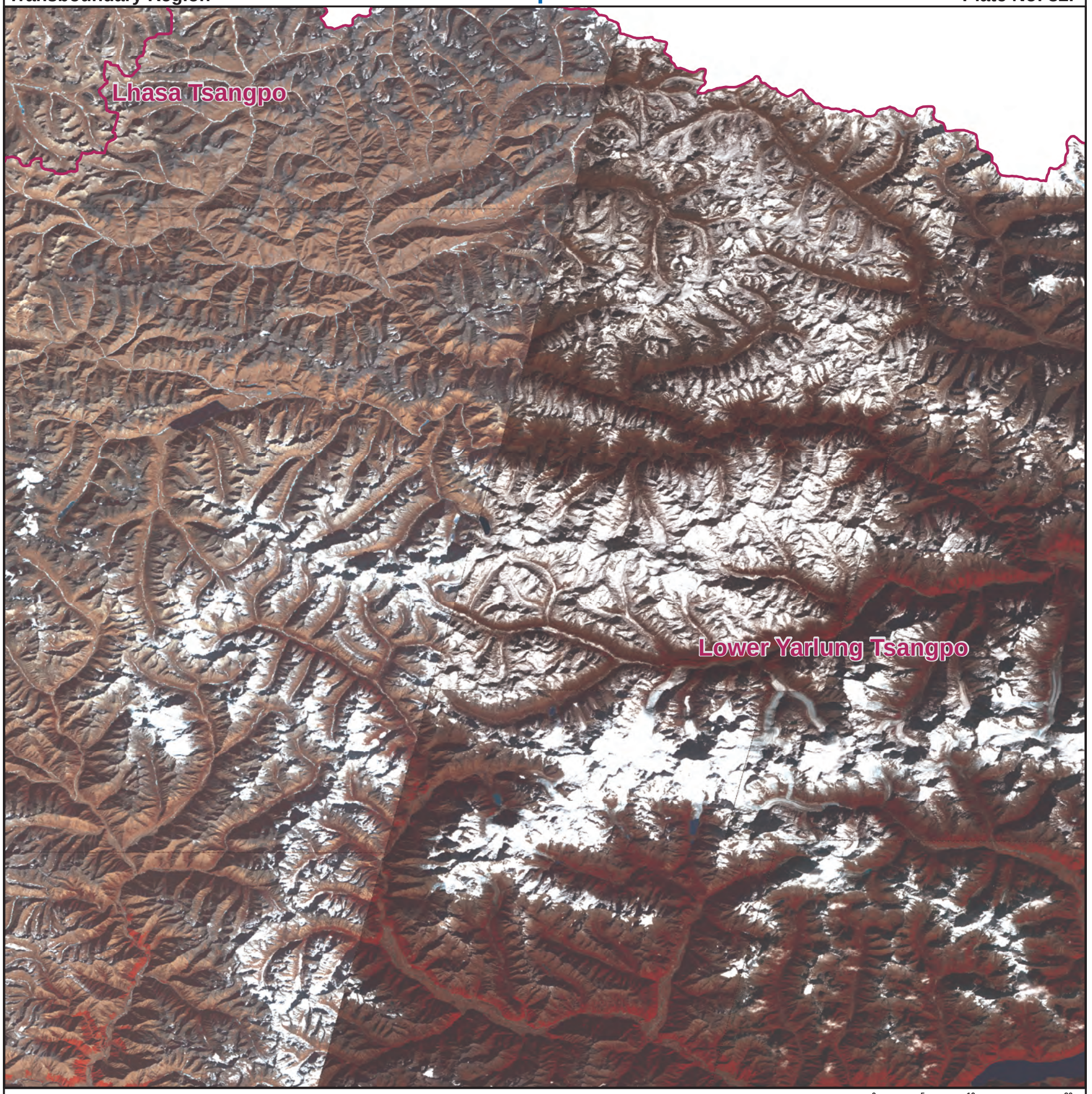
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 75** | Plate No: 82F



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 7)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	1	23	1	0	0	0	56	2	**83**
2	**0.5 - 1**	2	0	0	27	2	0	0	0	67	0	**98**
3	**1 - 5**	7	1	0	77	1	0	3	0	128	0	**217**
4	**5 - 10**	5	0	0	13	0	0	5	0	21	1	**45**
5	**10 - 50**	11	1	0	7	0	0	2	0	20	2	**43**
6	**> 50**	3	0	0	2	0	0	0	1	1	1	**8**
Total		**28**	**2**	**1**	**149**	**4**	**0**	**10**	**1**	**293**	**6**	**494**

Legend

Subbasin Boundary — District Boundary

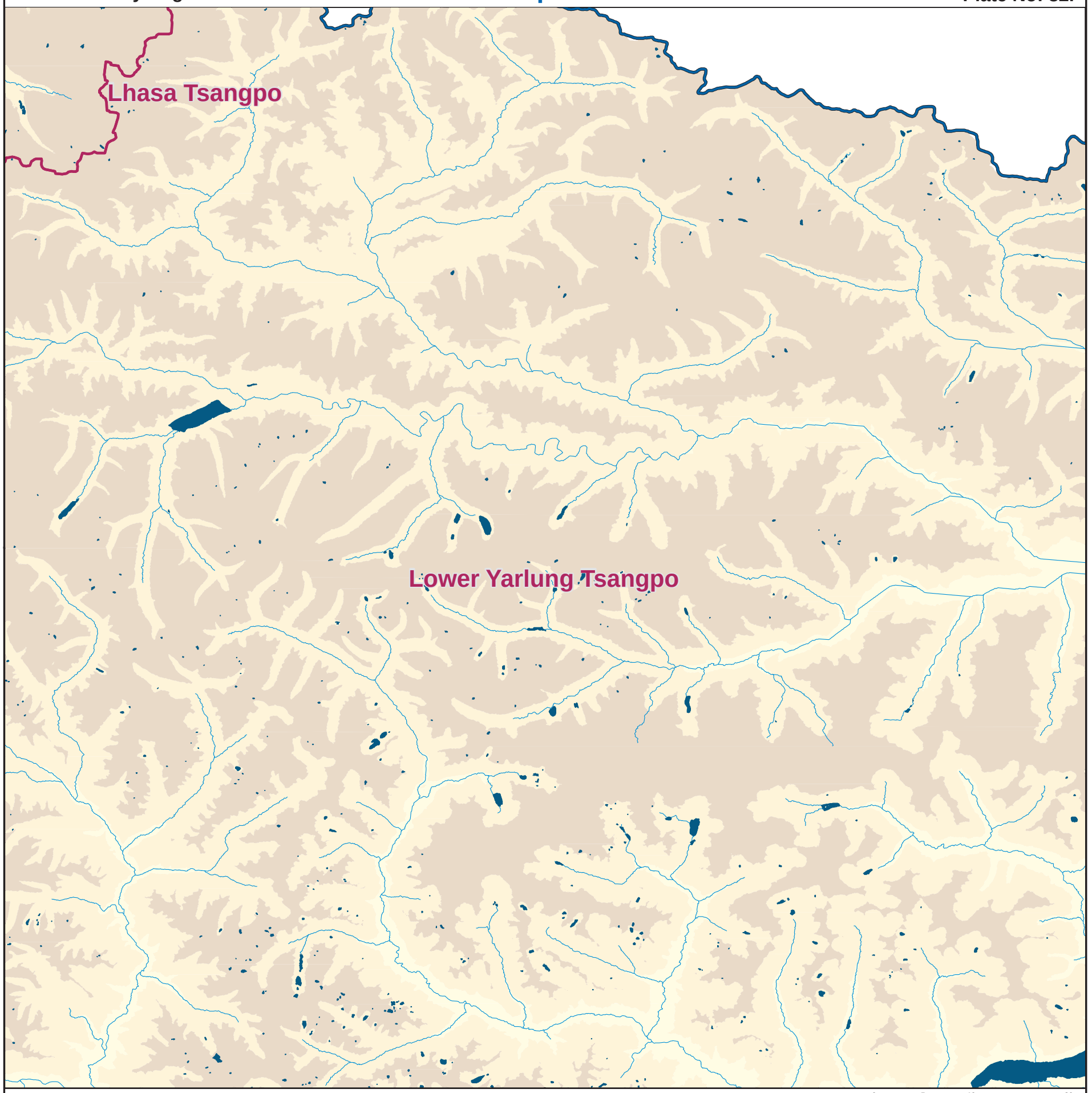
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

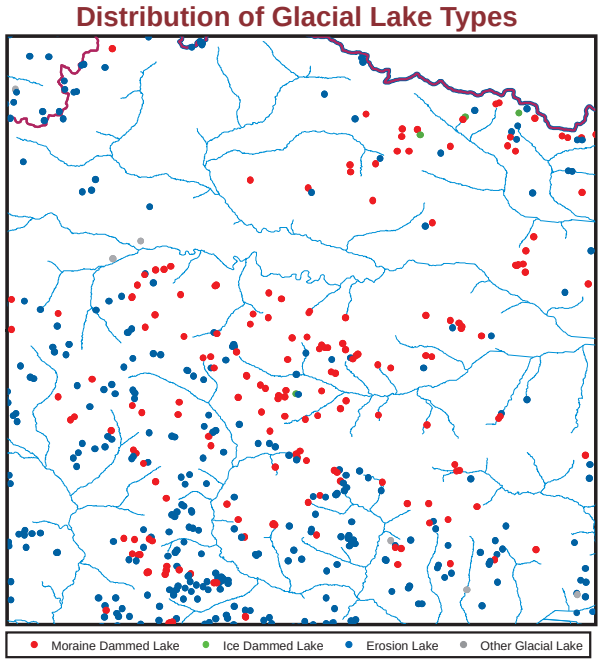
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

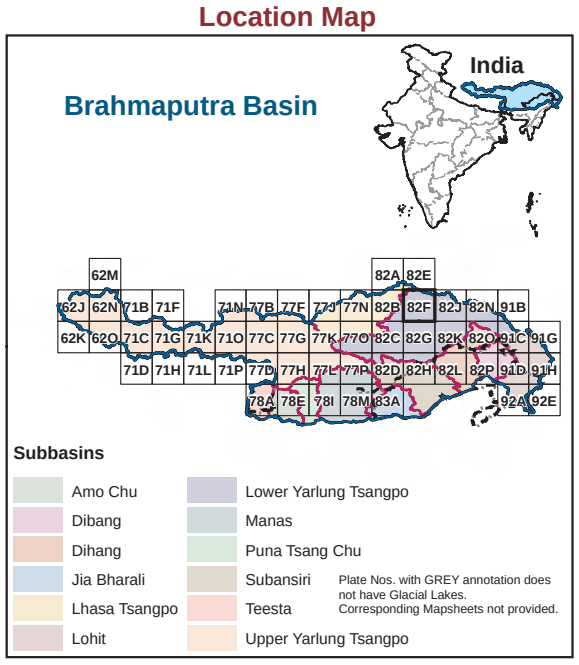
Transboundary Region | Map 76 | Plate No: 82F



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	1	1.5
3	4,001 - 5,000	184	2,041.3
4	> 5,000	309	3,579.3
Total		**494**	**5,622.1**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

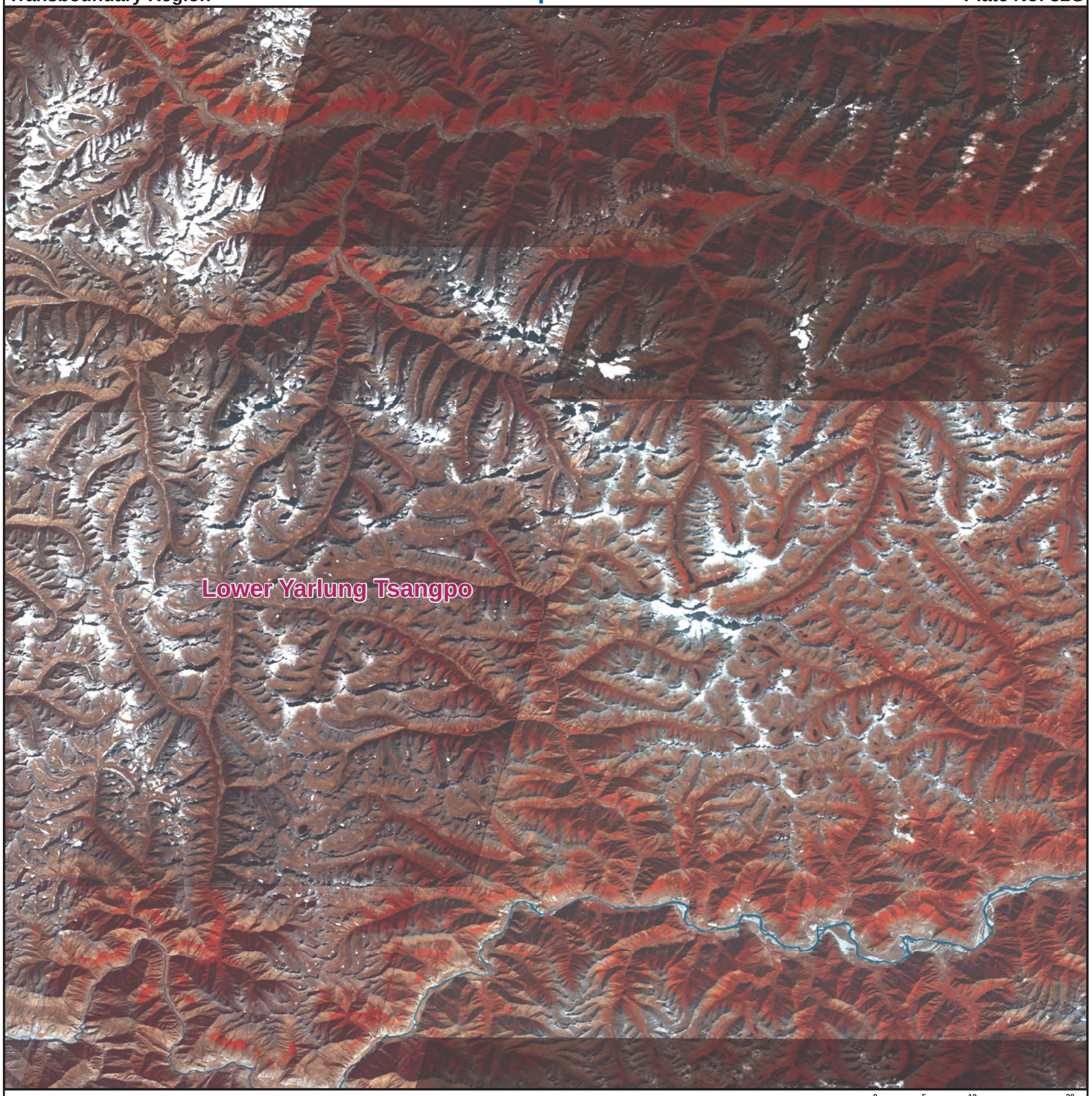
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 77** | Plate No: 82G



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	1	0	0	23	1	0	1	0	224	8	**258**
2	**0.5 - 1**	0	0	0	29	0	0	2	0	249	6	**286**
3	**1 - 5**	4	0	0	54	0	0	9	0	522	15	**604**
4	**5 - 10**	6	0	0	6	0	0	7	0	142	6	**167**
5	**10 - 50**	1	0	0	4	0	0	11	0	96	5	**117**
6	**> 50**	0	0	0	0	0	0	0	0	7	2	**9**
Total		**12**	**0**	**0**	**116**	**1**	**0**	**30**	**0**	**1240**	**42**	**1441**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

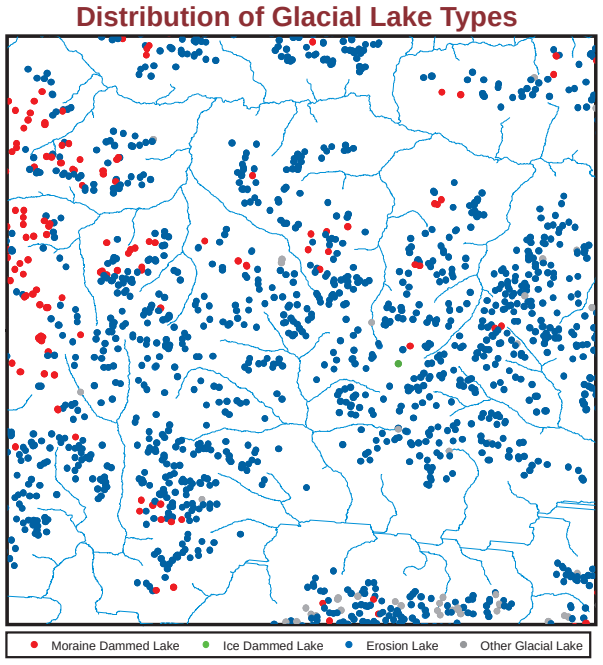
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

Transboundary Region

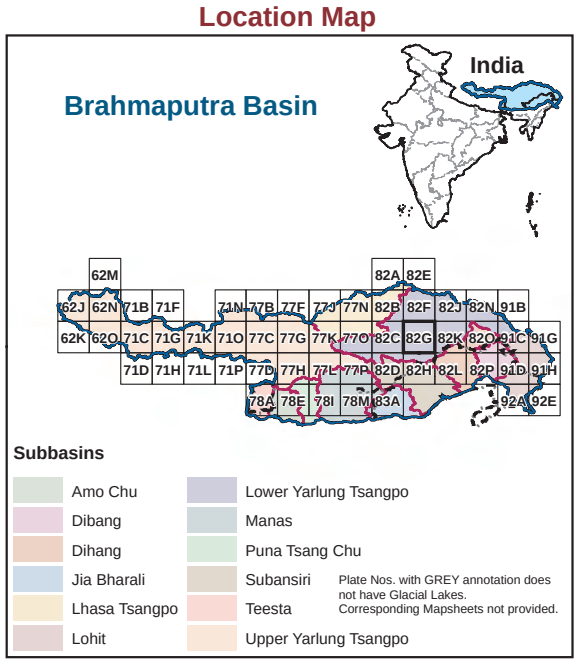
Map 78

Plate No: 82G

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	2	1.6
3	4,001 - 5,000	1186	5,262.5
4	> 5,000	253	510.8
	Total	**1441**	**5,774.9**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

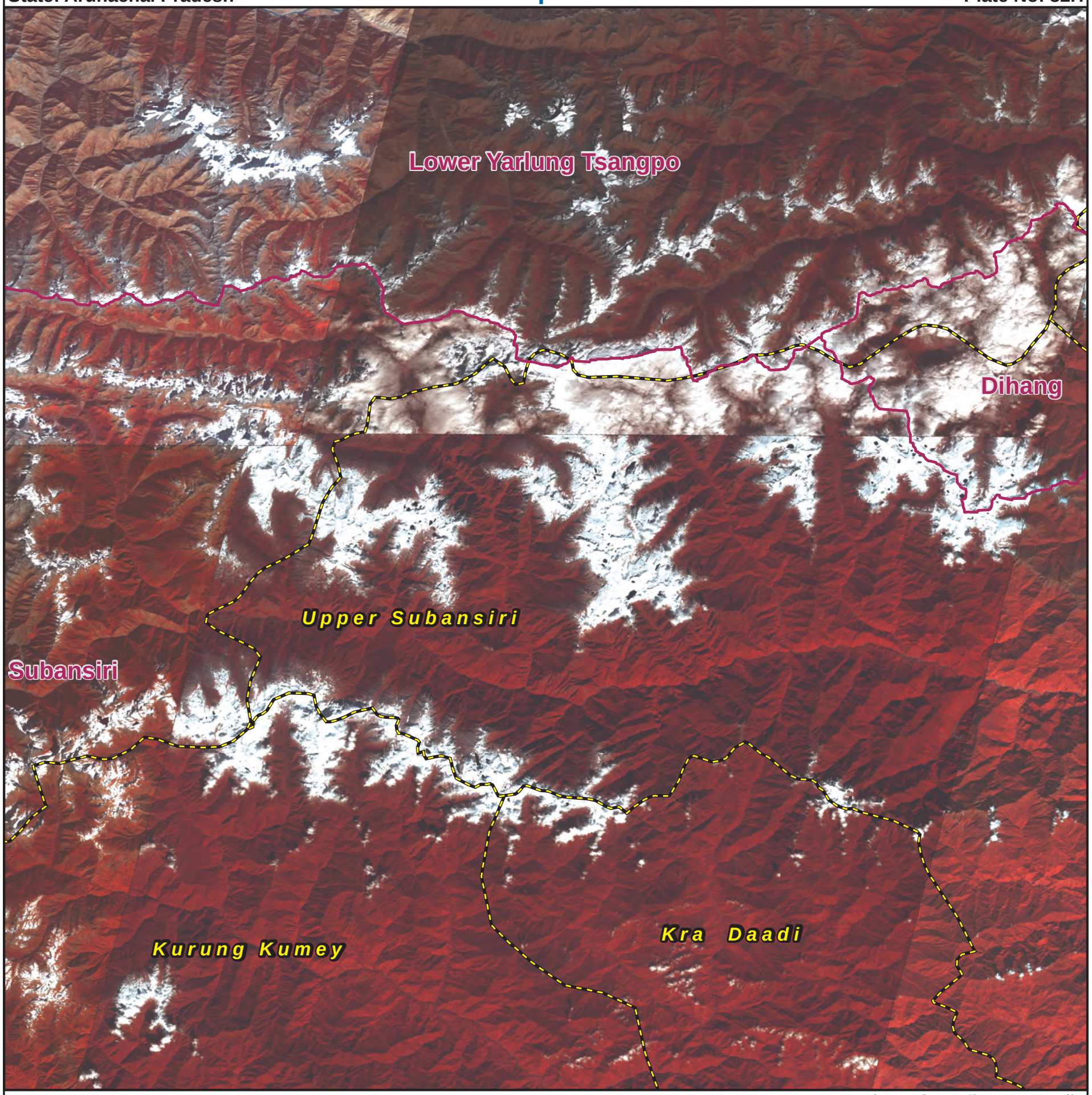
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 79** | Plate No: 82H



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	7	0	0	1	0	61	8	**77**
2	**0.5 - 1**	2	0	0	7	0	0	2	0	90	9	**110**
3	**1 - 5**	1	0	0	14	0	0	27	0	163	7	**212**
4	**5 - 10**	1	0	0	2	0	0	14	0	46	6	**69**
5	**10 - 50**	0	0	0	1	0	0	9	0	30	3	**43**
6	**> 50**	0	0	0	0	0	0	0	0	3	0	**3**
Total		**4**	**0**	**0**	**31**	**0**	**0**	**53**	**0**	**393**	**33**	**514**

Legend

Subbasin Boundary

District Boundary

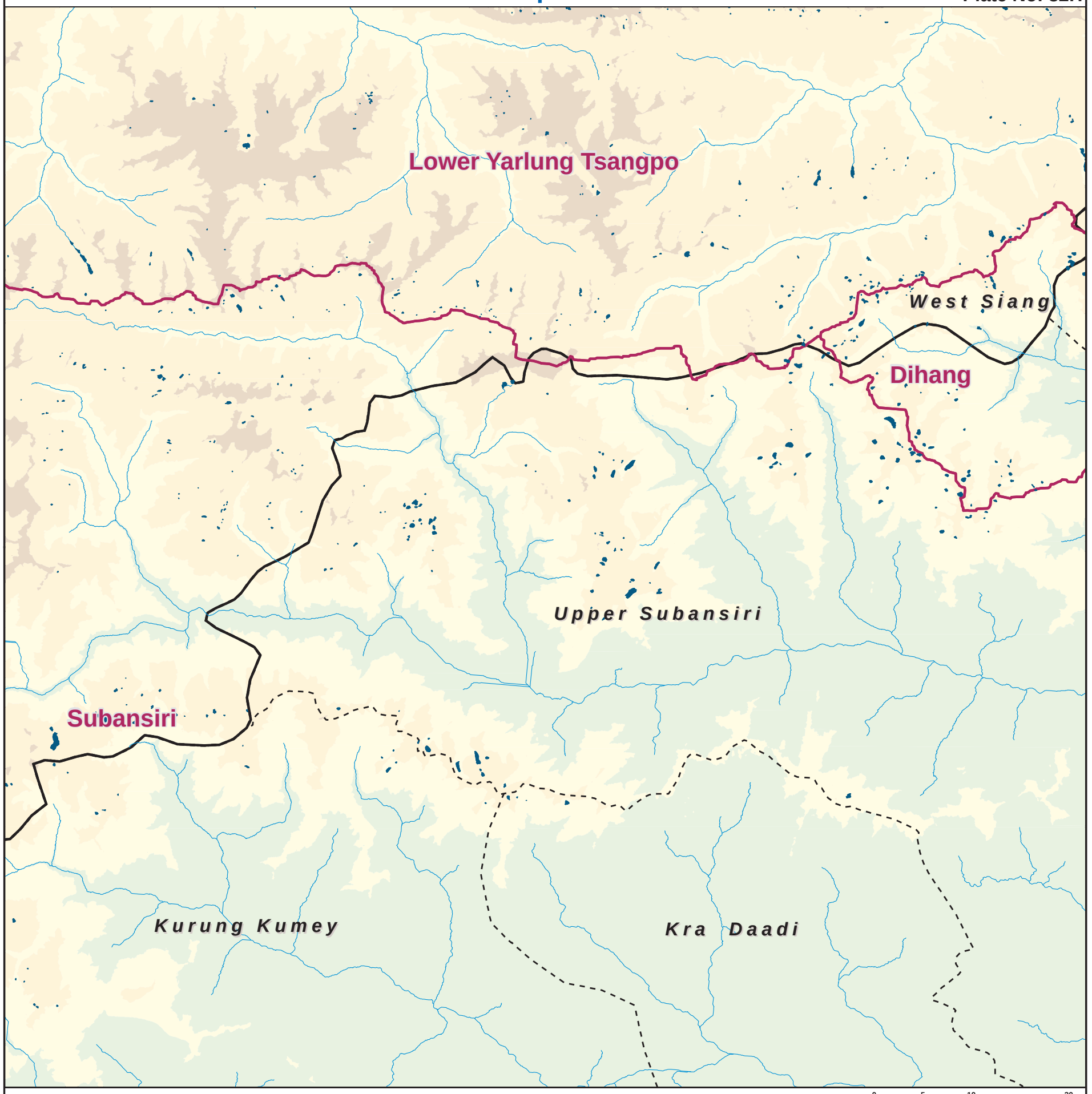
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

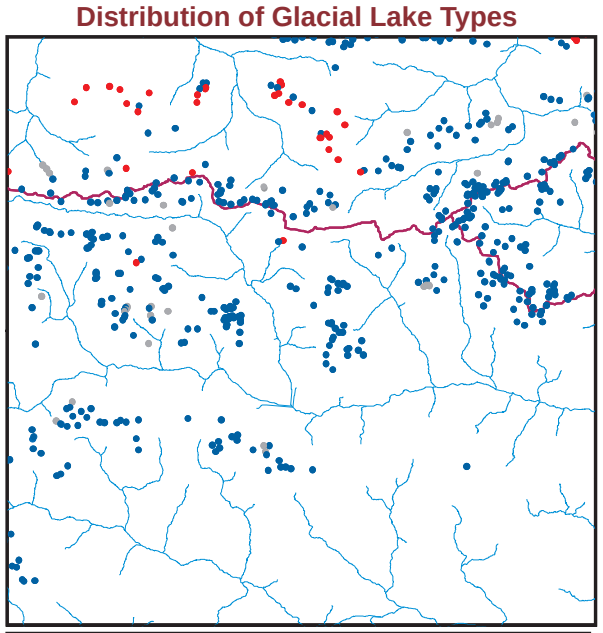
State: Arunachal Pradesh | **Map 80** | Plate No: 82H



Data Source: Resourcesat-2 LISS-IV

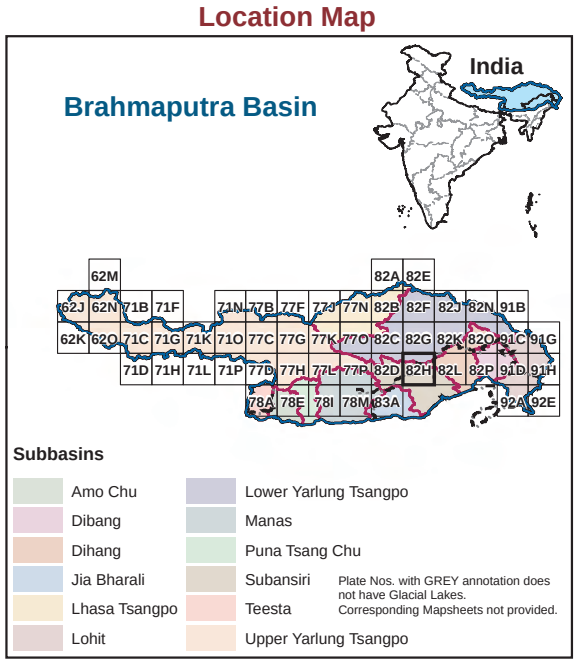
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	1	5.9
2	3,001 - 4,000	82	629.7
3	4,001 - 5,000	401	1,423.0
4	> 5,000	30	34.2
Total		**514**	**2,092.8**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

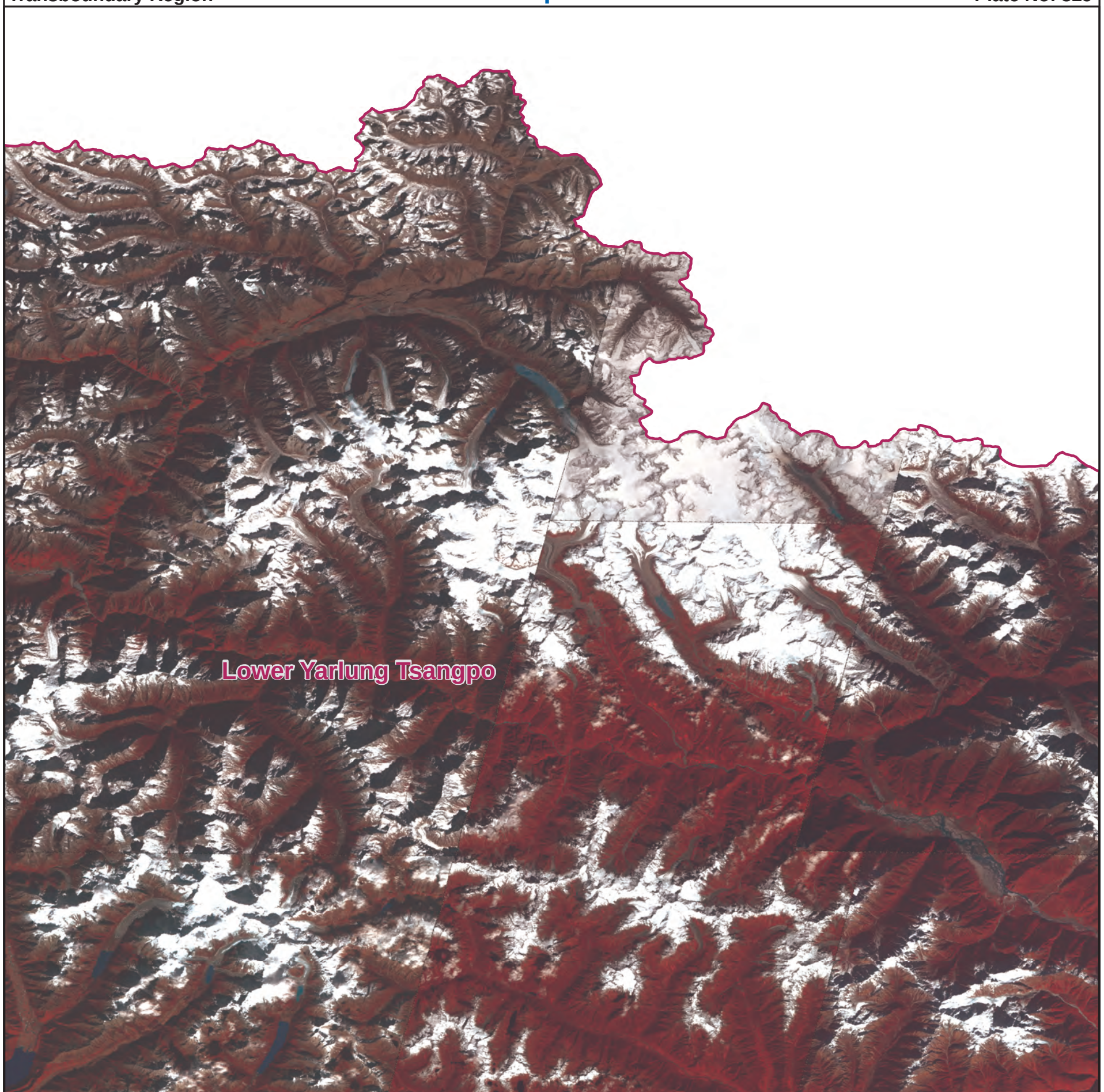
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 81** | Plate No: 82J



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	1	0	6	5	0	0	0	14	0	**26**
2	**0.5 - 1**	0	1	0	22	2	0	0	0	13	1	**39**
3	**1 - 5**	1	1	0	29	1	0	4	0	37	0	**73**
4	**5 - 10**	4	0	0	6	0	0	3	0	5	0	**18**
5	**10 - 50**	4	0	0	8	0	0	2	0	11	1	**26**
6	**> 50**	6	0	0	0	0	0	1	1	4	0	**12**
Total		**15**	**3**	**0**	**71**	**8**	**0**	**10**	**1**	**84**	**2**	**194**

Legend

Subbasin Boundary

District Boundary

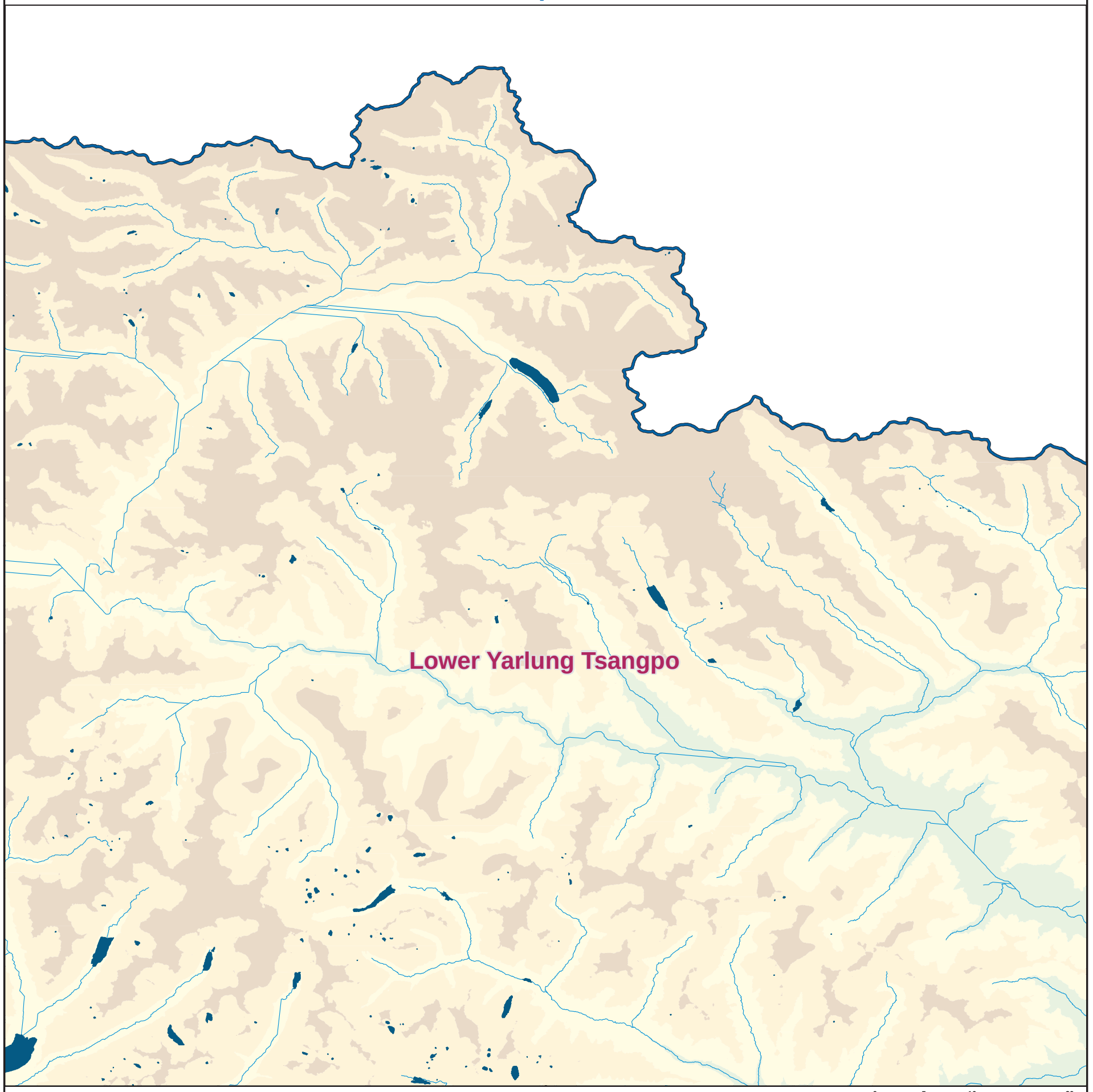
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

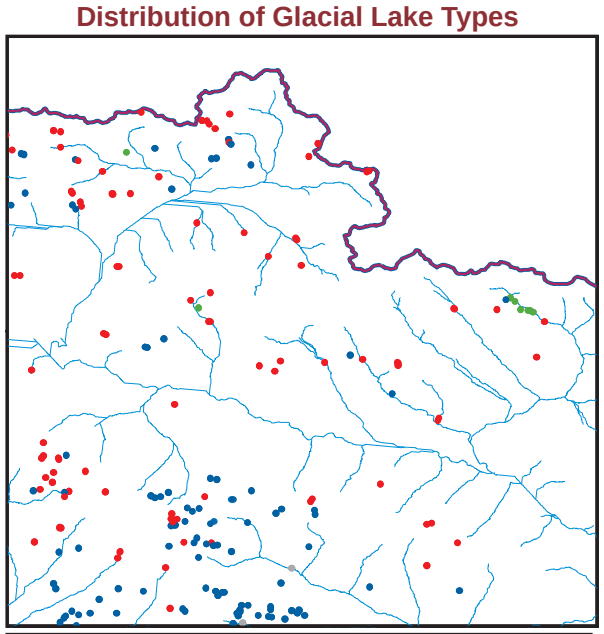
Transboundary Region | **Map 82** | Plate No: 82J



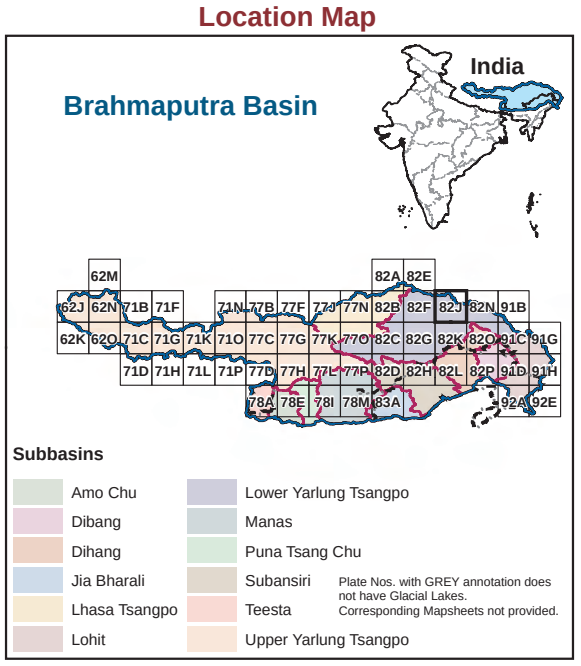
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	1	36.1
2	3,001 - 4,000	19	1,020.6
3	4,001 - 5,000	160	1,469.1
4	> 5,000	14	53.6
Total		**194**	**2,579.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

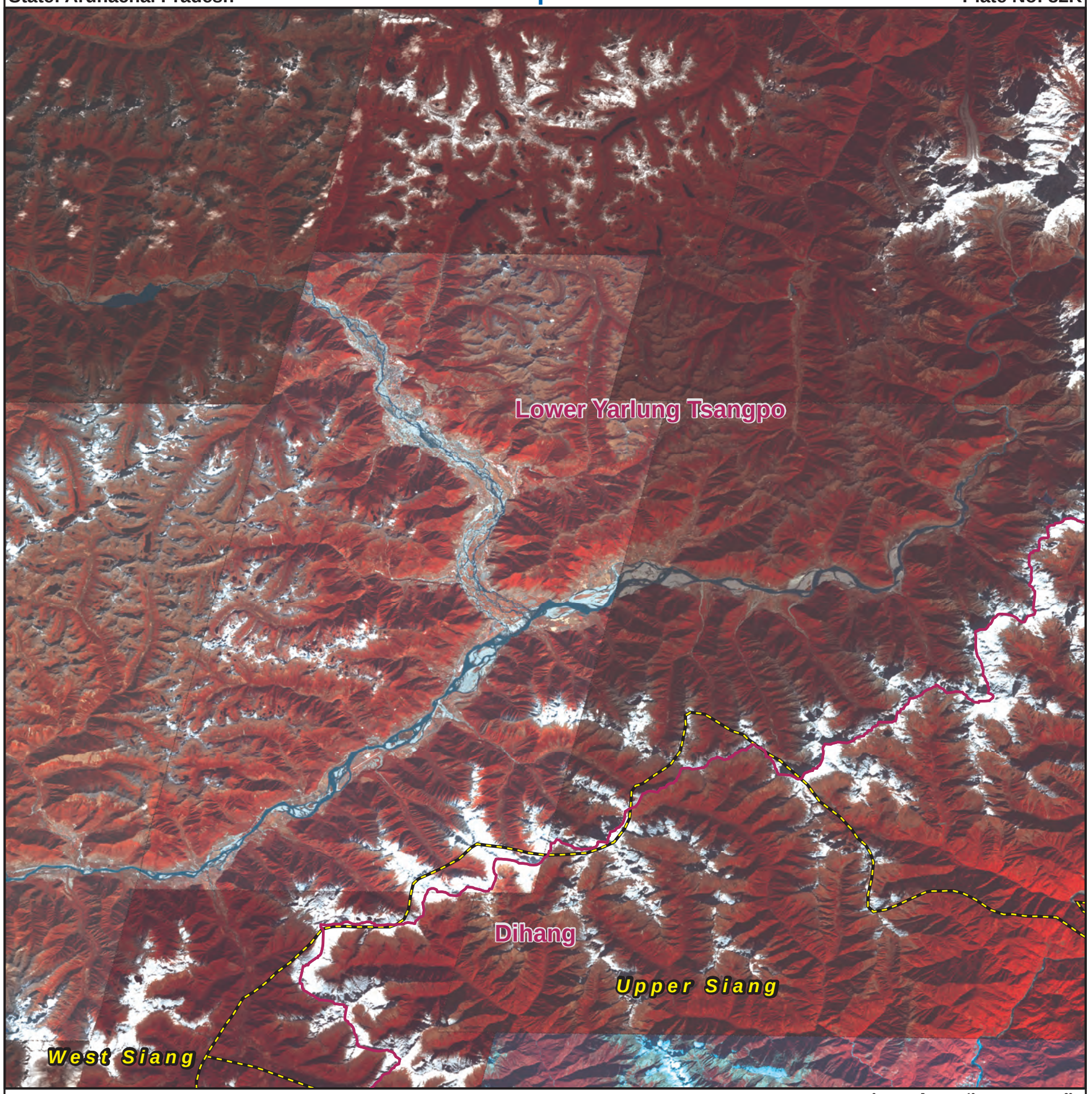
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 83** | Plate No: 82K



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	6	2	0	1	0	151	11	**171**
2	**0.5 - 1**	0	1	0	4	1	0	1	0	161	17	**185**
3	**1 - 5**	1	0	0	5	0	0	15	0	343	25	**389**
4	**5 - 10**	0	0	0	1	0	0	17	0	105	7	**130**
5	**10 - 50**	2	0	0	3	0	0	16	0	103	8	**132**
6	**> 50**	0	0	0	0	0	0	2	4	8	2	**16**
Total		**3**	**1**	**0**	**19**	**3**	**0**	**52**	**4**	**871**	**70**	**1023**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

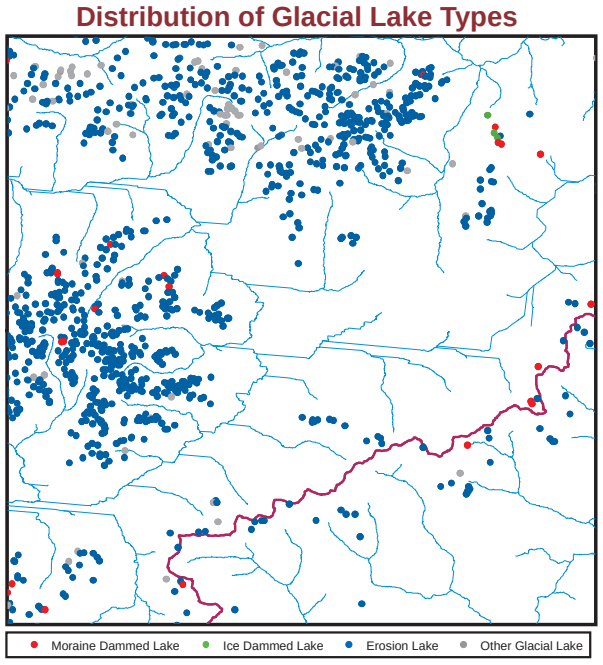
State: Arunachal Pradesh

Map 84

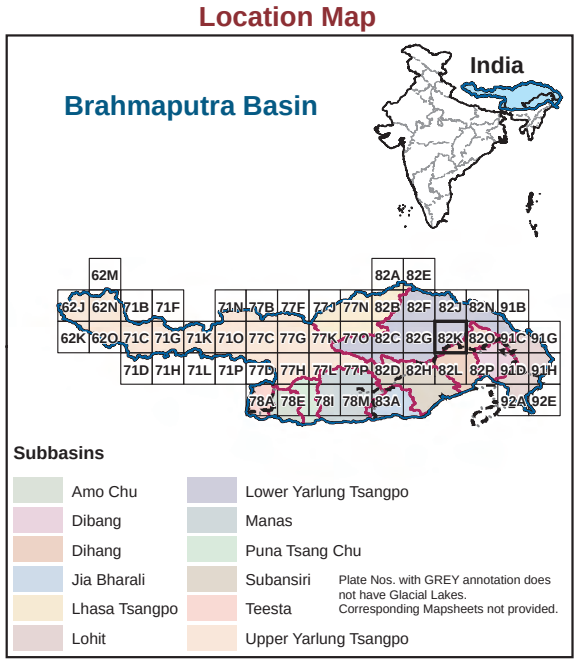
Plate No: 82K

Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	39	275.1
3	4,001 - 5,000	778	4,510.9
4	> 5,000	206	1,429.2
Total		**1023**	**6,215.3**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

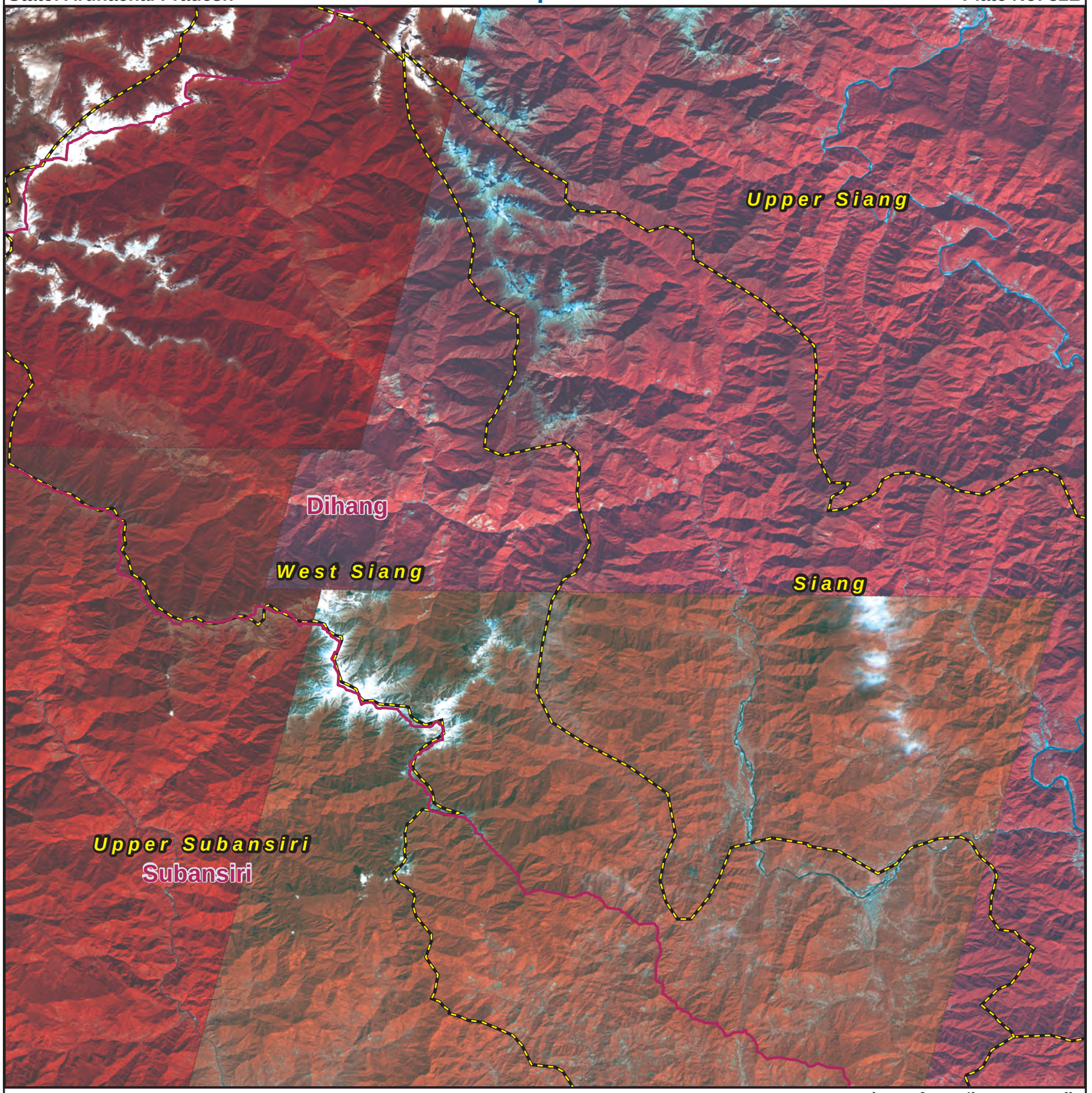
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 85** | Plate No: 82L



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	4	0	**4**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	11	1	**12**
3	**1 - 5**	0	0	0	0	0	0	6	0	25	3	**34**
4	**5 - 10**	0	0	0	0	0	0	5	0	7	0	**12**
5	**10 - 50**	0	0	0	1	0	0	2	0	9	0	**12**
6	**> 50**	0	0	0	0	0	0	0	0	1	0	**1**
Total		**0**	**0**	**0**	**1**	**0**	**0**	**13**	**0**	**57**	**4**	**75**

Legend

Subbasin Boundary — District Boundary

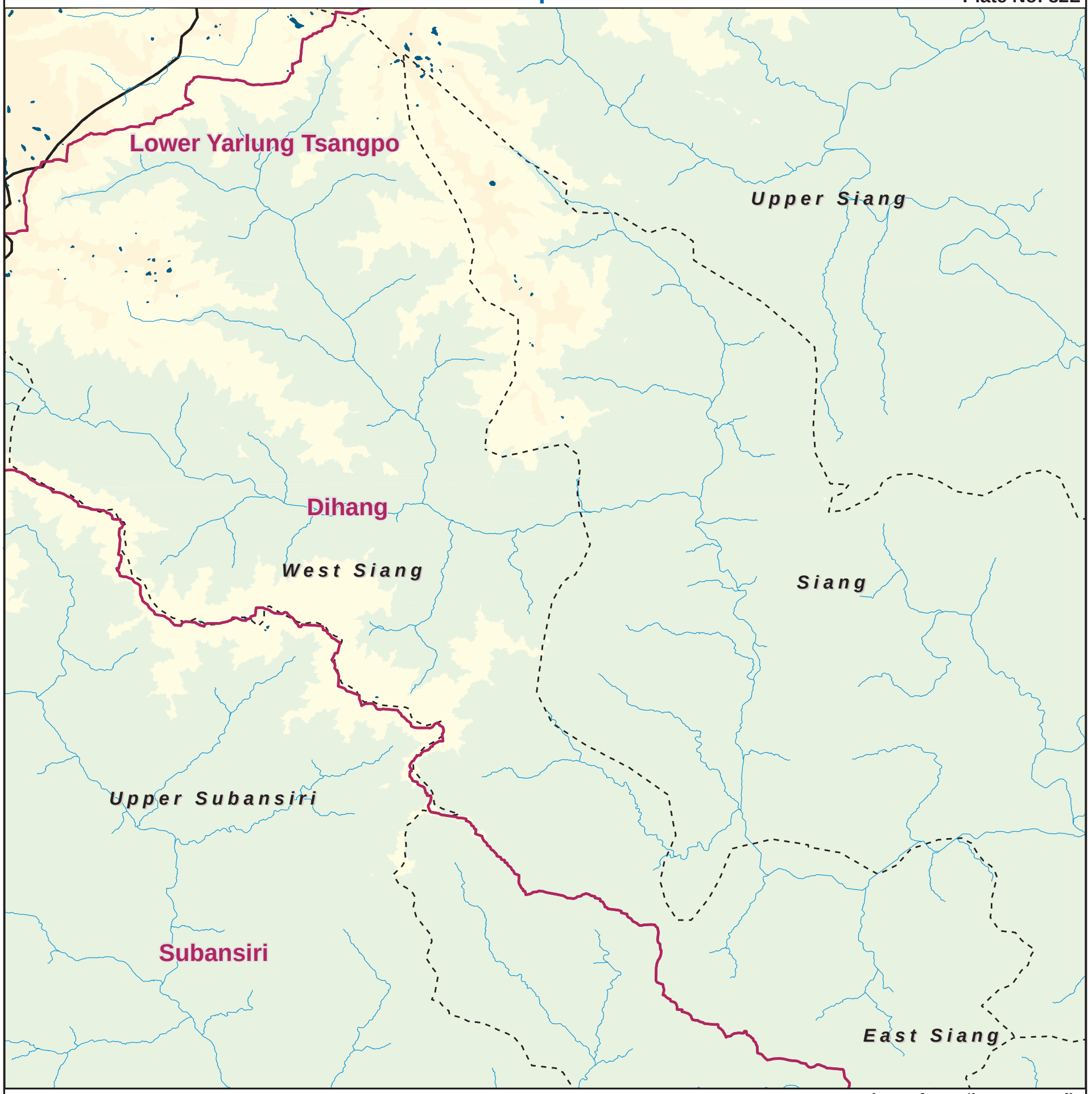
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

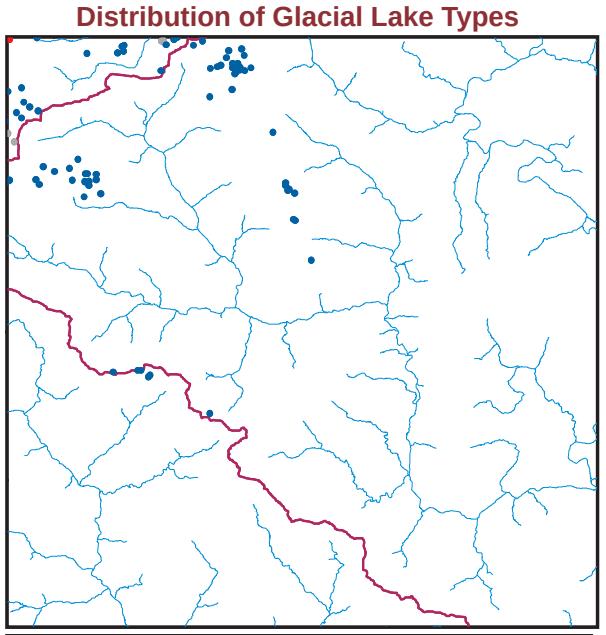
State: Arunachal Pradesh | **Map 86** | Plate No: 82L



Data Source: Resourcesat-2 LISS-IV

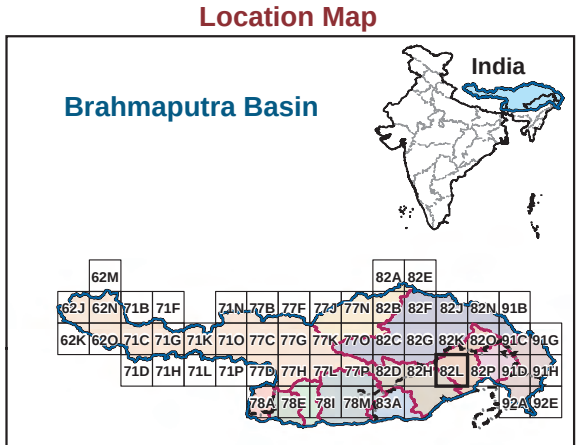
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	49	233.0
3	4,001 - 5,000	26	186.8
4	> 5,000	0	0.0
Total		**75**	**419.8**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

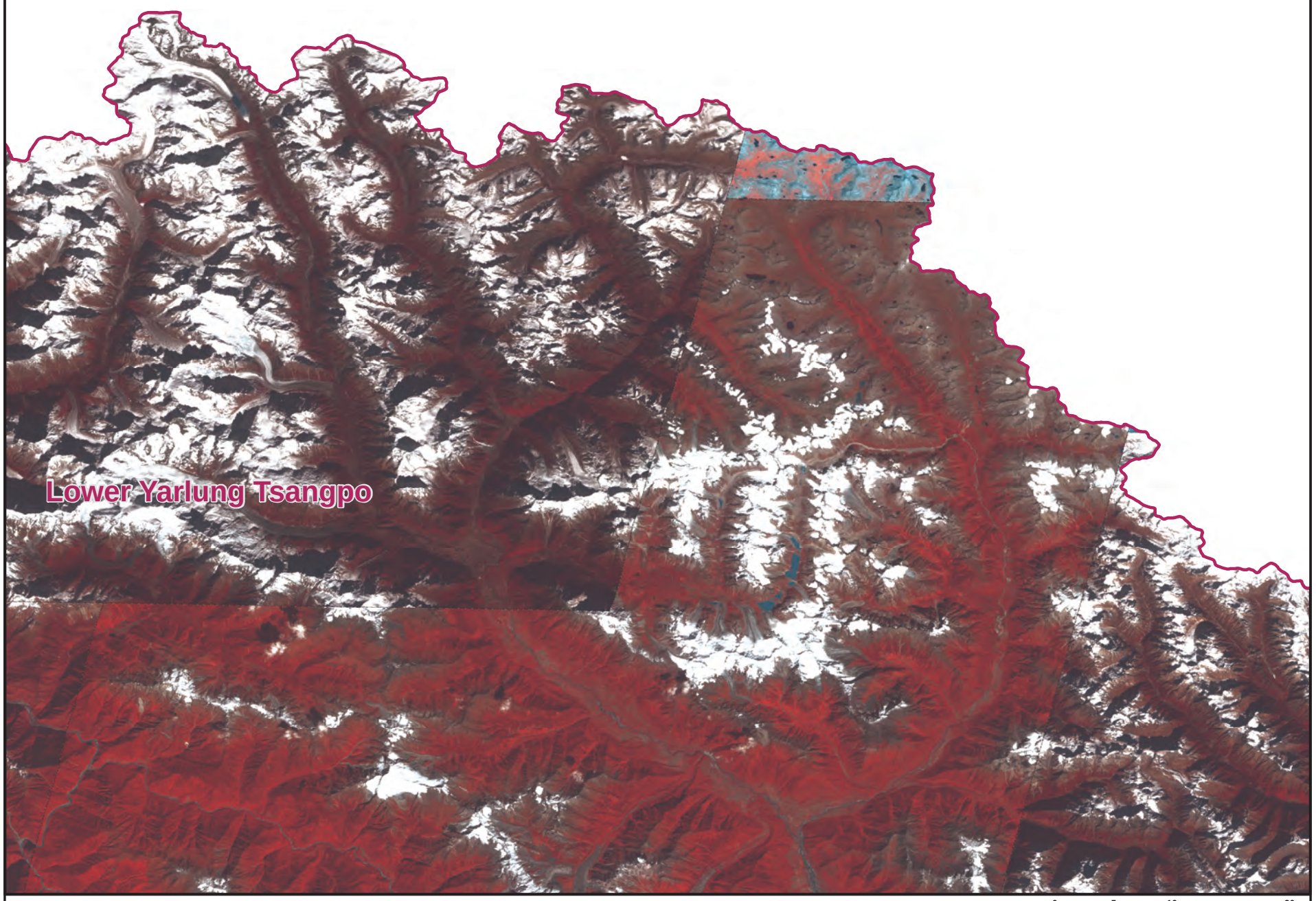
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 87** | Plate No: 82N



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	1	0	25	3	0	0	0	64	5	**98**
2	**0.5 - 1**	0	2	0	23	2	0	1	0	49	3	**80**
3	**1 - 5**	3	0	0	35	0	0	2	0	95	3	**138**
4	**5 - 10**	1	1	0	5	0	0	0	0	23	1	**31**
5	**10 - 50**	5	0	0	8	0	0	0	0	18	1	**32**
6	**> 50**	2	0	0	1	0	0	0	0	1	0	**4**
Total		**11**	**4**	**0**	**97**	**5**	**0**	**3**	**0**	**250**	**13**	**383**

Legend

Subbasin Boundary

District Boundary

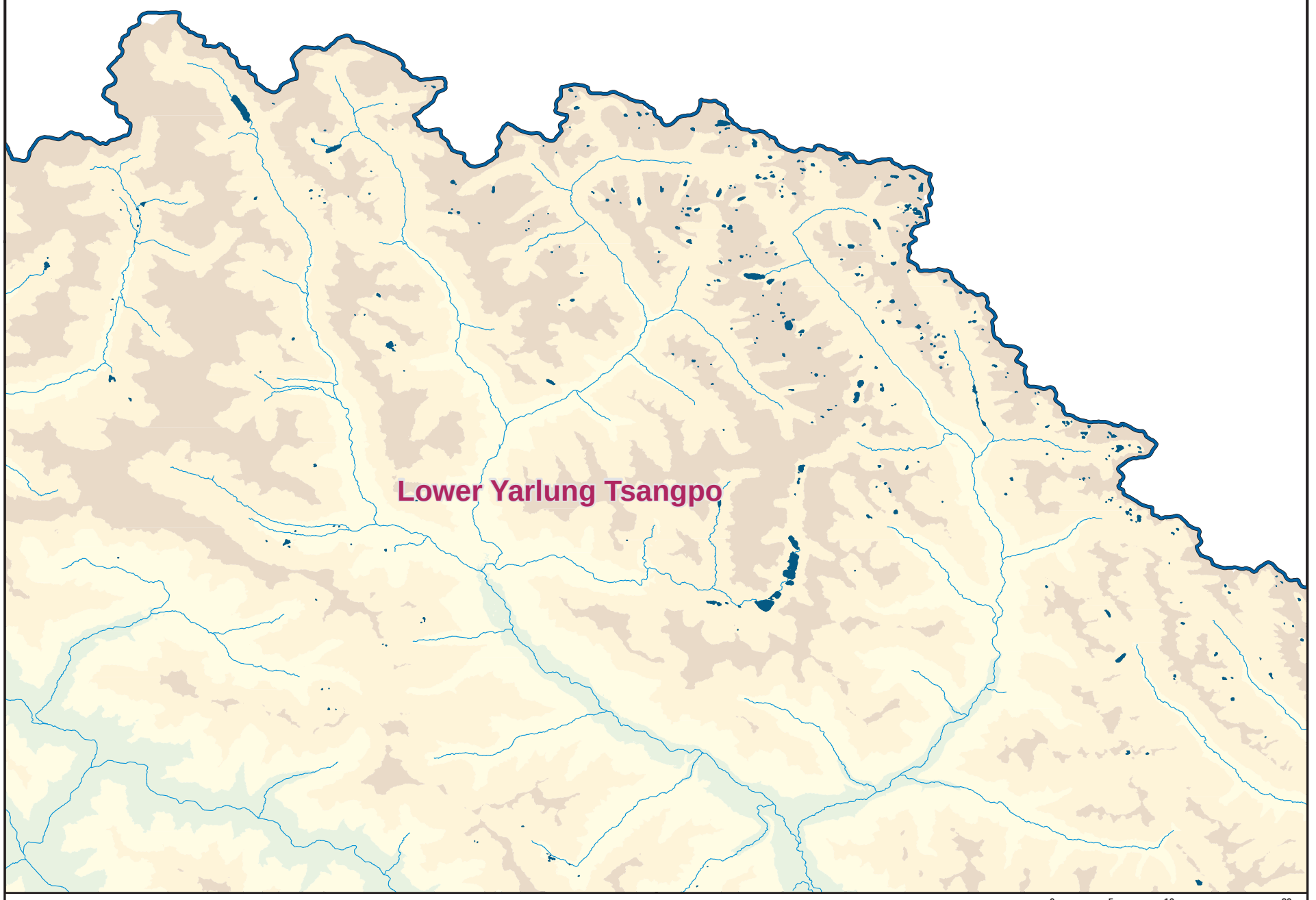
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

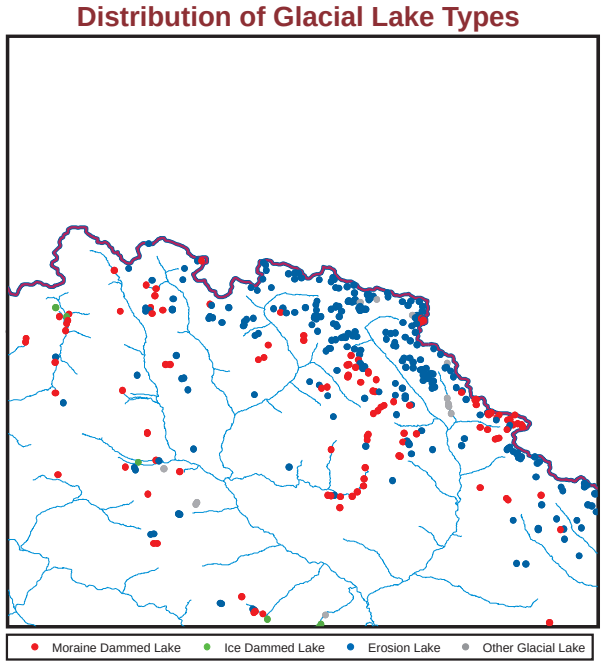
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

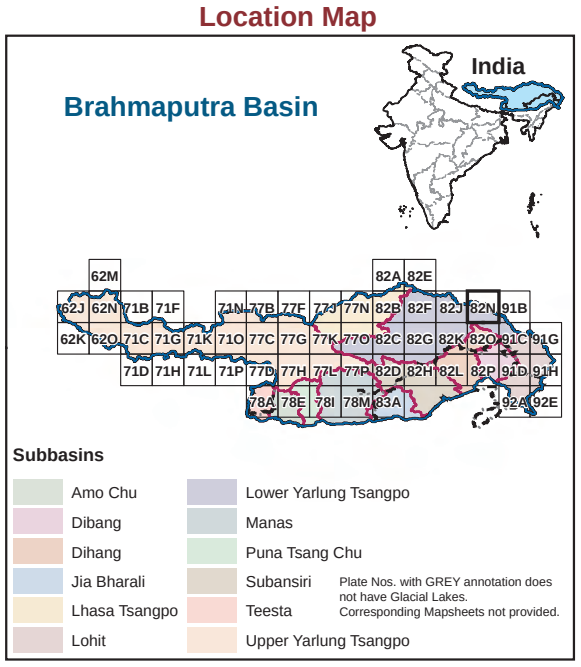
Transboundary Region | **Map 88** | **Plate No: 82N**



Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	15	26.0
3	4,001 - 5,000	248	1,277.9
4	> 5,000	120	292.0
Total		**383**	**1,595.9**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

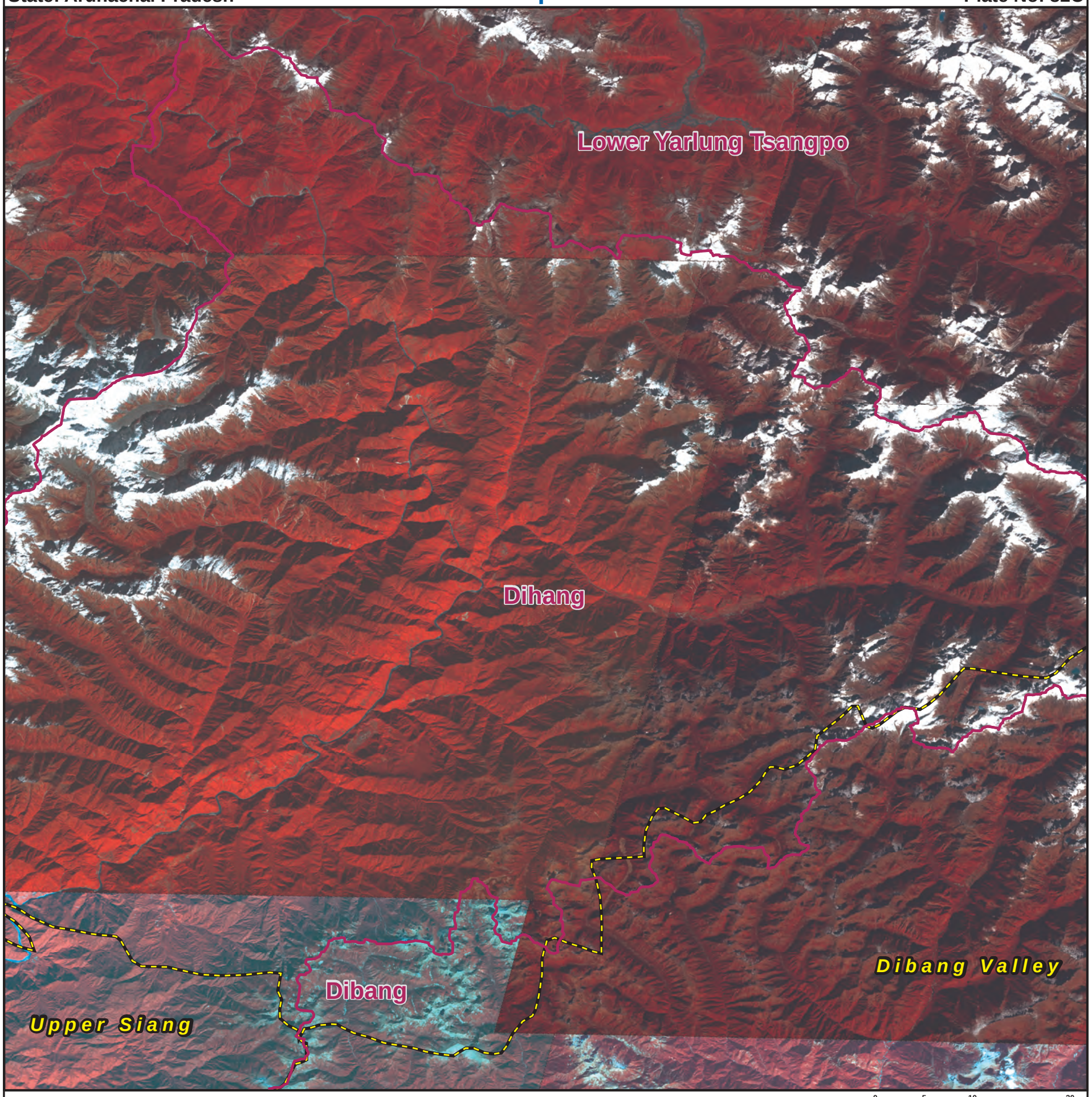
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 89** | Plate No: 82O



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	3	3	0	0	0	34	3	**43**
2	**0.5 - 1**	0	0	0	4	1	0	3	0	63	1	**72**
3	**1 - 5**	1	0	0	10	0	0	21	0	147	1	**180**
4	**5 - 10**	0	0	0	3	0	0	26	0	55	0	**84**
5	**10 - 50**	2	0	0	6	0	0	22	0	51	3	**84**
6	**> 50**	0	0	0	0	0	0	0	1	4	0	**5**
Total		**3**	**0**	**0**	**26**	**4**	**0**	**72**	**1**	**354**	**8**	**468**

Legend

Subbasin Boundary

District Boundary

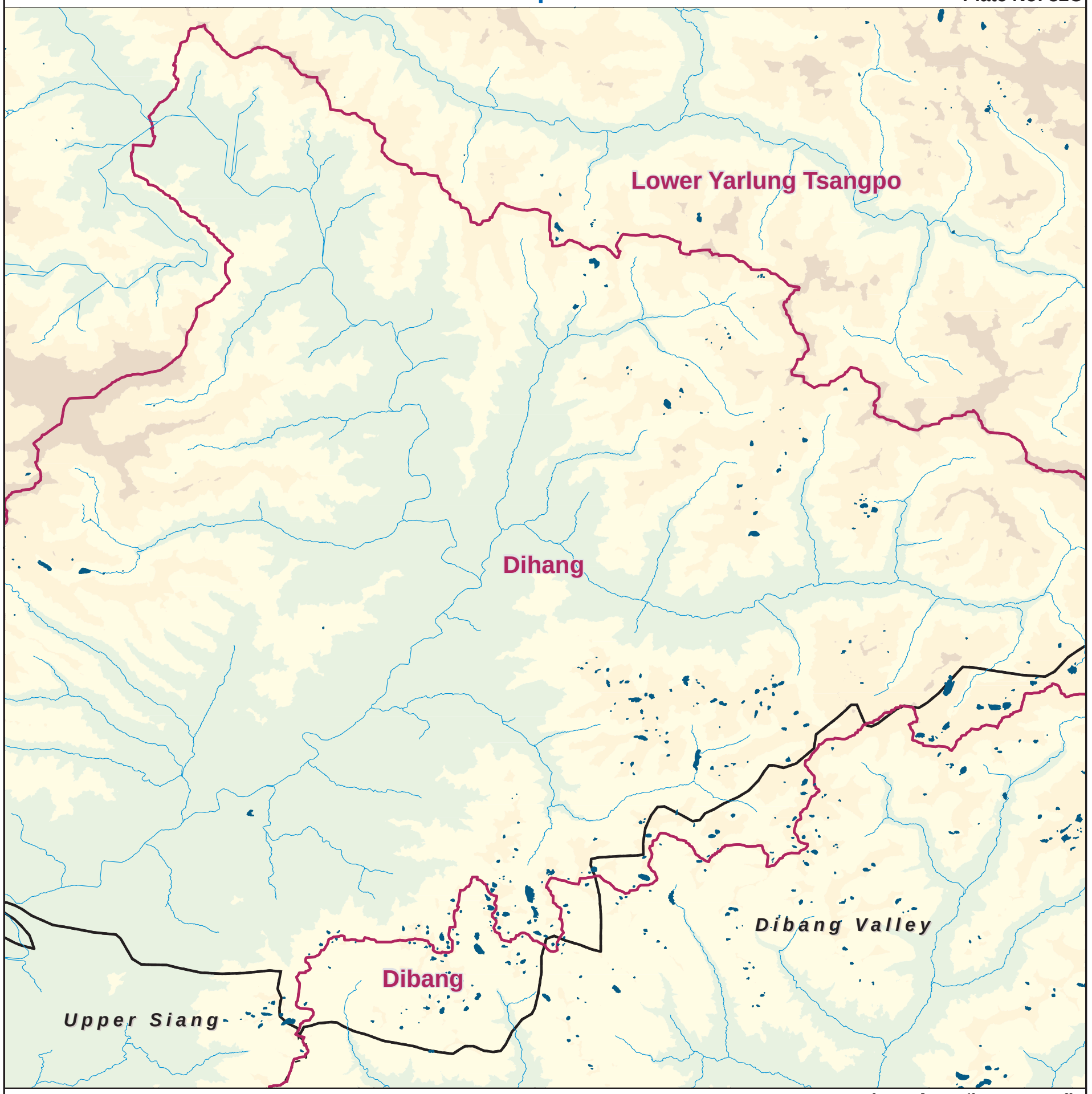
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

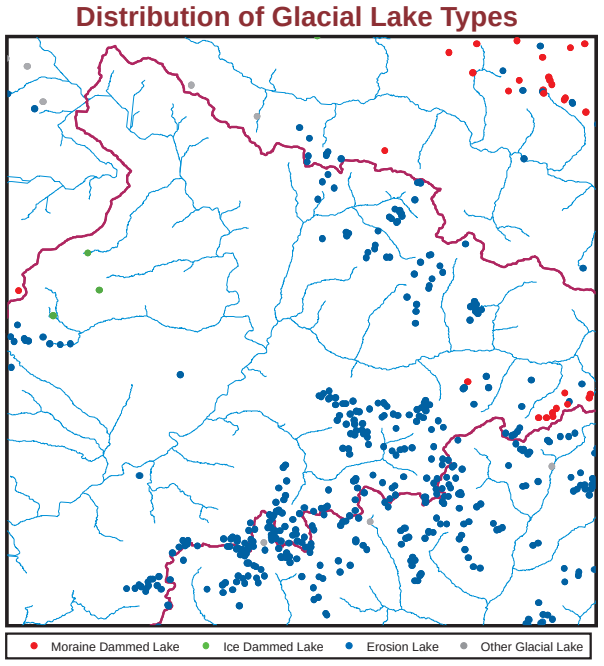
State: Arunachal Pradesh | **Map 90** | Plate No: 82O



Data Source: Resourcesat-2 LISS-IV

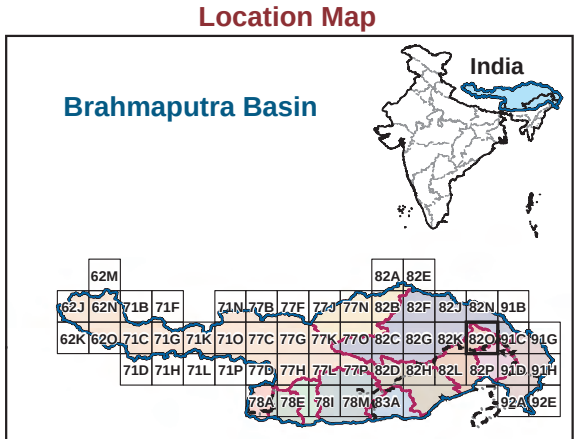
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

Amo Chu	Lower Yarlung Tsangpo
Dibang	Manas
Dihang	Puna Tsang Chu
Jia Bharali	Subansiri
Lhasa Tsangpo	Teesta
Lohit	Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	3	40.8
2	3,001 - 4,000	277	1,927.8
3	4,001 - 5,000	188	1,317.8
4	> 5,000	0	0.0
Total		**468**	**3,286.4**

Legend

Glacial Lake · River / Stream · Basin Boundary · Subbasin Boundary · *District Boundary* · State / UT Boundary · International Boundary

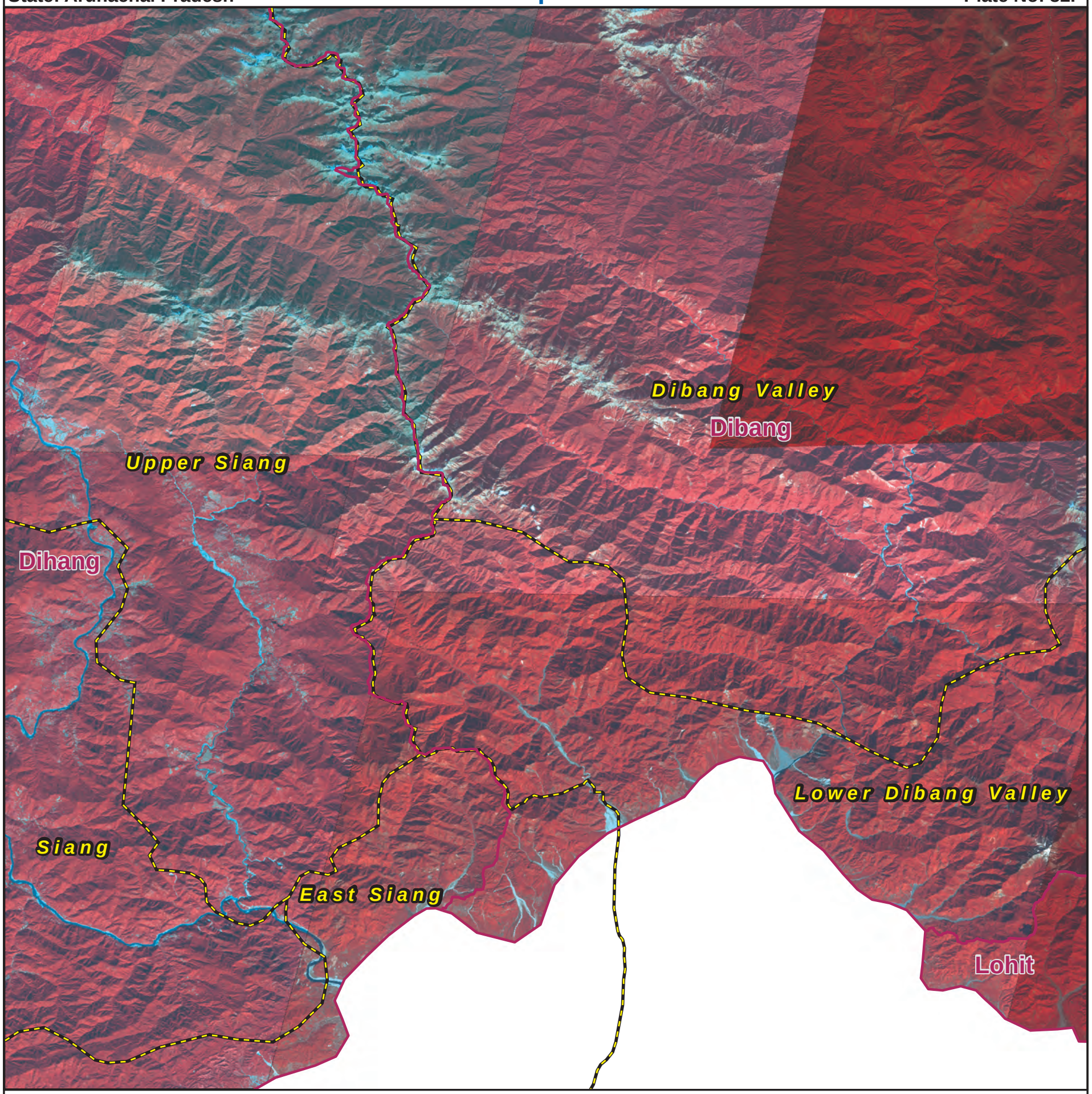
Elevation Range (m): up to 3,000 · 3,001 - 4,000 · 4,001 - 5,000 · > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 91** | Plate No: 82P



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	1	0	2	0	**3**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	10	0	**10**
3	**1 - 5**	0	0	0	0	0	0	6	0	42	0	**48**
4	**5 - 10**	0	0	0	0	0	0	4	0	17	0	**21**
5	**10 - 50**	0	0	0	0	0	0	5	0	12	0	**17**
6	**> 50**	0	0	0	0	0	0	0	0	1	0	**1**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**84**	**0**	**100**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

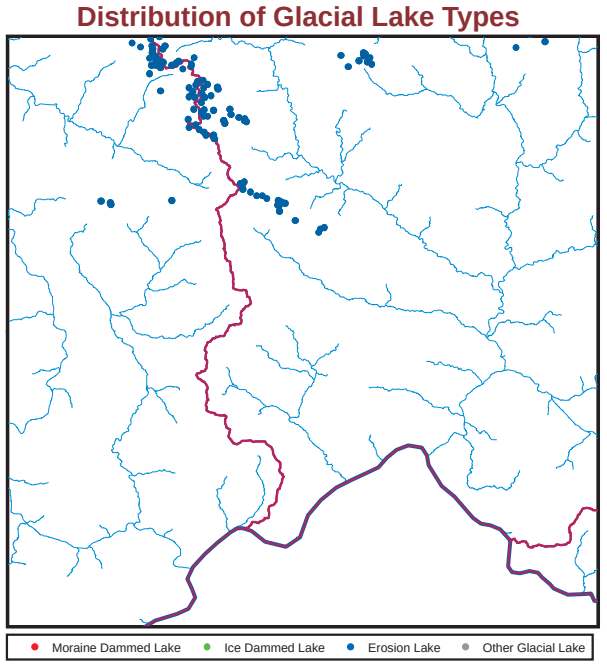
GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh

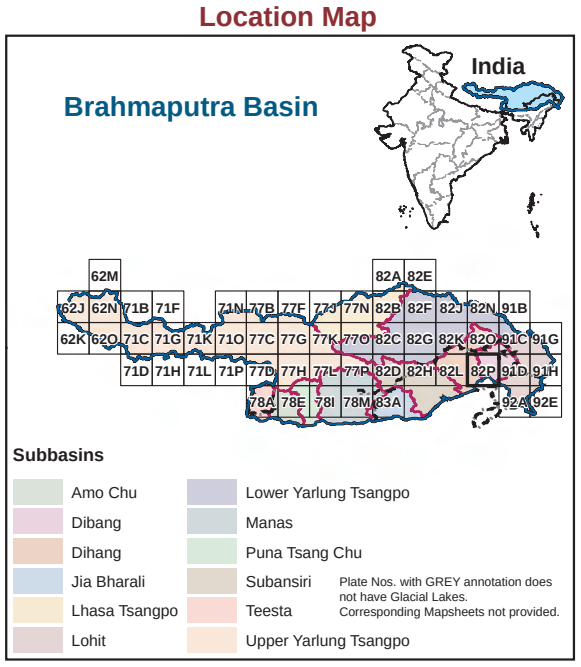
Map 92

Plate No: 82P

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	94	576.2
3	4,001 - 5,000	6	38.2
4	> 5,000	0	0.0
	Total	**100**	**614.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

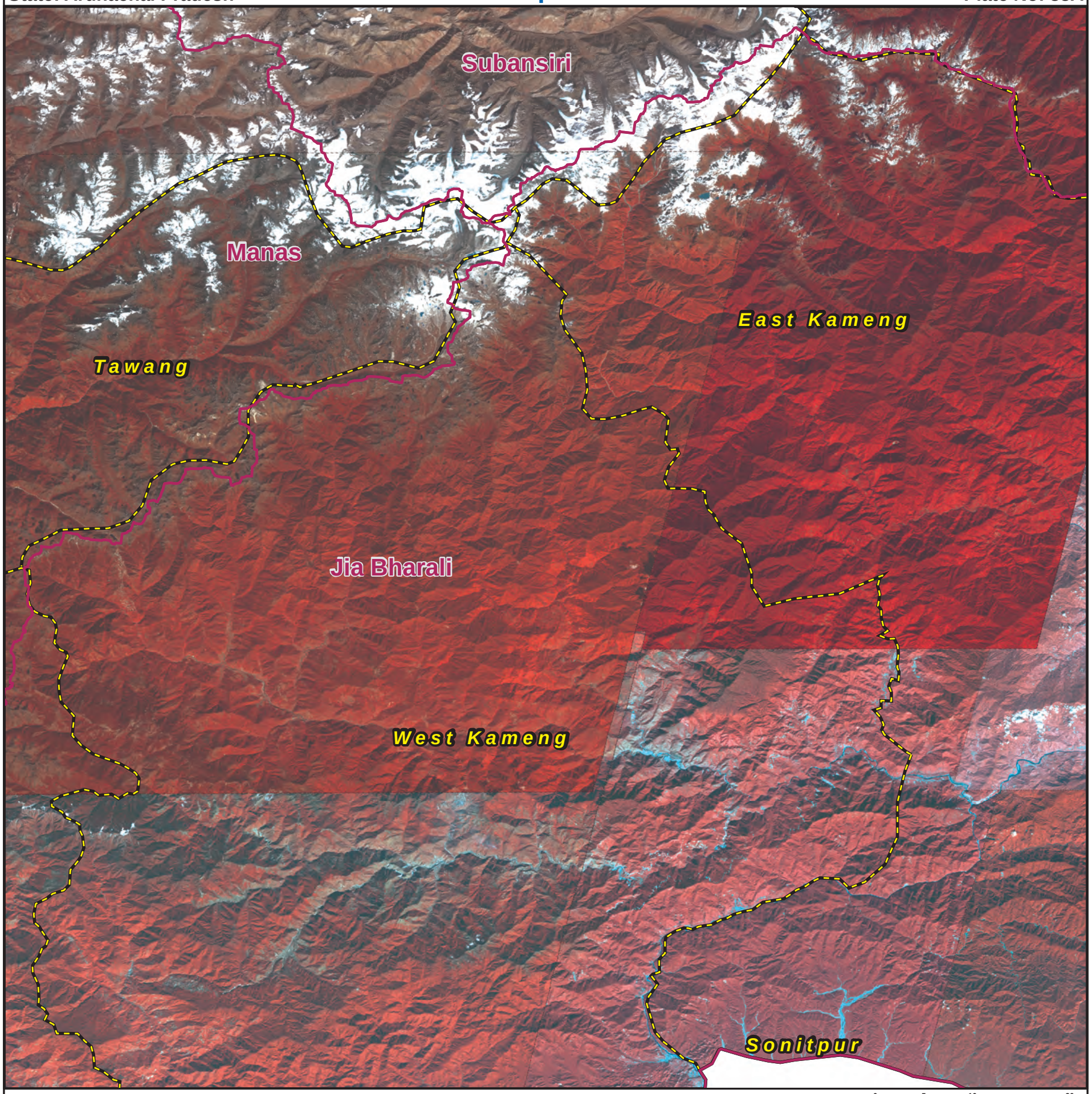
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 93** | Plate No: 83A



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	16	1	0	3	0	145	3	**168**
2	**0.5 - 1**	0	0	0	19	2	0	3	0	134	1	**159**
3	**1 - 5**	6	1	0	27	1	0	27	0	191	3	**256**
4	**5 - 10**	2	0	0	4	0	0	6	0	47	0	**59**
5	**10 - 50**	1	1	0	2	0	0	2	0	17	1	**24**
6	**> 50**	1	0	0	1	0	0	0	0	1	0	**3**
Total		**10**	**2**	**0**	**69**	**4**	**0**	**41**	**0**	**535**	**8**	**669**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

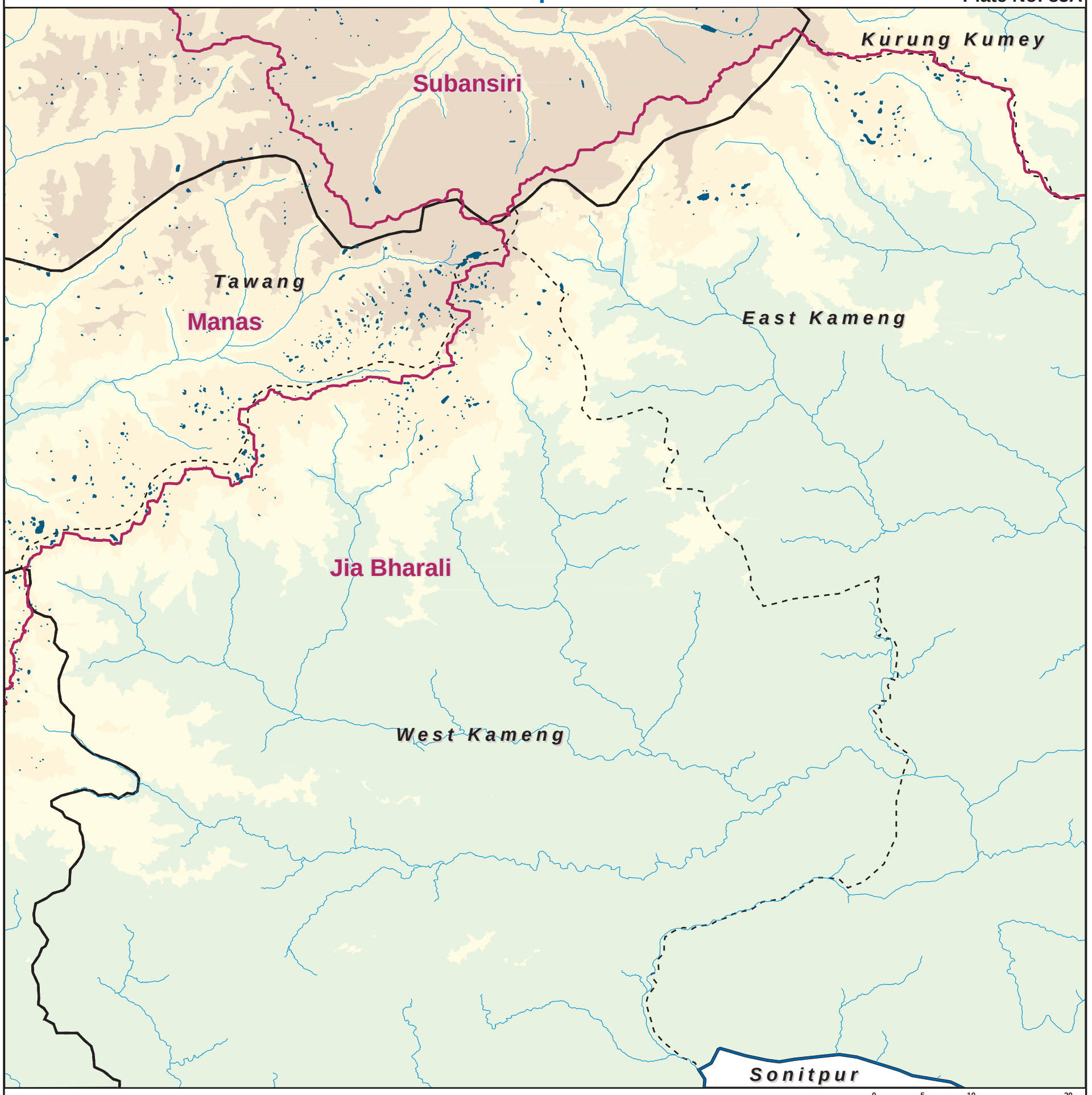
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh

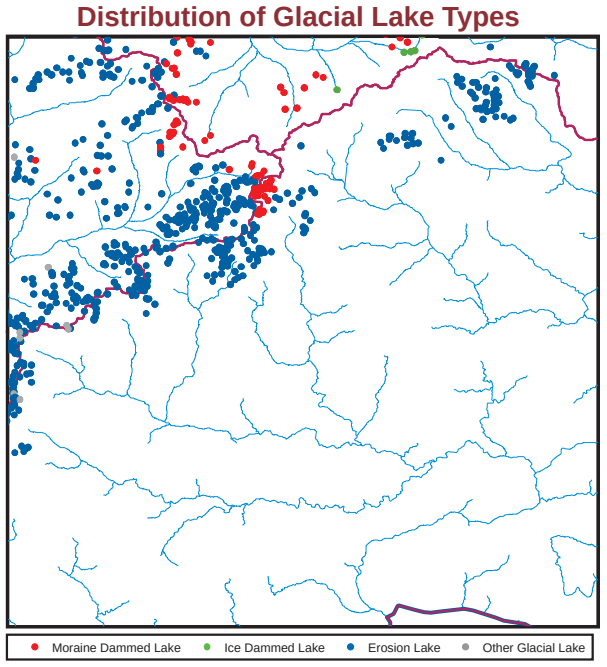
Map 94

Plate No: 83A



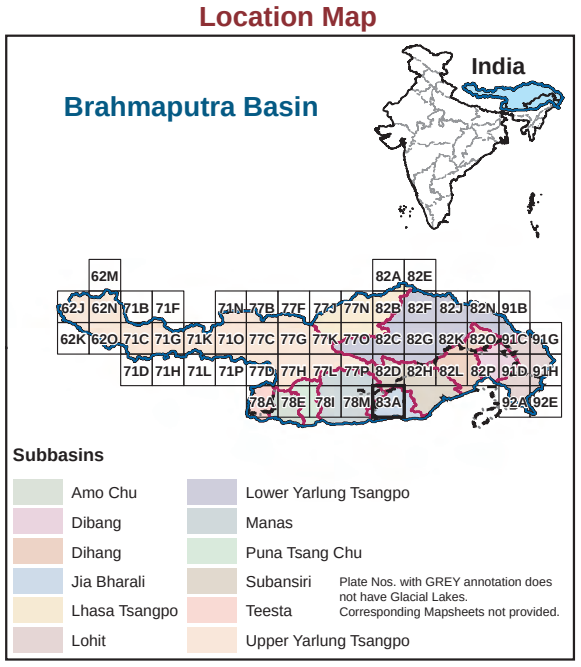
Data Source: Resourcesat-2 LISS-IV

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	21	106.8
3	4,001 - 5,000	465	1,260.4
4	> 5,000	183	387.4
Total		**669**	**1,754.6**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

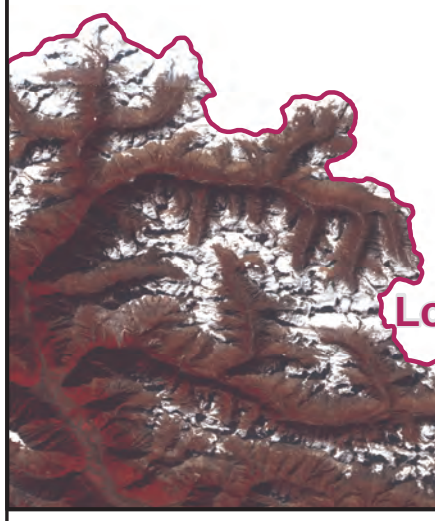
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 95** | Plate No: 91B



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 1)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	16	0	**16**
2	**0.5 - 1**	0	0	0	2	0	0	0	0	23	0	**25**
3	**1 - 5**	1	0	0	2	0	0	0	0	21	0	**24**
4	**5 - 10**	0	0	0	2	0	0	0	0	4	0	**6**
5	**10 - 50**	0	0	0	0	0	0	0	0	0	0	**0**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**1**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**64**	**0**	**71**

Legend

Subbasin Boundary — District Boundary

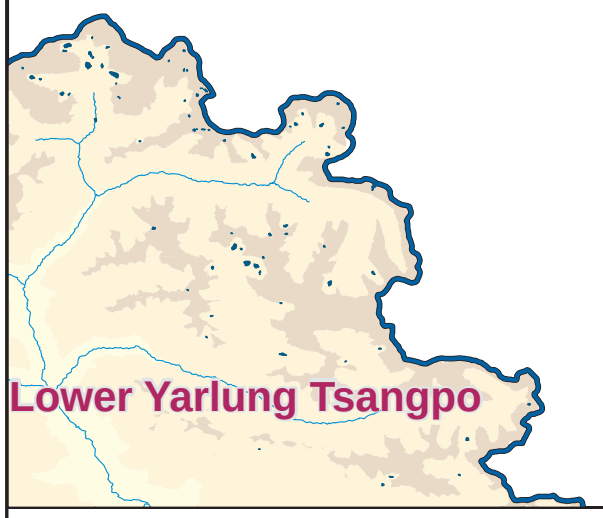
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

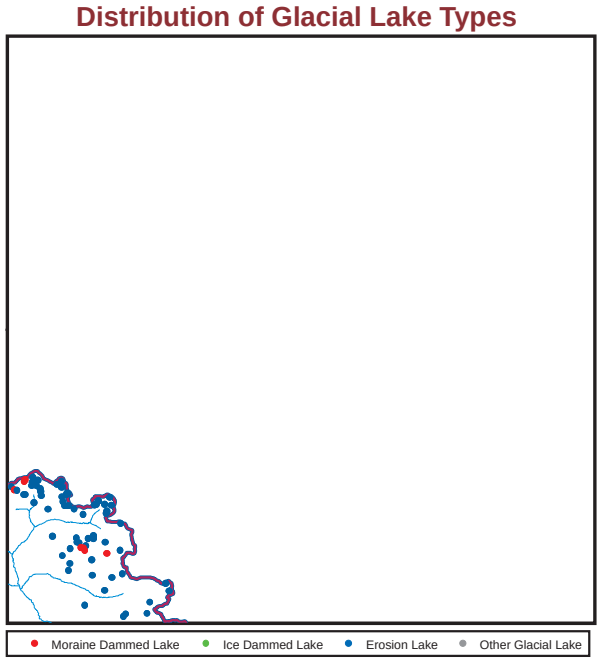
Transboundary Region | **Map 96** | **Plate No: 91B**



Data Source: Resourcesat-2 LISS-IV

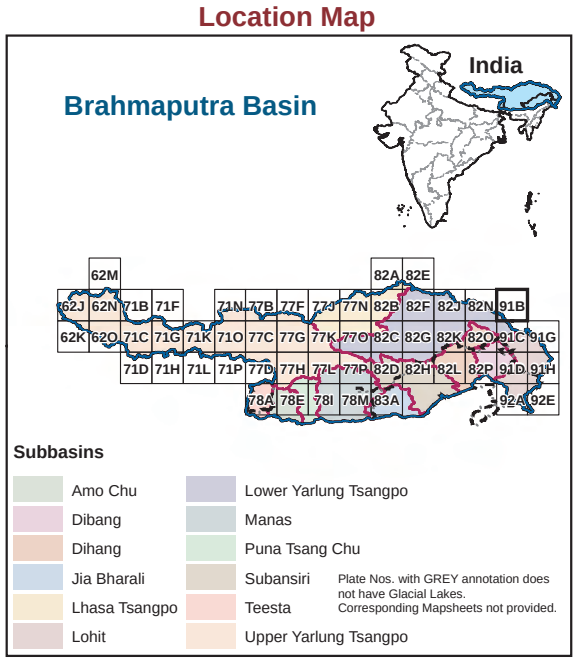
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	0	0.0
3	4,001 - 5,000	46	87.5
4	> 5,000	25	23.8
Total		**71**	**111.4**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

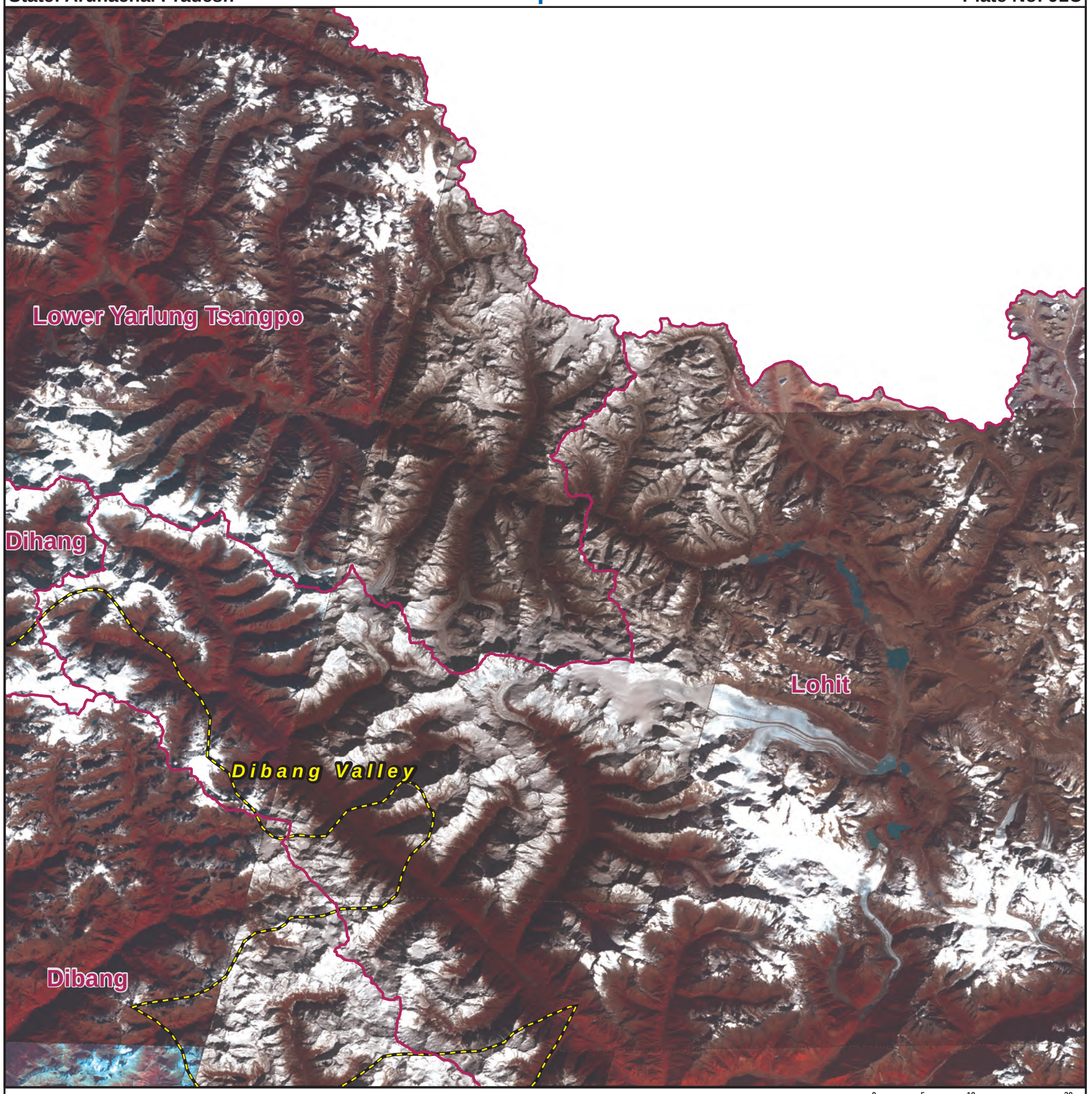
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 97** | Plate No: 91C



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 6)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	3	2	0	45	5	0	0	0	41	7	**103**
2	**0.5 - 1**	1	0	0	70	3	0	0	0	58	4	**136**
3	**1 - 5**	16	1	0	87	4	0	10	0	126	2	**246**
4	**5 - 10**	5	0	0	31	0	0	10	0	33	2	**81**
5	**10 - 50**	14	0	0	11	0	0	27	0	37	0	**89**
6	**> 50**	2	1	0	6	0	0	1	0	9	3	**22**
Total		**41**	**4**	**0**	**250**	**12**	**0**	**48**	**0**	**304**	**18**	**677**

Legend

Subbasin Boundary

District Boundary

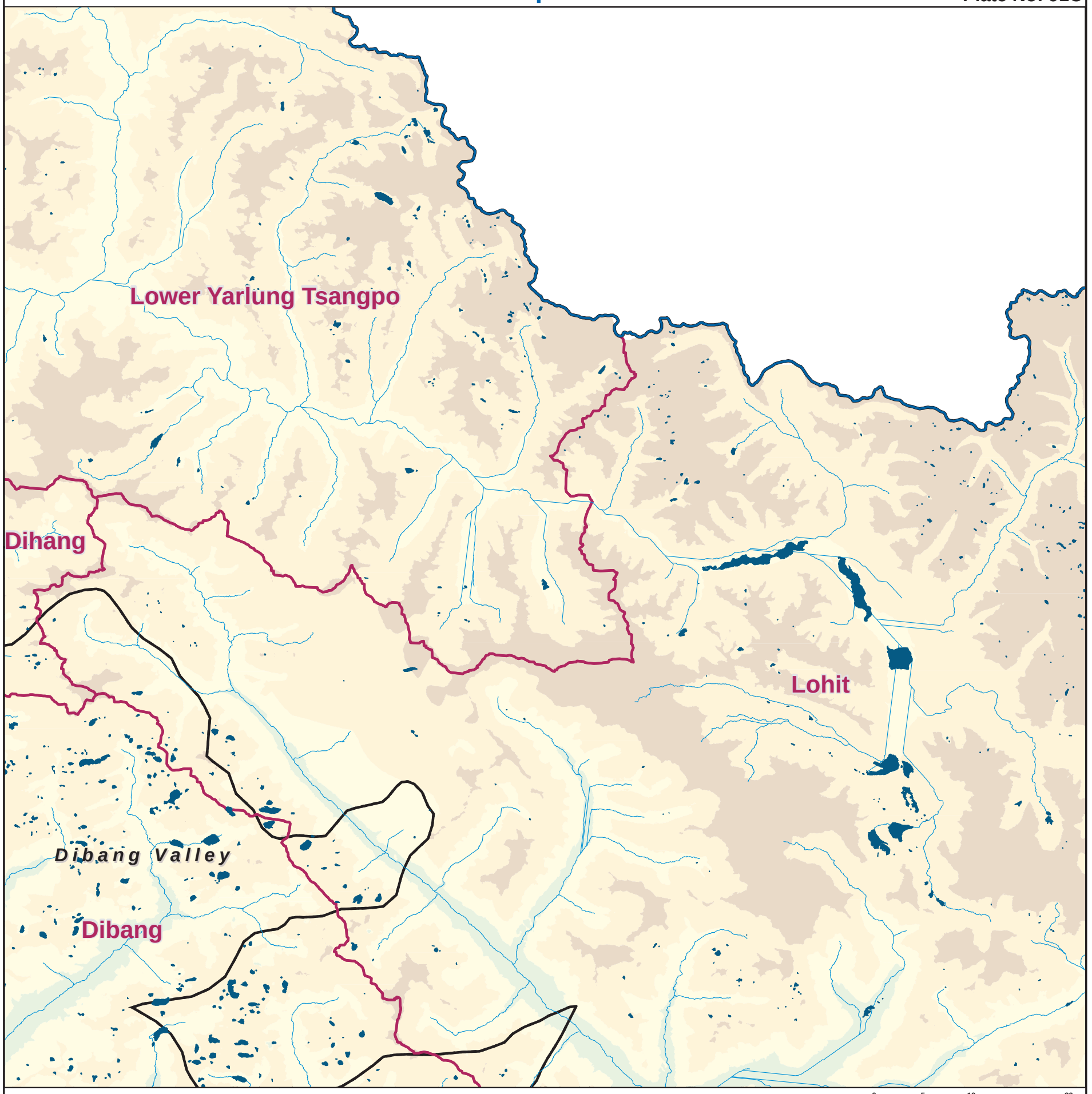
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

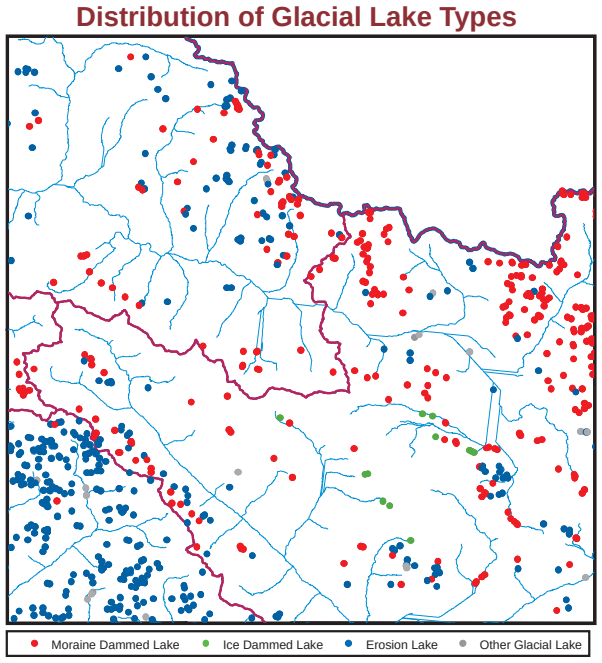
State: Arunachal Pradesh | **Map 98** | Plate No: 91C



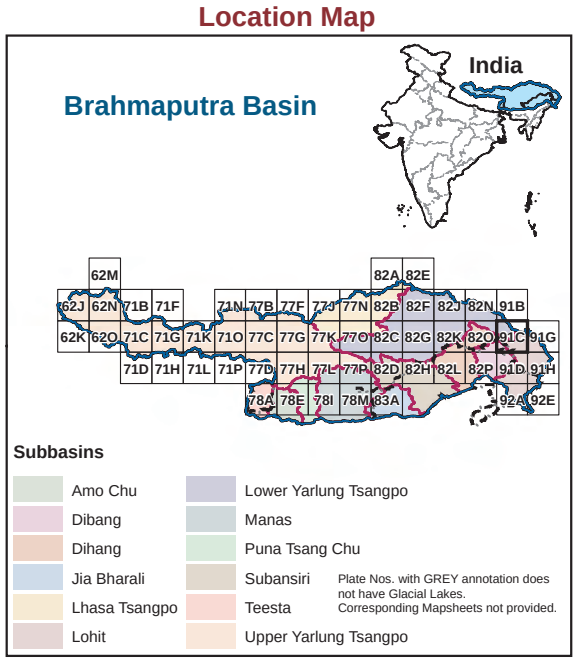
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	3	40.8
2	3,001 - 4,000	98	2,950.8
3	4,001 - 5,000	429	3,456.7
4	> 5,000	147	292.4
Total		**677**	**6,740.7**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

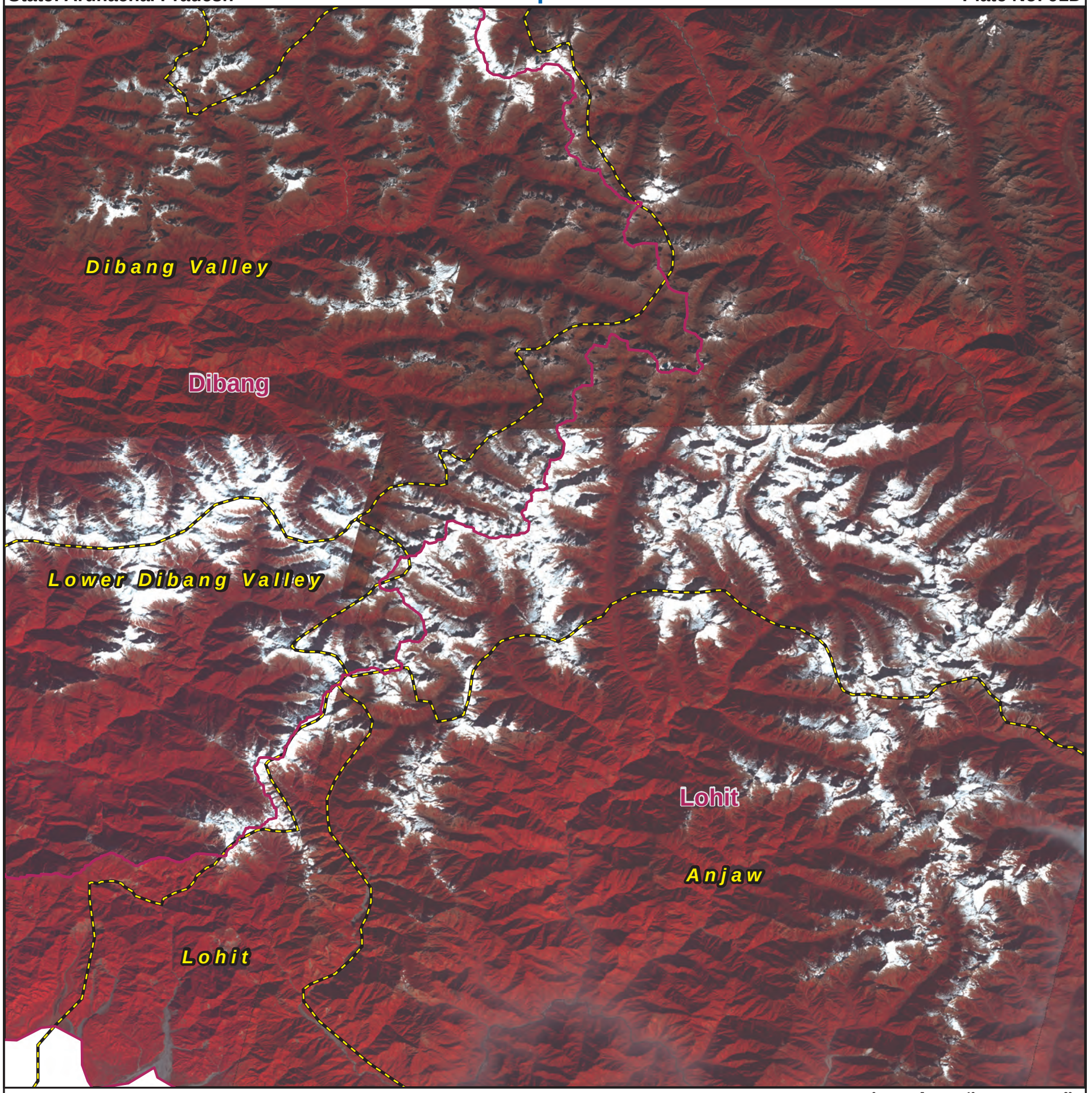
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 99** | Plate No: 91D



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 5)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	5	0	0	0	0	57	8	**70**
2	**0.5 - 1**	0	0	0	6	0	0	2	0	73	8	**89**
3	**1 - 5**	0	0	0	5	0	0	26	0	234	27	**292**
4	**5 - 10**	0	0	0	3	0	0	32	0	82	2	**119**
5	**10 - 50**	1	0	0	2	0	0	51	0	75	11	**140**
6	**> 50**	0	0	0	0	0	0	0	0	2	1	**3**
Total		**1**	**0**	**0**	**21**	**0**	**0**	**111**	**0**	**523**	**57**	**713**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

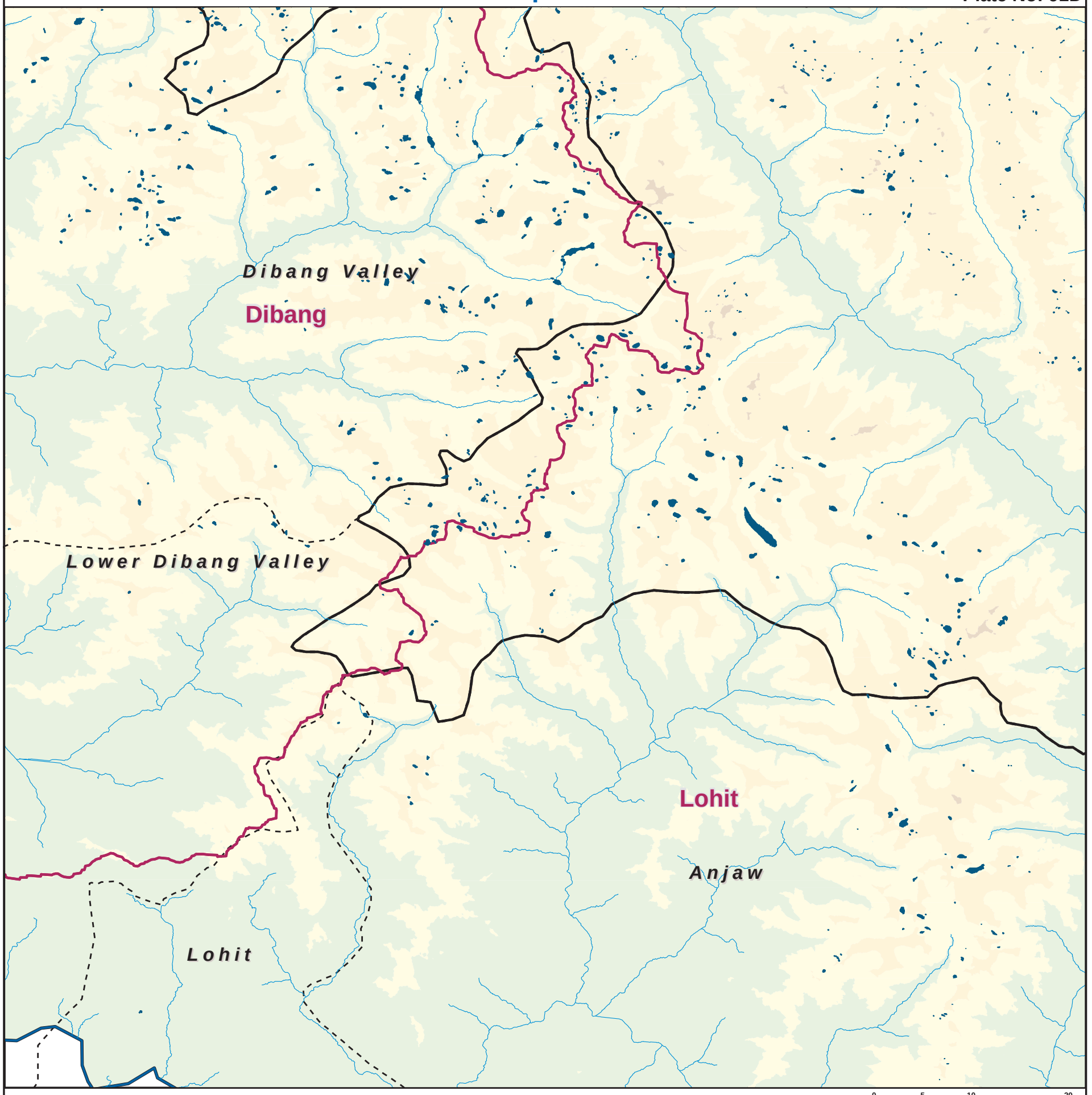
(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh

Map 100

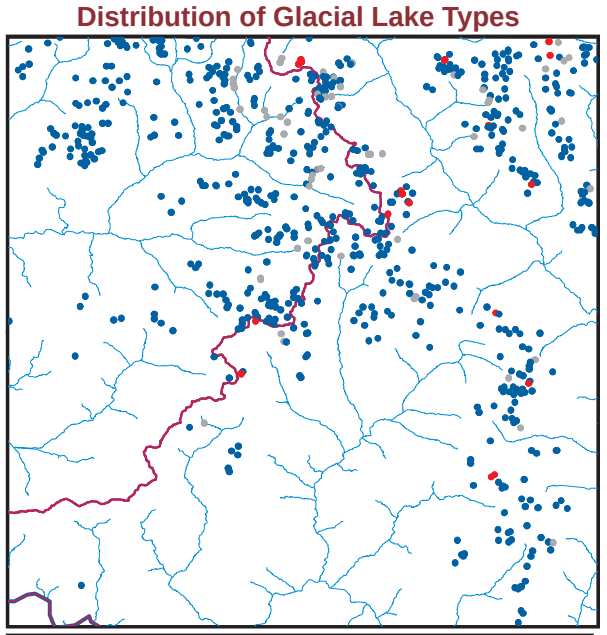
Plate No: 91D



Data Source: Resourcesat-2 LISS-IV

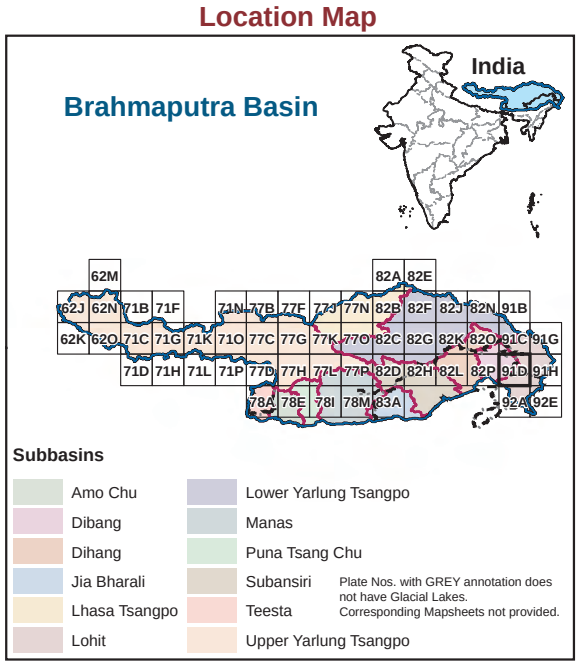
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake | Ice Dammed Lake | Erosion Lake | Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	3	28.7
2	3,001 - 4,000	238	2,351.9
3	4,001 - 5,000	472	2,629.6
4	> 5,000	0	0.0
Total		**713**	**5,010.2**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

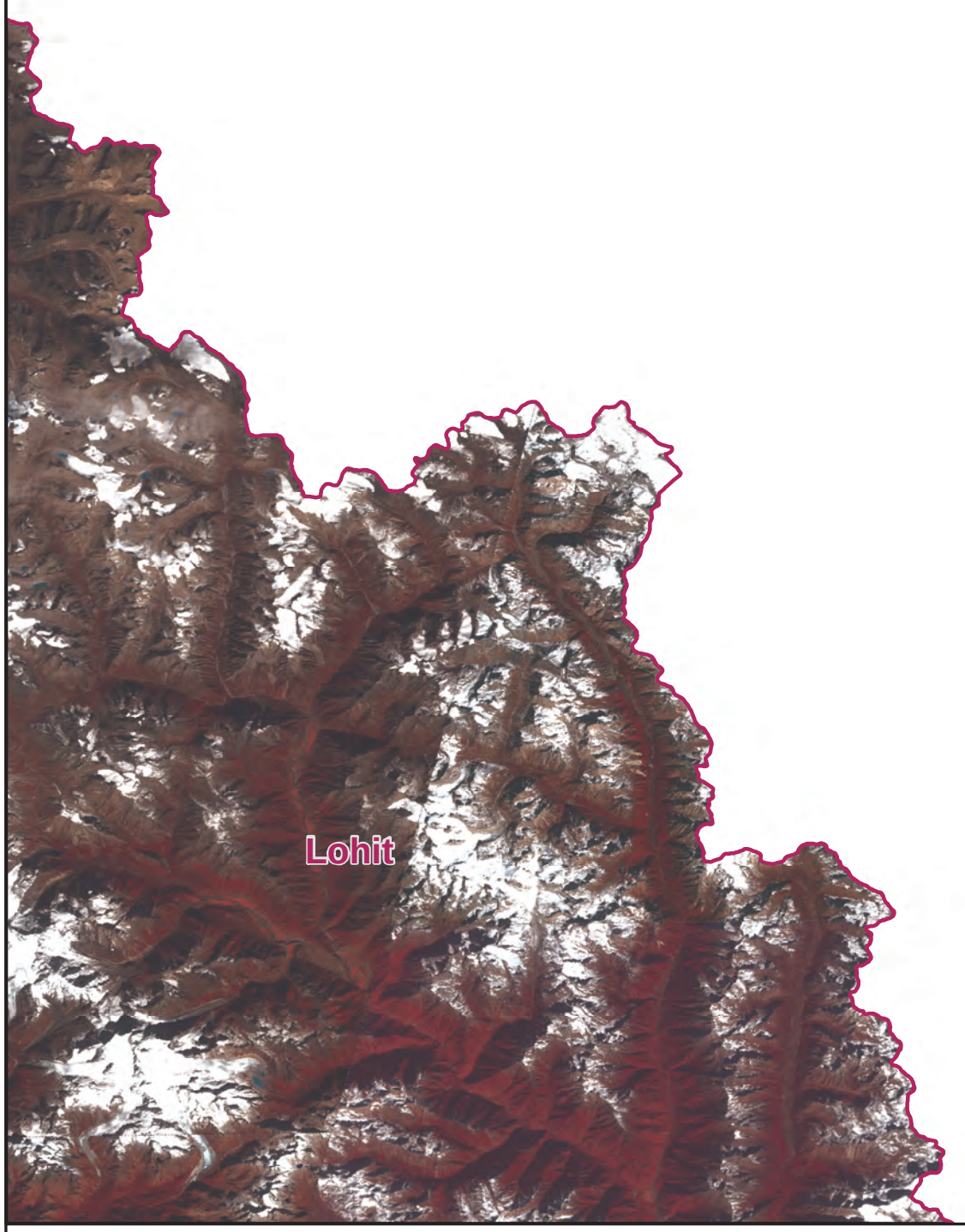
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

Transboundary Region | **Map 101** | Plate No: 91G



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 3)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	38	0	0	0	0	39	3	**80**
2	**0.5 - 1**	1	0	0	31	0	0	0	0	25	0	**57**
3	**1 - 5**	11	1	0	45	0	0	0	0	48	4	**109**
4	**5 - 10**	5	0	0	10	0	0	0	0	6	0	**21**
5	**10 - 50**	5	0	0	9	0	0	0	0	5	0	**19**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**22**	**1**	**0**	**133**	**0**	**0**	**0**	**0**	**123**	**7**	**286**

Legend

Subbasin Boundary

District Boundary

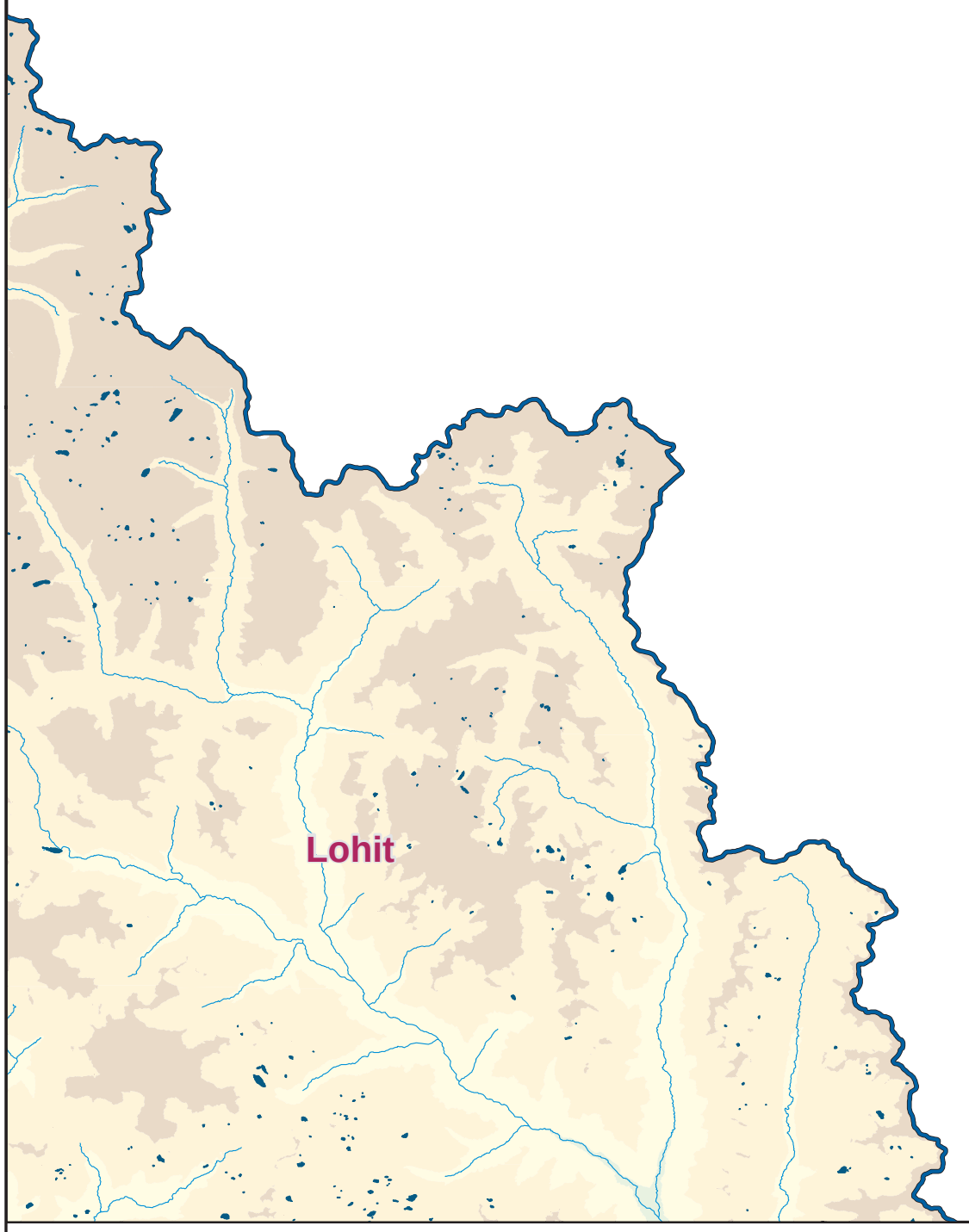
DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

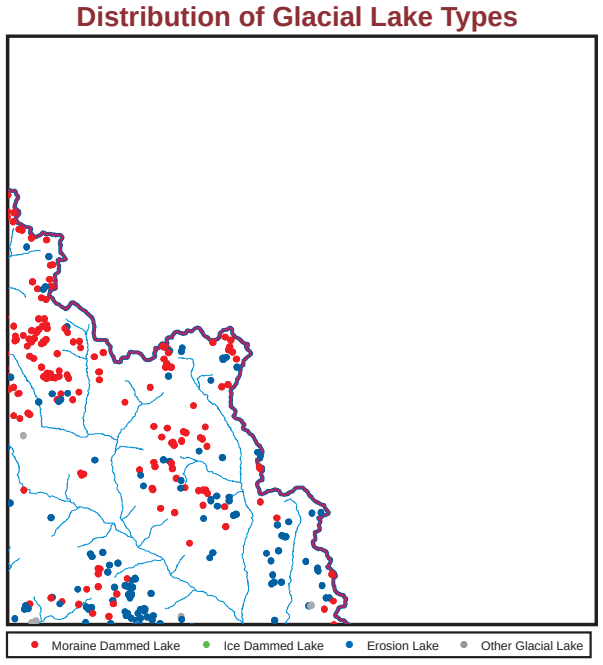
Transboundary Region | **Map 102** | Plate No: 91G



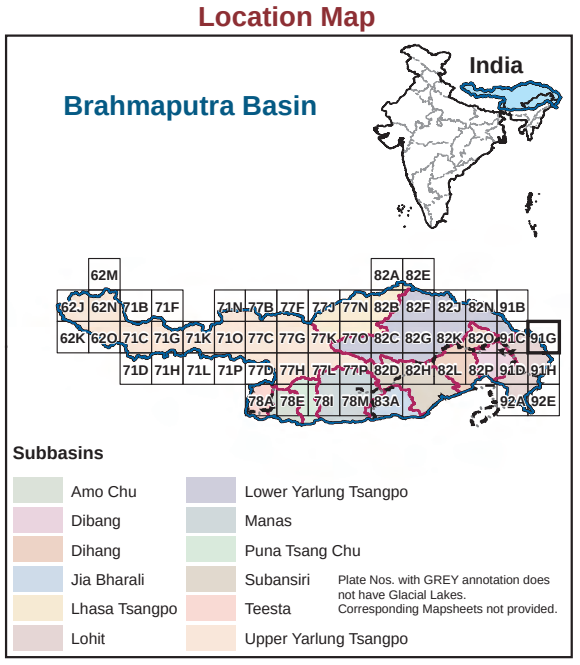
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	5	39.6
3	4,001 - 5,000	152	413.6
4	> 5,000	129	314.2
Total		**286**	**767.4**

Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

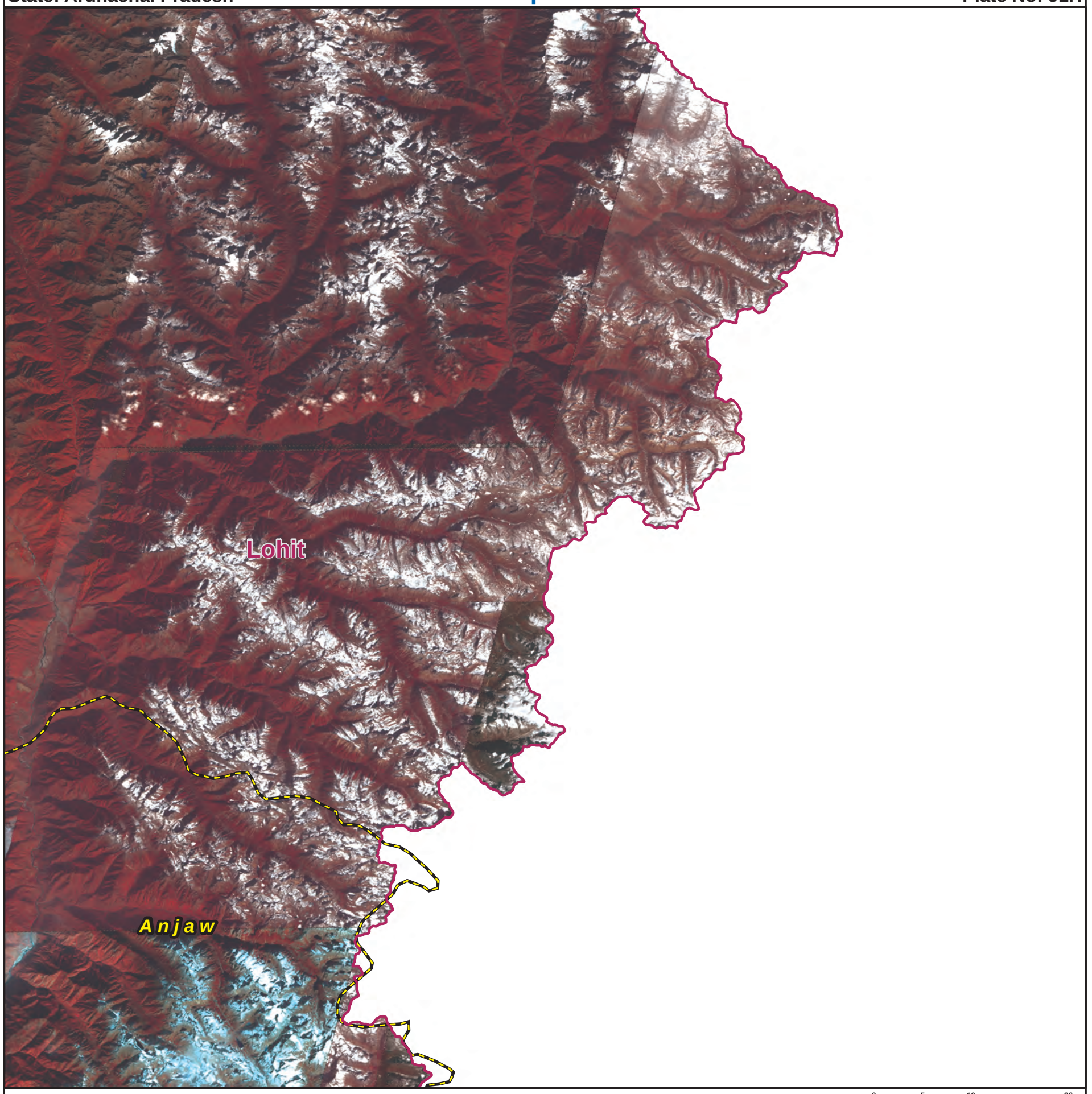
Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 103** | Plate No: 91H



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 4)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	11	0	0	0	0	173	38	**222**
2	**0.5 - 1**	0	0	0	9	0	0	0	0	235	29	**273**
3	**1 - 5**	0	1	0	16	0	0	17	0	359	26	**419**
4	**5 - 10**	1	0	0	5	0	0	5	0	83	2	**96**
5	**10 - 50**	1	0	0	6	0	0	7	0	77	2	**93**
6	**> 50**	0	0	0	0	0	0	0	0	5	0	**5**
Total		**2**	**1**	**0**	**47**	**0**	**0**	**29**	**0**	**932**	**97**	**1108**

Legend

Subbasin Boundary

District Boundary

DISCLAIMER:

(a) The Administrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh

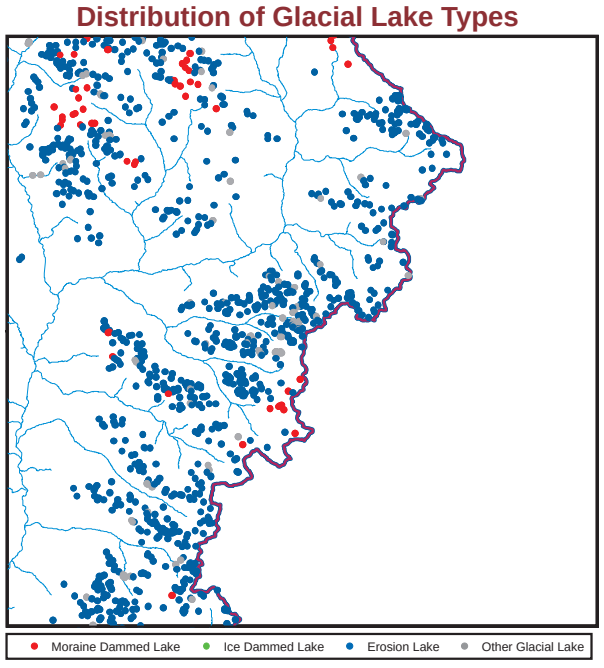
Map 104

Plate No: 91H

Data Source: Resourcesat-2 LISS-IV

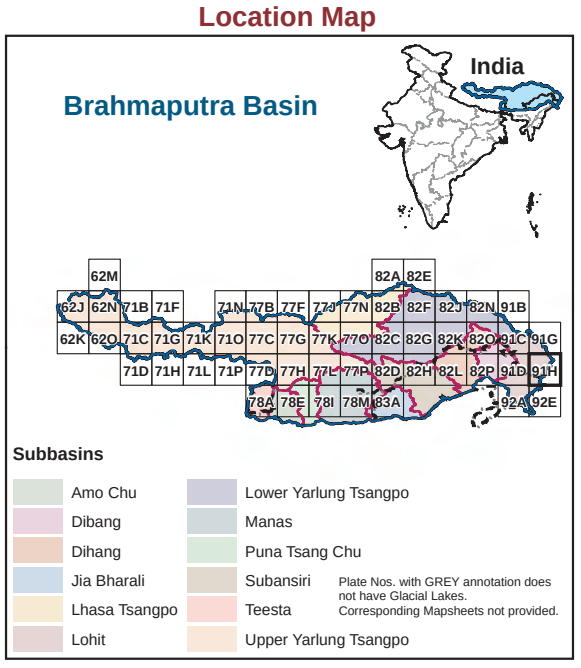
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	69	485.8
3	4,001 - 5,000	1038	3,561.5
4	> 5,000	1	0.3
	Total	**1108**	**4,047.6**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

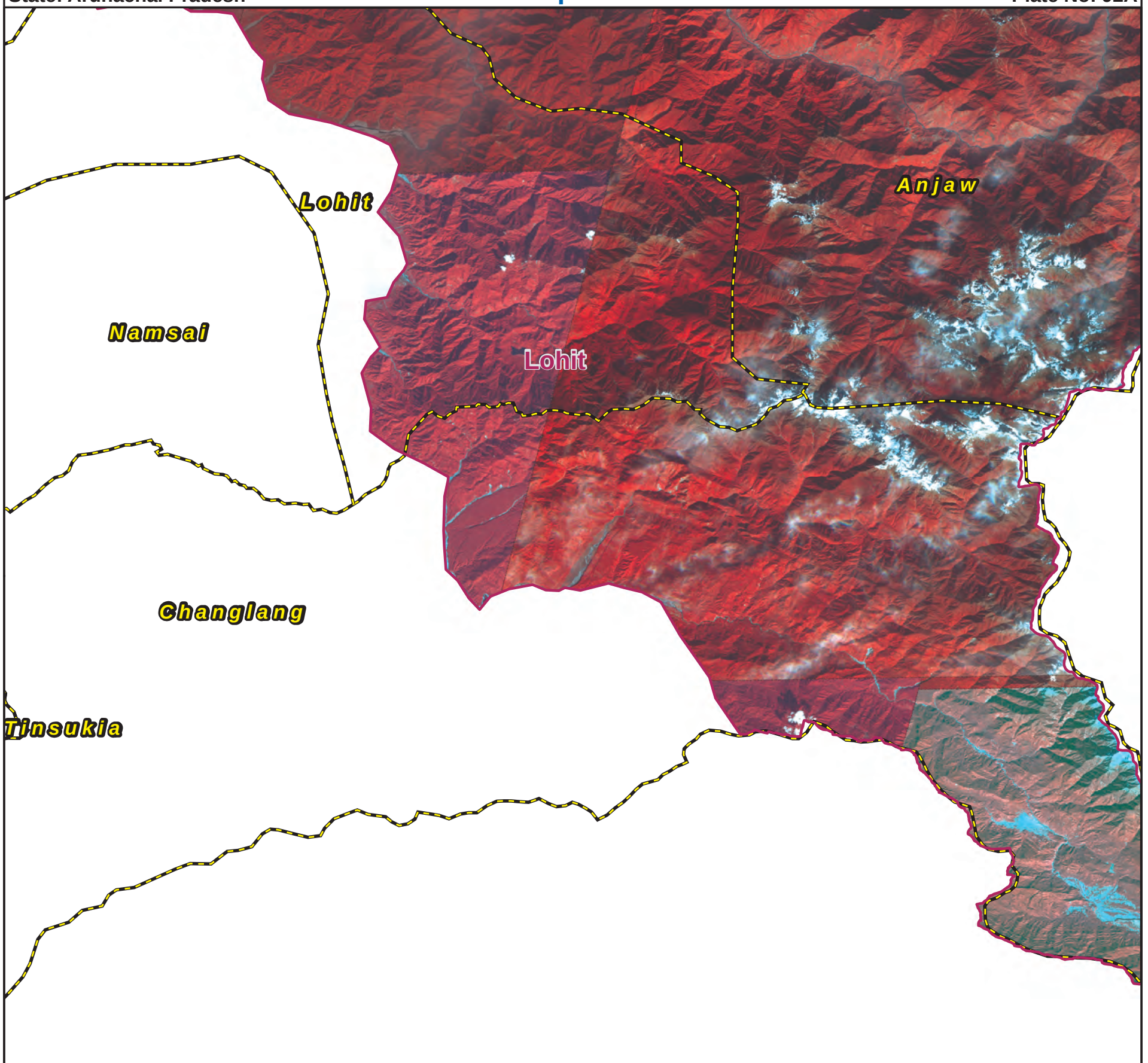
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh — **Map 105** — Plate No: 92A



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 4)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	9	1	**10**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	5	1	**6**
3	**1 - 5**	0	0	0	0	0	0	0	0	24	3	**27**
4	**5 - 10**	0	0	0	0	0	0	2	0	8	0	**10**
5	**10 - 50**	0	0	0	0	0	0	2	0	8	0	**10**
6	**> 50**	0	0	0	0	0	0	0	0	0	0	**0**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**54**	**5**	**63**

Legend

Subbasin Boundary — District Boundary

DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh

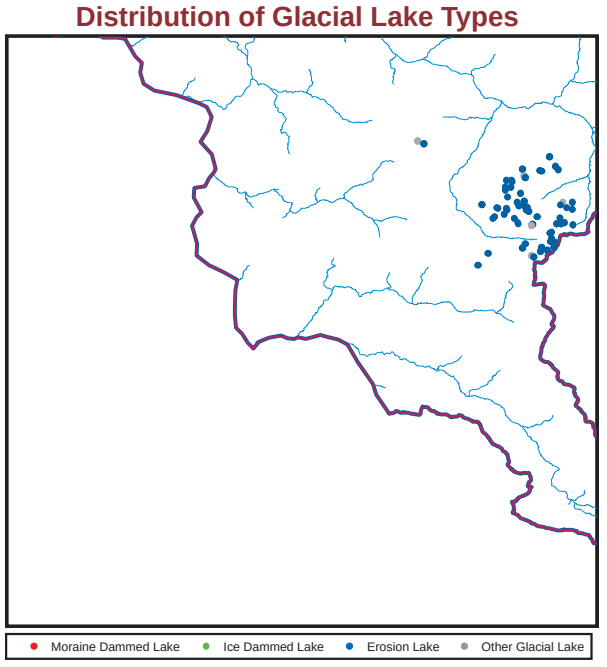
Map 106

Plate No: 92A

Data Source: Resourcesat-2 LISS-IV

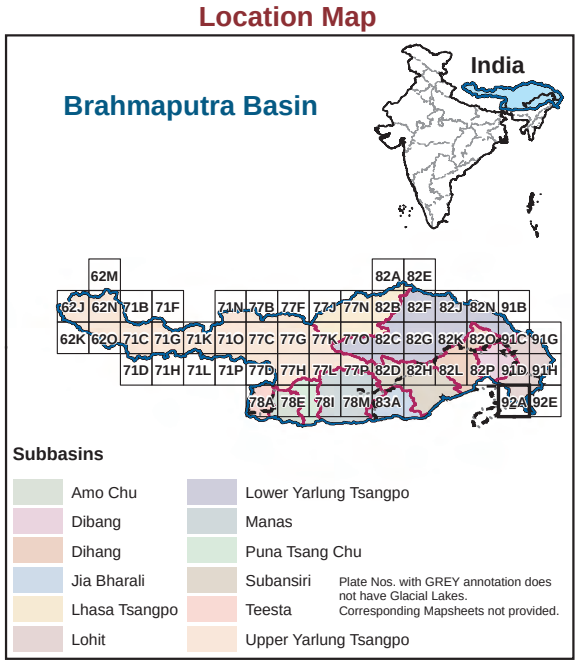
0 5 10 20 Km

Distribution of Glacial Lake Types



Moraine Dammed Lake · Ice Dammed Lake · Erosion Lake · Other Glacial Lake

Location Map



Subbasins

- Amo Chu
- Dibang
- Dihang
- Jia Bharali
- Lhasa Tsangpo
- Lohit
- Lower Yarlung Tsangpo
- Manas
- Puna Tsang Chu
- Subansiri
- Teesta
- Upper Yarlung Tsangpo

Plate Nos. with GREY annotation does not have Glacial Lakes. Corresponding Mapsheets not provided.

Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	48	294.2
3	4,001 - 5,000	15	36.0
4	> 5,000	0	0.0
Total		**63**	**330.1**

Legend

- Glacial Lake
- River / Stream
- Basin Boundary
- Subbasin Boundary
- *District Boundary*
- State / UT Boundary
- International Boundary

Elevation Range (m)

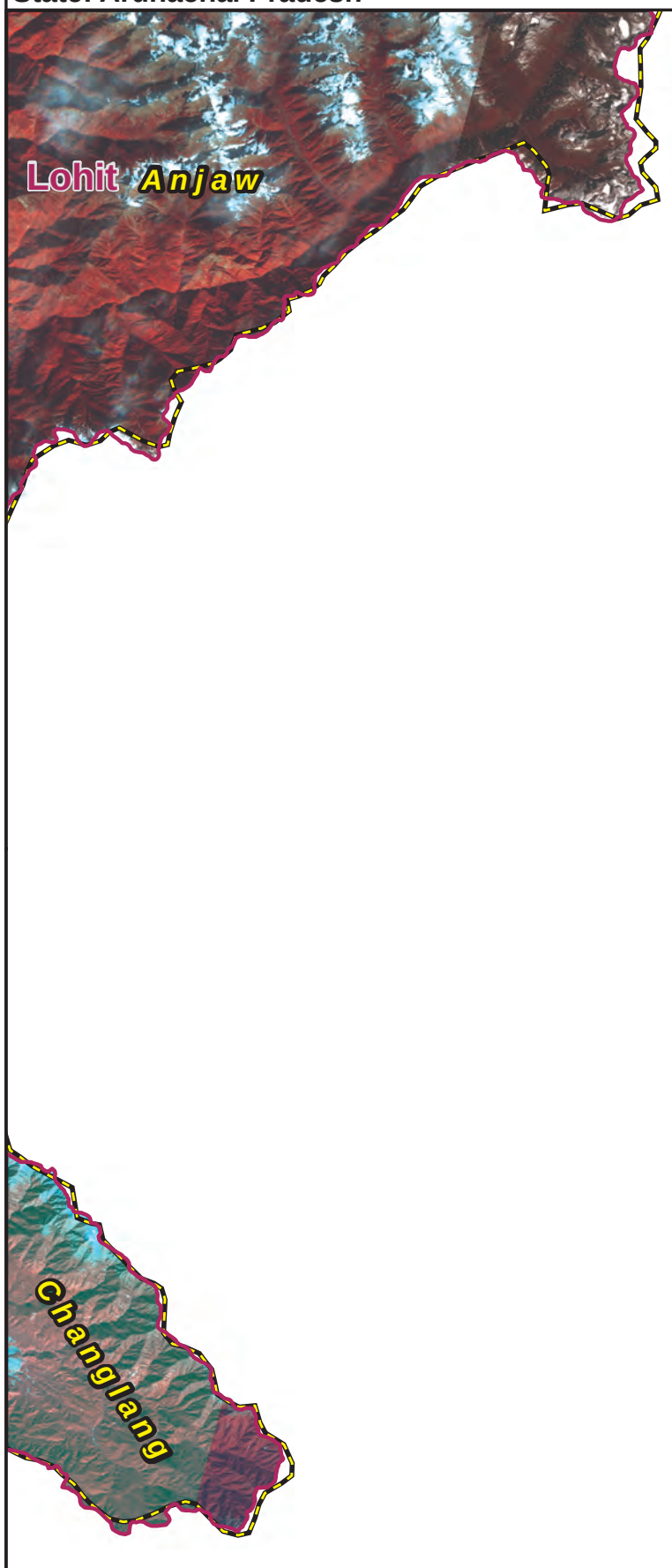
- up to 3,000
- 3,001 - 4,000
- 4,001 - 5,000
- > 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India

SATELLITE IMAGE OF PART OF BRAHMAPUTRA BASIN

State: Arunachal Pradesh | **Map 107** | Plate No: 92E



Data Source: Resourcesat-2 LISS-IV (Total Nos of Scenes: 4)

0 5 10 20 Km

Distribution of Glacial Lake Types vs. Area-wise

S.No.	Glacial Lake Area Range (ha)	Types of Glacial Lakes										Total
		Moraine Dammed Lake				Ice Dammed Lake		Erosion Lake			Other Glacial Lake	
		End-moraine Dammed Lake	Lateral Moraine Dammed Lake	Lateral Moraine Dammed Lake with Ice	Other Moraine Dammed Lake	Supra-glacial Lake	Glacier Ice-dammed Lake	Cirque Erosion Lake	Glacier Trough Valley Erosion Lake	Other Glacial Erosion Lake		
1	**0.25 - 0.5**	0	0	0	0	0	0	0	0	13	1	**14**
2	**0.5 - 1**	0	0	0	0	0	0	0	0	14	0	**14**
3	**1 - 5**	0	0	0	0	0	0	4	0	36	2	**42**
4	**5 - 10**	0	0	0	0	0	0	2	0	15	0	**17**
5	**10 - 50**	0	0	0	0	0	0	2	0	6	0	**8**
6	**> 50**	0	0	0	0	0	0	0	0	1	0	**1**
Total		**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**85**	**3**	**96**

Legend

Subbasin Boundary — District Boundary

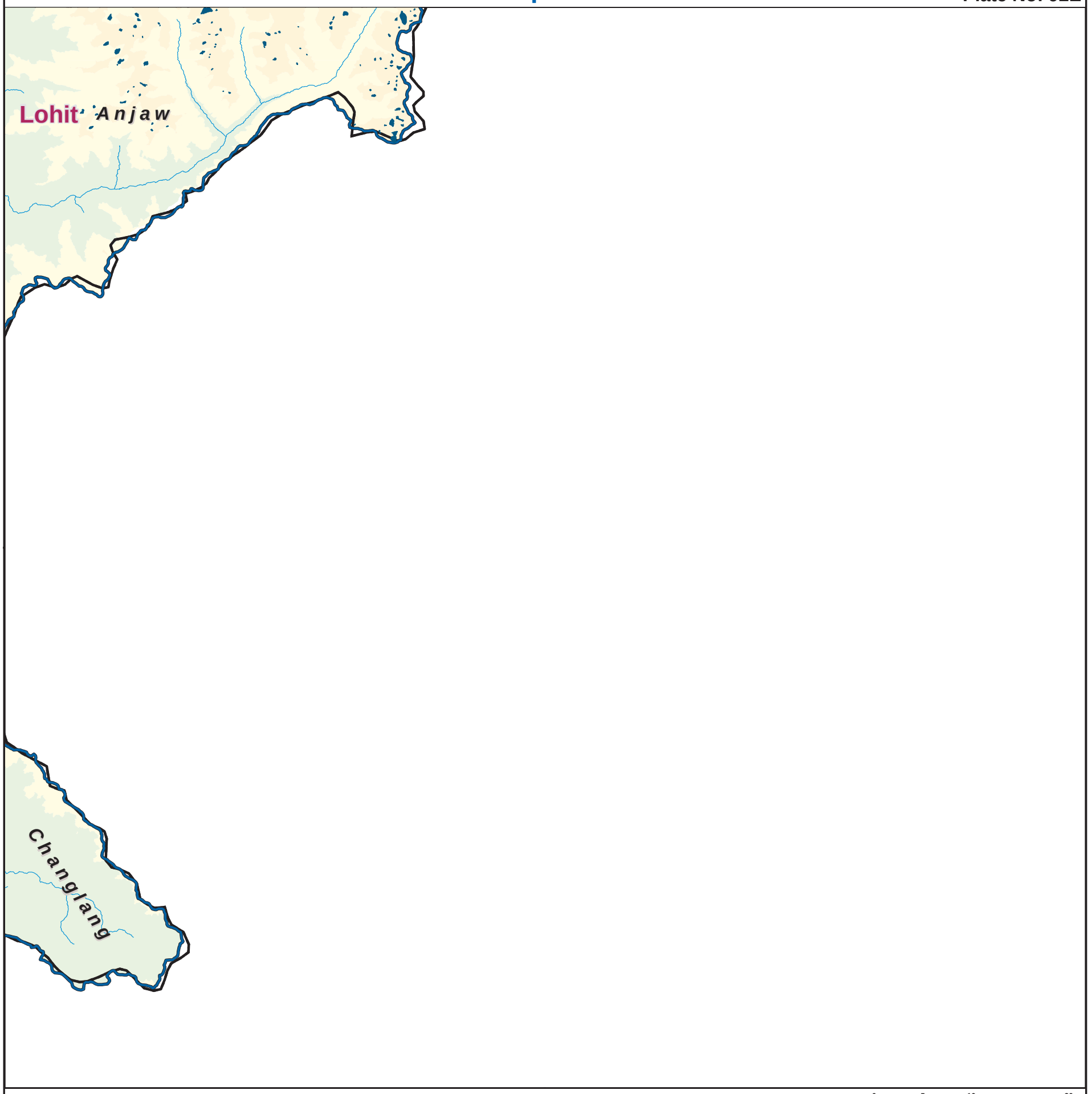
DISCLAIMER:

(a) The Adminitrative Boundaries shown are for scientific study and not for statutory purpose

(b) Satellite image depicts both Glacial Lakes and Water Bodies, but only glacial lakes were mapped

GLACIAL LAKES IN PART OF BRAHMAPUTRA BASIN

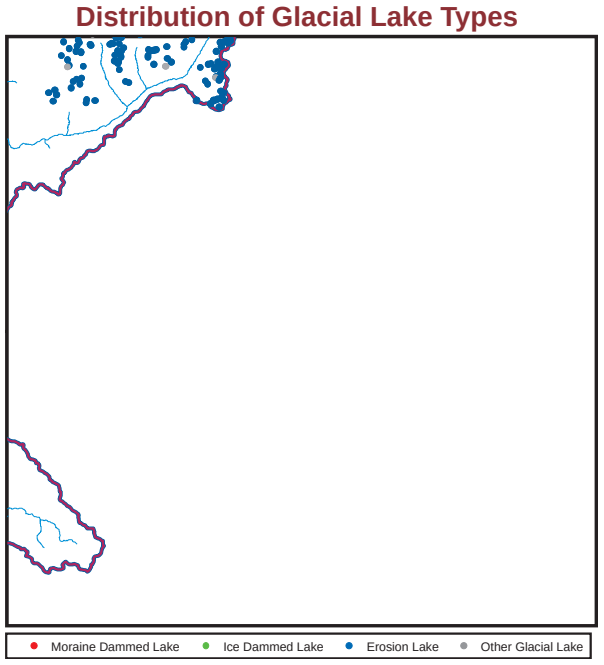
State: Arunachal Pradesh | **Map 108** | Plate No: 92E



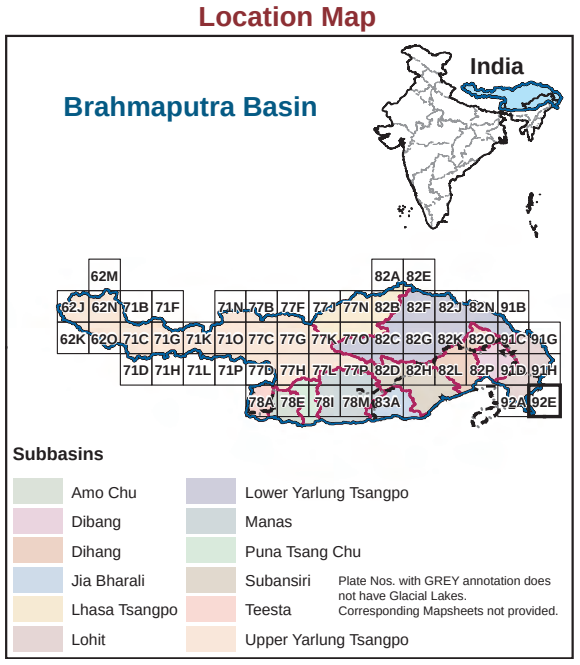
Data Source: Resourcesat-2 LISS-IV

0 5 10 20 Km

Distribution of Glacial Lake Types



Location Map



Elevation-wise Glacial Lake Distribution

S.No.	Elevation Range (m)	No. of Glacial Lakes	Glacial Lake Area (ha)
1	up to 3,000	0	0.0
2	3,001 - 4,000	31	157.2
3	4,001 - 5,000	65	292.2
4	> 5,000	0	0.0
Total		**96**	**449.4**

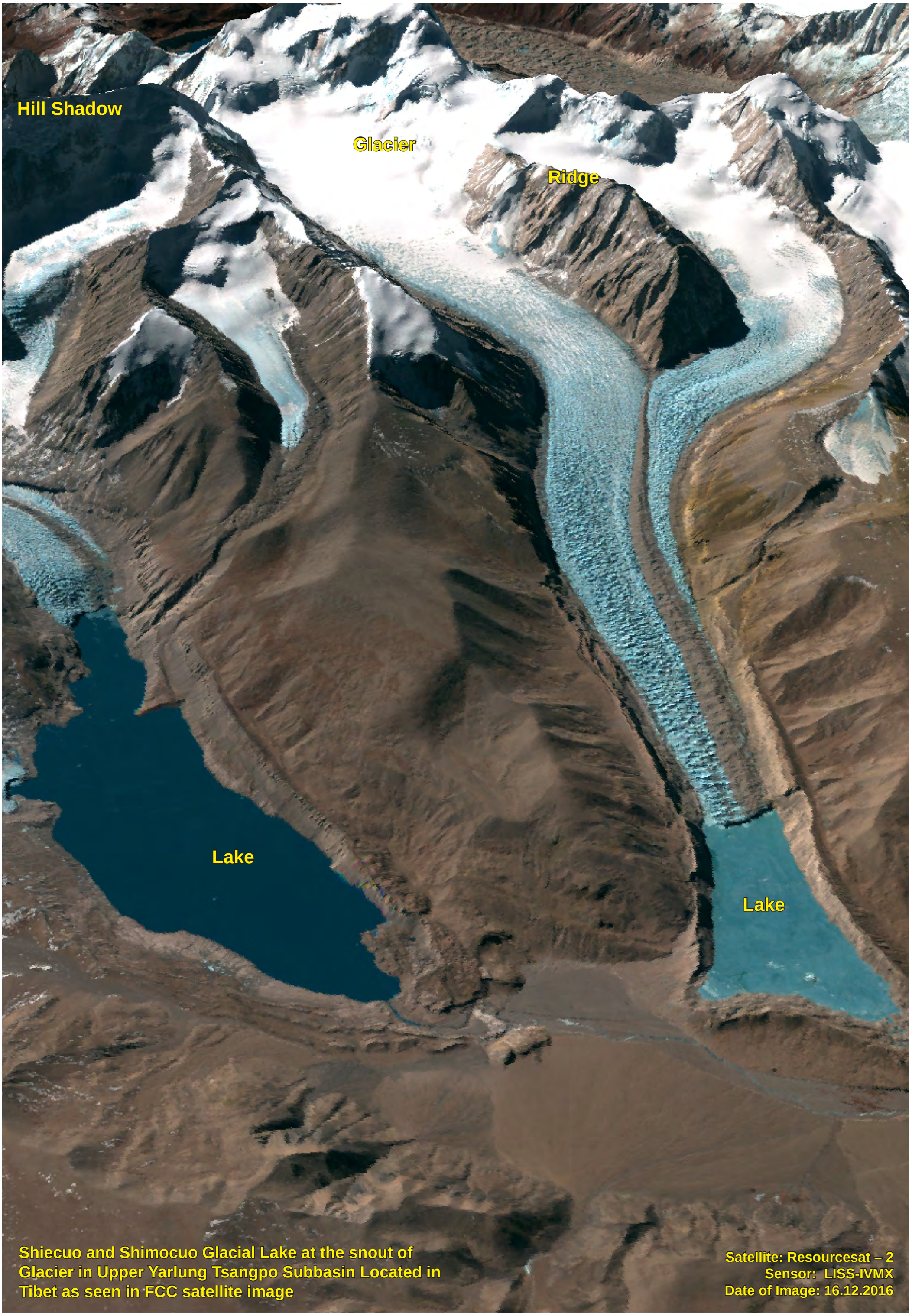
Legend

Glacial Lake
River / Stream
Basin Boundary
Subbasin Boundary
District Boundary
State / UT Boundary
International Boundary

Elevation Range (m)
up to 3,000
3,001 - 4,000
4,001 - 5,000
> 5,000

Prepared By:
Water Resources Group
National Remote Sensing Centre, ISRO
Department of Space, Government of India

Under:
National Hydrolgy Project
Department of Water Resources, RD & GR
Ministry of Jal Shakti, Government of India



Shiecuo and Shimocuo Glacial Lake at the snout of Glacier in Upper Yarlung Tsangpo Subbasin Located in Tibet as seen in FCC satellite image

Satellite: Resourcesat – 2
Sensor: LISS-IVMX
Date of Image: 16.12.2016

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Annexure - I: Automatic Identification and Mapping of Glacial Lakes

Overview:

There are several automatic and semi-automatic glacial lake mapping method reported in the literature, but no method produce good and accurate results of mapping. Kääb et al. (2002), attempted the automatic classification of glacial lakes using Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data, but the algorithm was not robust enough to be applied to other images except ASTER images. Using LANDSAT images, Huggel et al. (2002) suggested the Normalized Difference Water Index (NDWI) according to theory low water reflectance in the NIR band and high reflectance in blue band but glacial lakes get misclassified as shadow area using this method.

Wangchuk et al. (2019), delineated glacial lakes using Sentinel-1 SAR images, a semi-automated approach, based on a radar signal intensity threshold between water and non-water feature classes followed by post-processing including elevations, slopes, vegetation and size thresholds, but drawback still persist as lakes which are severely affected by the wind and waves that increase the roughness and thus the backscatter would neither be identified correctly, partially or at all, due to the use of a single threshold. Hence, to ensure correct classifications of lakes, visual inspection of images and quality control is required for final accurate results.

Mapping methods:

The NDWI, which provides an automatic way to detect water bodies including glacial lakes was adopted by many researchers for inventorying purpose. It is a ratio combining two different spectral bands that enhance water spectral signals by contrasting the reflectance between different wavelengths and removing a large portion of noise components in different wavelengths, can be expressed as:

$$NDWI = (Green\ Band - NIR\ Band) / (Green\ Band + NIR\ Band)$$

Other than NDWI, two more pixel-based classification techniques i.e. supervised (by giving homogeneous signature sites) and unsupervised (by giving certain number of feature classes to classify based on spectral behavior) classification techniques can also be applied. Object-based classification using eCognition software can also be done using various factors like by giving threshold values and suitable membership functions, by including indices like NDWI, Normalized Difference Vegetation Index (NDVI) and Normalized Difference Glacier Index (NDGI), and by using layers such as slope and NIR band.

Mapping results:

A study was attempted using RS-2 LISS-IV data to compare the mapping accuracy of lakes using 4 automated methods (NDWI, Supervised, Unsupervised and Object based) with visual interpretation method. All four automatic mapping methods along with visual interpretation technique were used in an area which has deep water bodies and snow covered glacial lakes along with shadowed region (upper mountainous parts of Teesta basin). Using NDWI method, most of lakes got classified, but it also classify shadow areas as water pixels due to the similar spectral reflectance conditions. Even if the threshold value of NDWI is changed in such a way that all water pixels

in a lake should get classified, many deep water bodies and shadowed portions having same spectral reflectance values will get misclassified as water pixels or in some glacial lakes water pixels are missing.

Unsupervised classification technique misclassifies not only shadows as lakes, but also some part of glaciers that are in retreating condition and having similar spectral reflectance values of lakes (light blue in colour). In supervised classification output, with good amount of signature sites, cloud/mountain shadows are classified as water pixels. Overall, using pixel-based classification methods, it is difficult to distinguish between deep water bodies and shadows as they have same spectral reflectance values. Pixel-based classified output of all three methods along with the total area of lakes in the study area is shown in Figure 139.

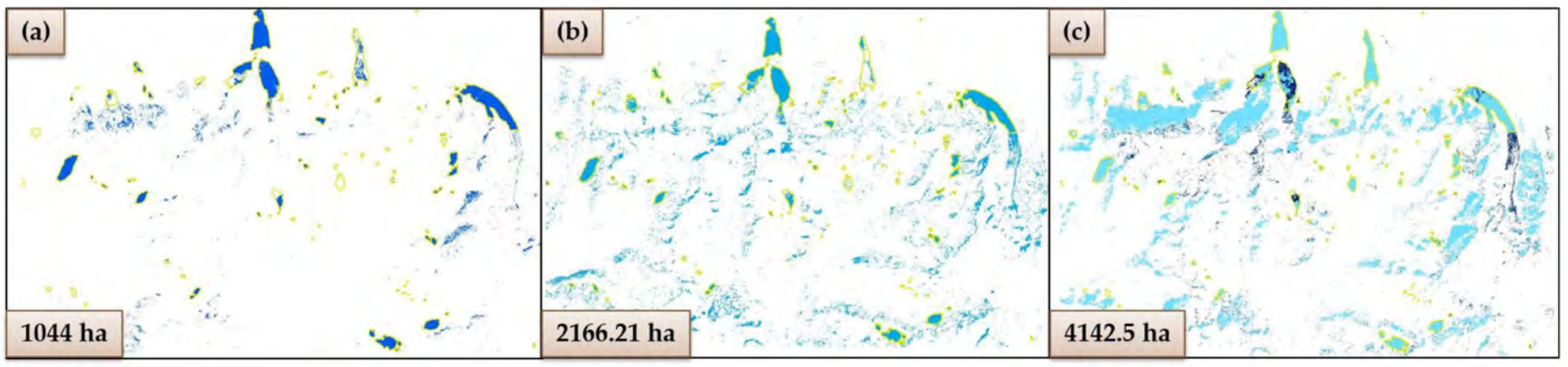


Figure 139: Pixel-based classified output (a): NDWI, (b): Supervised, (c): Unsupervised

Using object-based classification method, along with various layers like slope (as the glacial lakes are located at higher elevation) and NIR band, results misclassification of shadows, though it is less in comparison to the pixel-based classified output, but at many locations water pixels are not classified. Also, if we compare the areas of lakes that is being classified using automatic method that with the area of manually mapped lakes, automatic mapped lakes has huge difference and extent of misclassification, which need to be corrected again using visual interpretation method. Figure 140 shows the comparison of the glacial lake extents of object-based classification and manual mapping using visual interpretation keys.

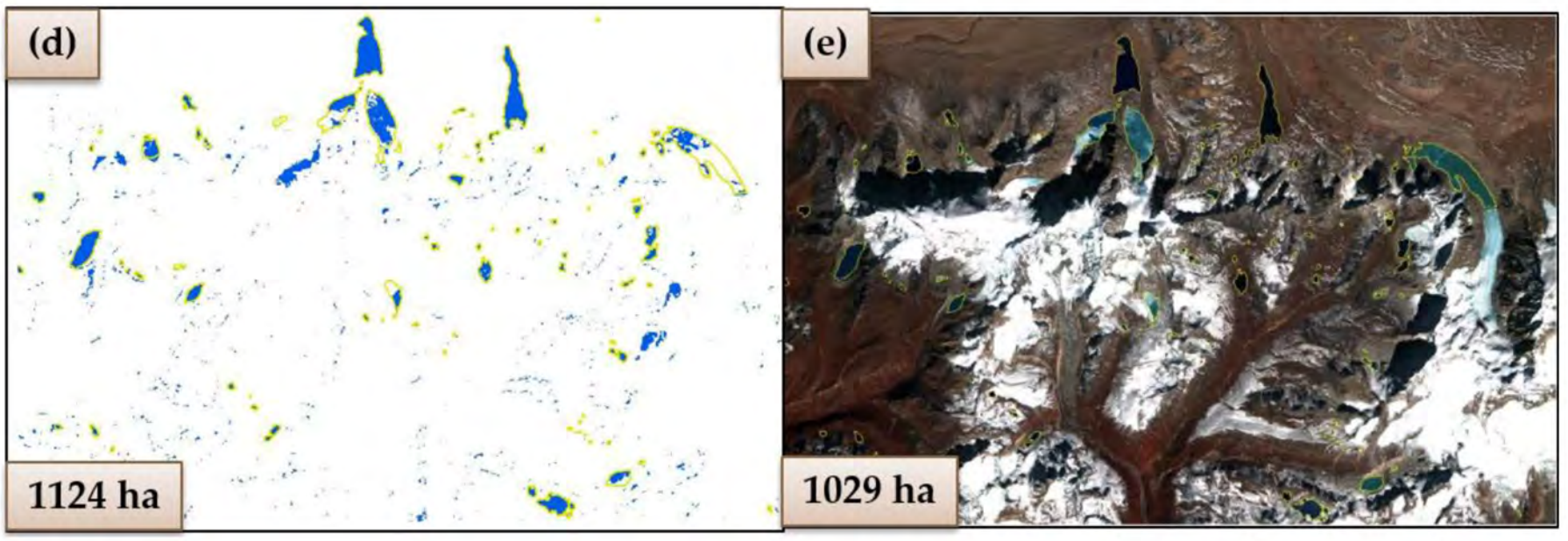


Figure 140: Object-based classified output and manual mapping output

Annexure - II: List of Glacial Lakes

Each lake is given a unique ID, formatted in 12 alpha-numeric character. First two digit of ID refers to the basin code, next five character refers to the SOI 250K and 50K Toposheet No., and the last five digit refers to the sequential number of each lake sorted from top left to bottom right. For example:

03**78A**0115656			
03	**78A**01		15656
	78A	01	
Basin Code	SOI 250K Toposheet No.	SOI 50K Toposheet No.	Lake No.

Table 110 shows the details of all glacial lakes mapped in the Brahmaputra River basin along with few important attributes.

Table 110: List of Glacial Lakes of the Brahmaputra River Basin with few important attributes

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1	03 62J03 00552	30.478	82.173	Upper Yarlung Tsangpo	O	31.29	5,250
2	03 62J03 00556	30.468	82.060	Upper Yarlung Tsangpo	O	378.8	5,180
3	03 62J03 00557	30.463	82.100	Upper Yarlung Tsangpo	O	6.52	5,182
4	03 62J03 00566	30.461	82.108	Upper Yarlung Tsangpo	O	16.73	5,177
5	03 62J03 00573	30.431	82.181	Upper Yarlung Tsangpo	O	32.23	5,000
6	03 62J03 00578	30.413	82.171	Upper Yarlung Tsangpo	O	37.71	5,002
7	03 62J03 00579	30.412	82.164	Upper Yarlung Tsangpo	O	8.47	5,004
8	03 62J03 00585	30.398	82.192	Upper Yarlung Tsangpo	E(o)	86.53	5,203
9	03 62J03 00586	30.371	82.061	Upper Yarlung Tsangpo	M(o)	5.27	5,252
10	03 62J03 00587	30.371	82.043	Upper Yarlung Tsangpo	M(o)	5.23	5,544
11	03 62J03 00590	30.366	82.156	Upper Yarlung Tsangpo	E(o)	12.73	5,450
12	03 62J03 00604	30.362	82.055	Upper Yarlung Tsangpo	M(e)	56.83	5,283
13	03 62J03 00611	30.352	82.238	Upper Yarlung Tsangpo	O	29.81	5,106
14	03 62J03 00612	30.340	82.141	Upper Yarlung Tsangpo	M(e)	16.12	5,580
15	03 62J03 00613	30.310	82.200	Upper Yarlung Tsangpo	M(e)	19.08	5,530
16	03 62J03 00617	30.286	82.137	Upper Yarlung Tsangpo	M(l)	5.83	5,582
17	03 62J03 00646	30.282	82.169	Upper Yarlung Tsangpo	M(e)	16.58	5,339
18	03 62J03 00664	30.255	82.209	Upper Yarlung Tsangpo	M(e)	128.7	5,057
19	03 62J03 00676	30.221	82.232	Upper Yarlung Tsangpo	M(e)	44.31	5,582
20	03 62J03 00680	30.865	82.477	Upper Yarlung Tsangpo	O	5.19	5,320
21	03 62J03 00683	30.761	82.394	Upper Yarlung Tsangpo	O	6.92	5,549
22	03 62J03 00710	30.755	82.381	Upper Yarlung Tsangpo	E(c)	9.57	5,594
23	03 62J07 00714	30.432	82.362	Upper Yarlung Tsangpo	O	152.61	4,882
24	03 62J07 00756	30.419	82.302	Upper Yarlung Tsangpo	O	901.4	4,931
25	03 62J07 00767	30.410	82.262	Upper Yarlung Tsangpo	O	8.15	4,937
26	03 62J07 00770	30.407	82.355	Upper Yarlung Tsangpo	O	23.16	4,870
27	03 62J07 00777	30.406	82.256	Upper Yarlung Tsangpo	O	14.1	4,936
28	03 62J07 00796	30.399	82.296	Upper Yarlung Tsangpo	O	9.7	4,933
29	03 62J07 00817	30.371	82.273	Upper Yarlung Tsangpo	O	10.68	4,966
30	03 62J07 00819	30.342	82.271	Upper Yarlung Tsangpo	O	69.03	4,993
31	03 62J07 00824	30.329	82.270	Upper Yarlung Tsangpo	O	58.67	4,990
32	03 62J07 00828	30.328	82.258	Upper Yarlung Tsangpo	O	9.63	4,998
33	03 62J07 00842	30.318	82.272	Upper Yarlung Tsangpo	O	15.62	4,996
34	03 62J07 00843	30.311	82.259	Upper Yarlung Tsangpo	O	25.33	4,997
35	03 62J07 00844	30.299	82.252	Upper Yarlung Tsangpo	O	7.17	4,997
36	03 62J08 00849	30.217	82.486	Upper Yarlung Tsangpo	O	25.14	4,791
37	03 62J08 00851	30.138	82.355	Upper Yarlung Tsangpo	O	9.02	4,940
38	03 62J08 00858	30.106	82.404	Upper Yarlung Tsangpo	E(o)	48.23	4,912
39	03 62J08 00872	30.103	82.270	Upper Yarlung Tsangpo	M(e)	203.15	4,875
40	03 62J08 00877	30.079	82.343	Upper Yarlung Tsangpo	M(e)	91.73	4,849
41	03 62J08 00888	30.053	82.376	Upper Yarlung Tsangpo	M(o)	5.58	4,943
42	03 62J08 00891	30.037	82.419	Upper Yarlung Tsangpo	M(o)	7.81	5,119
43	03 62J08 00896	30.037	82.411	Upper Yarlung Tsangpo	M(o)	5.95	5,180
44	03 62J08 00899	30.029	82.415	Upper Yarlung Tsangpo	M(o)	6.43	5,172
45	03 62J09 00900	30.857	82.572	Upper Yarlung Tsangpo	O	6.07	5,566
46	03 62J09 00912	30.832	82.526	Upper Yarlung Tsangpo	O	14.79	5,307
47	03 62J09 00917	30.807	82.750	Upper Yarlung Tsangpo	M(o)	14.74	5,547
48	03 62J09 00918	30.803	82.710	Upper Yarlung Tsangpo	M(e)	9.48	5,689
49	03 62J09 00936	30.795	82.706	Upper Yarlung Tsangpo	M(o)	5.61	5,683
50	03 62J09 00938	30.787	82.730	Upper Yarlung Tsangpo	E(o)	6.78	5,795
51	03 62J10 00942	30.608	82.652	Upper Yarlung Tsangpo	O	20.59	5,088
52	03 62J11 00943	30.257	82.589	Upper Yarlung Tsangpo	O	19.38	4,778
53	03 62J13 00944	30.881	82.859	Upper Yarlung Tsangpo	O	146.23	5,446
54	03 62J13 00946	30.837	82.958	Upper Yarlung Tsangpo	M(o)	5.52	5,674
55	03 62J13 00950	30.811	82.754	Upper Yarlung Tsangpo	M(o)	10.06	5,551
56	03 62J14 00952	30.690	82.802	Upper Yarlung Tsangpo	M(e)	5.41	5,608
57	03 62J14 00953	30.654	82.880	Upper Yarlung Tsangpo	O	12.36	5,322
58	03 62J14 00955	30.581	82.946	Upper Yarlung Tsangpo	M(o)	8.37	5,667
59	03 62J14 00961	30.572	82.906	Upper Yarlung Tsangpo	M(o)	14.28	5,553
60	03 62J14 00965	30.566	82.942	Upper Yarlung Tsangpo	M(o)	5.8	5,639
61	03 62J14 00966	30.563	82.921	Upper Yarlung Tsangpo	M(o)	26.68	5,607
62	03 62J14 00968	30.560	82.964	Upper Yarlung Tsangpo	M(o)	8.59	5,486
63	03 62J14 00970	30.555	82.946	Upper Yarlung Tsangpo	M(o)	7.69	5,600
64	03 62J14 00973	30.551	82.958	Upper Yarlung Tsangpo	M(o)	29.39	5,558
65	03 62J14 00976	30.550	82.929	Upper Yarlung Tsangpo	M(o)	5.79	5,644
66	03 62J15 00977	30.116	82.756	Upper Yarlung Tsangpo	O	12.66	4,842
67	03 62K05 00978	29.984	82.479	Upper Yarlung Tsangpo	M(o)	11.89	5,223
68	03 62K05 00987	29.969	82.496	Upper Yarlung Tsangpo	M(e)	23.18	4,995
69	03 62K05 01000	29.965	82.490	Upper Yarlung Tsangpo	M(o)	6.16	5,019
70	03 62K09 01004	29.985	82.535	Upper Yarlung Tsangpo	E(o)	392.72	4,829
71	03 62K09 01010	29.980	82.567	Upper Yarlung Tsangpo	E(o)	19.61	4,845
72	03 62K09 01011	29.980	82.589	Upper Yarlung Tsangpo	M(o)	48.6	4,853
73	03 62K09 01021	29.973	82.542	Upper Yarlung Tsangpo	E(o)	9.02	4,964
74	03 62K09 01027	29.962	82.508	Upper Yarlung Tsangpo	M(e)	25.57	5,084
75	03 62K09 01031	29.940	82.603	Upper Yarlung Tsangpo	M(e)	28.46	4,891
76	03 62K09 01037	29.928	82.610	Upper Yarlung Tsangpo	M(e)	6.69	4,998
77	03 62K09 01038	29.924	82.618	Upper Yarlung Tsangpo	M(e)	41.72	4,960
78	03 62K09 01048	29.916	82.665	Upper Yarlung Tsangpo	M(o)	8.44	5,399
79	03 62K13 01078	29.840	82.782	Upper Yarlung Tsangpo	M(e)	291.26	5,058
80	03 62K13 01091	29.796	82.853	Upper Yarlung Tsangpo	M(e)	53.83	5,160
81	03 62K13 01117	29.762	82.885	Upper Yarlung Tsangpo	M(e)	40.66	5,118
82	03 62K14 01118	29.735	82.974	Upper Yarlung Tsangpo	M(e)	80.86	5,337
83	03 62K14 01125	29.688	82.984	Upper Yarlung Tsangpo	M(e)	45.06	5,089
84	03 62N02 01139	30.538	83.044	Upper Yarlung Tsangpo	E(o)	26.81	5,375
85	03 62N02 01169	30.529	83.073	Upper Yarlung Tsangpo	E(o)	27.15	5,609
86	03 62N05 01174	30.751	83.327	Upper Yarlung Tsangpo	M(o)	12.34	5,631
87	03 62N06 01177	30.699	83.306	Upper Yarlung Tsangpo	M(o)	9.75	5,620
88	03 62N06 01196	30.656	83.314	Upper Yarlung Tsangpo	M(o)	7.05	5,785
89	03 62N06 01198	30.580	83.365	Upper Yarlung Tsangpo	M(e)	10.59	5,719
90	03 62N06 01199	30.530	83.295	Upper Yarlung Tsangpo	M(e)	5.23	5,579
91	03 62N10 01206	30.604	83.694	Upper Yarlung Tsangpo	E(o)	5.11	5,532
92	03 62N10 01212	30.591	83.519	Upper Yarlung Tsangpo	O	270.94	5,227
93	03 62N10 01213	30.563	83.518	Upper Yarlung Tsangpo	O	42.47	5,240
94	03 62N10 01246	30.551	83.512	Upper Yarlung Tsangpo	O	16.57	5,239
95	03 62N14 01294	30.669	83.764	Upper Yarlung Tsangpo	O	12.51	5,193
96	03 62N14 01296	30.662	83.763	Upper Yarlung Tsangpo	O	13.83	5,192
97	03 62N14 01307	30.659	83.757	Upper Yarlung Tsangpo	O	6.54	5,198
98	03 62N14 01325	30.617	83.754	Upper Yarlung Tsangpo	O	25.44	5,181
99	03 62N14 01326	30.612	83.764	Upper Yarlung Tsangpo	O	13.4	5,180
100	03 62N14 01355	30.546	83.862	Upper Yarlung Tsangpo	M(o)	8.66	5,655

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
101	03 62N15 01362	30.500	83.963	Upper Yarlung Tsangpo	E(o)	14.7	5,497
102	03 62N15 01365	30.492	83.842	Upper Yarlung Tsangpo	M(o)	23.49	5,633
103	03 62N15 01370	30.480	83.908	Upper Yarlung Tsangpo	E(o)	41.76	5,521
104	03 62N15 01371	30.476	83.871	Upper Yarlung Tsangpo	M(o)	6.39	5,843
105	03 62N15 01380	30.465	83.984	Upper Yarlung Tsangpo	E(o)	84.88	5,450
106	03 62N15 01384	30.461	83.898	Upper Yarlung Tsangpo	E(o)	18.62	5,536
107	03 62N15 01386	30.461	83.973	Upper Yarlung Tsangpo	E(o)	19.08	5,448
108	03 62N15 01391	30.431	83.996	Upper Yarlung Tsangpo	E(o)	206.16	5,429
109	03 62N15 01413	30.417	83.964	Upper Yarlung Tsangpo	E(o)	5.2	5,465
110	03 62N15 01421	30.414	83.929	Upper Yarlung Tsangpo	M(o)	6.46	5,689
111	03 62O02 01422	29.731	83.073	Upper Yarlung Tsangpo	E(o)	21.82	5,086
112	03 62O02 01429	29.726	83.105	Upper Yarlung Tsangpo	0	113.22	5,010
113	03 62O02 01449	29.693	83.025	Upper Yarlung Tsangpo	M(e)	30.18	5,371
114	03 62O02 01454	29.692	83.043	Upper Yarlung Tsangpo	M(o)	5.07	5,464
115	03 62O02 01464	29.689	83.190	Upper Yarlung Tsangpo	0	54.5	5,007
116	03 62O02 01473	29.686	83.097	Upper Yarlung Tsangpo	0	25.38	5,040
117	03 62O02 01476	29.680	83.138	Upper Yarlung Tsangpo	0	7.3	5,194
118	03 62O02 01481	29.674	83.182	Upper Yarlung Tsangpo	0	25.01	5,011
119	03 62O02 01495	29.668	83.108	Upper Yarlung Tsangpo	E(o)	8.18	5,223
120	03 62O02 01500	29.668	83.031	Upper Yarlung Tsangpo	M(o)	8.4	5,325
121	03 62O02 01501	29.662	83.222	Upper Yarlung Tsangpo	0	6.92	5,137
122	03 62O02 01509	29.655	83.084	Upper Yarlung Tsangpo	E(o)	9.28	5,050
123	03 62O02 01510	29.655	83.106	Upper Yarlung Tsangpo	M(o)	32.58	5,241
124	03 62O02 01513	29.647	83.234	Upper Yarlung Tsangpo	M(o)	6.7	5,551
125	03 62O02 01516	29.644	83.110	Upper Yarlung Tsangpo	M(o)	6.7	5,257
126	03 62O02 01517	29.640	83.059	Upper Yarlung Tsangpo	M(o)	7.75	5,274
127	03 62O02 01528	29.632	83.151	Upper Yarlung Tsangpo	M(o)	20.93	5,367
128	03 62O02 01530	29.632	83.215	Upper Yarlung Tsangpo	E(o)	9.74	5,197
129	03 62O02 01531	29.627	83.131	Upper Yarlung Tsangpo	E(o)	10.61	5,366
130	03 62O02 01532	29.619	83.196	Upper Yarlung Tsangpo	M(o)	6.21	5,452
131	03 62O06 01534	29.620	83.298	Upper Yarlung Tsangpo	E(o)	6.76	5,330
132	03 62O06 01535	29.604	83.376	Upper Yarlung Tsangpo	0	145.71	4,889
133	03 62O06 01538	29.582	83.355	Upper Yarlung Tsangpo	0	118.74	4,888
134	03 62O06 01550	29.580	83.287	Upper Yarlung Tsangpo	E(o)	5.44	5,235
135	03 62O06 01578	29.511	83.444	Upper Yarlung Tsangpo	0	211.06	4,959
136	03 62O07 01586	29.499	83.428	Upper Yarlung Tsangpo	0	59.8	4,959
137	03 62O07 01589	29.484	83.371	Upper Yarlung Tsangpo	E(o)	5.16	5,419
138	03 62O07 01624	29.449	83.441	Upper Yarlung Tsangpo	E(o)	6.79	5,393
139	03 62O07 01633	29.446	83.430	Upper Yarlung Tsangpo	E(o)	7.18	5,272
140	03 62O07 01636	29.388	83.443	Upper Yarlung Tsangpo	E(o)	7.76	5,193
141	03 62O11 01640	29.352	83.579	Upper Yarlung Tsangpo	E(o)	7.68	5,533
142	03 62O11 01644	29.322	83.646	Upper Yarlung Tsangpo	0	15.53	5,159
143	03 62O11 01654	29.268	83.618	Upper Yarlung Tsangpo	E(o)	30.54	5,168
144	03 62O11 01657	29.267	83.519	Upper Yarlung Tsangpo	M(o)	5	5,555
145	03 62O12 01677	29.248	83.541	Upper Yarlung Tsangpo	M(o)	7.48	5,603
146	03 62O12 01684	29.221	83.686	Upper Yarlung Tsangpo	M(o)	9.17	5,554
147	03 71B02 01685	30.580	84.068	Upper Yarlung Tsangpo	M(e)	28.04	5,675
148	03 71B03 01695	30.398	84.041	Upper Yarlung Tsangpo	0	9.63	5,403
149	03 71B03 01706	30.391	84.096	Upper Yarlung Tsangpo	0	24.88	5,396
150	03 62N15 01712	30.457	83.861	Upper Yarlung Tsangpo	M(e)	17.69	5,710
151	03 62N15 01752	30.453	83.846	Upper Yarlung Tsangpo	M(e)	22.55	5,580
152	03 62N15 01759	30.450	83.852	Upper Yarlung Tsangpo	M(o)	6.55	5,585
153	03 62N15 01760	30.438	83.882	Upper Yarlung Tsangpo	M(e)	9.43	5,611
154	03 62N15 01763	30.425	83.864	Upper Yarlung Tsangpo	M(o)	8.08	5,639
155	03 62N15 01767	30.421	83.866	Upper Yarlung Tsangpo	M(e)	6.38	5,640
156	03 62O15 01769	29.470	83.764	Upper Yarlung Tsangpo	0	77.62	5,282
157	03 71C05 01772	29.918	84.478	Upper Yarlung Tsangpo	M(o)	6.29	5,504
158	03 71C05 01776	29.904	84.499	Upper Yarlung Tsangpo	M(o)	5.34	5,585
159	03 71C09 01796	29.887	84.537	Upper Yarlung Tsangpo	M(o)	10.44	5,638
160	03 71C09 01804	29.773	84.631	Upper Yarlung Tsangpo	M(o)	5.1	5,621
161	03 71C09 01809	29.766	84.622	Upper Yarlung Tsangpo	M(o)	6.91	5,543
162	03 71C10 01812	29.691	84.683	Upper Yarlung Tsangpo	E(o)	7.91	5,573
163	03 71C10 01815	29.681	84.570	Upper Yarlung Tsangpo	E(o)	5.73	5,470
164	03 71C12 01818	29.122	84.744	Upper Yarlung Tsangpo	E(o)	14.81	5,049
165	03 71C16 01822	29.077	84.799	Upper Yarlung Tsangpo	E(o)	6.81	5,407
166	03 71C16 01823	29.076	84.839	Upper Yarlung Tsangpo	E(o)	11.36	5,434
167	03 71D01 01831	28.958	84.236	Upper Yarlung Tsangpo	M(e)	7.32	5,462
168	03 71D05 01840	28.928	84.300	Upper Yarlung Tsangpo	M(e)	20.69	5,431
169	03 71D05 01847	28.909	84.348	Upper Yarlung Tsangpo	E(o)	11.92	5,356
170	03 71D09 01885	28.908	84.508	Upper Yarlung Tsangpo	M(e)	35.26	5,539
171	03 71D13 01887	28.842	84.821	Upper Yarlung Tsangpo	M(o)	8.07	5,374
172	03 71G04 01890	29.004	85.019	Upper Yarlung Tsangpo	E(o)	7.58	5,544
173	03 71G04 01891	29.003	85.055	Upper Yarlung Tsangpo	M(o)	6.08	5,527
174	03 71H01 01893	28.984	85.022	Upper Yarlung Tsangpo	M(o)	5.18	5,673

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
175	03 71K07 01894	29.291	86.391	Upper Yarlung Tsangpo	E(c)	5.07	5,676
176	03 71K08 01901	29.250	86.320	Upper Yarlung Tsangpo	M(o)	6.31	5,653
177	03 71K08 01913	29.150	86.350	Upper Yarlung Tsangpo	M(o)	7.83	5,519
178	03 71O08 01949	29.162	87.380	Upper Yarlung Tsangpo	0	11.04	4,485
179	03 71O14 01954	29.642	87.925	Upper Yarlung Tsangpo	E(o)	11.38	5,282
180	03 71O14 01957	29.584	87.916	Upper Yarlung Tsangpo	E(o)	12.16	5,424
181	03 71P09 01958	28.847	87.568	Upper Yarlung Tsangpo	0	10.39	5,288
182	03 71P09 01960	28.832	87.560	Upper Yarlung Tsangpo	0	140.16	5,296
183	03 71P09 01963	28.830	87.603	Upper Yarlung Tsangpo	M(o)	7.99	5,586
184	03 71P09 01971	28.811	87.551	Upper Yarlung Tsangpo	E(o)	5.62	5,334
185	03 71P09 01985	28.810	87.658	Upper Yarlung Tsangpo	M(o)	5.05	5,582
186	03 71P09 01987	28.804	87.625	Upper Yarlung Tsangpo	M(e)	17.1	5,528
187	03 71P09 01990	28.799	87.603	Upper Yarlung Tsangpo	M(o)	11.84	5,591
188	03 71P09 01994	28.796	87.641	Upper Yarlung Tsangpo	M(e)	26.55	5,344
189	03 77C01 02002	29.754	88.240	Upper Yarlung Tsangpo	E(o)	29.88	5,600
190	03 77C02 02021	29.749	88.246	Upper Yarlung Tsangpo	E(o)	6.38	5,618
191	03 77C02 02035	29.742	88.221	Upper Yarlung Tsangpo	E(o)	8.26	5,463
192	03 77C02 02073	29.731	88.239	Upper Yarlung Tsangpo	E(o)	5.24	5,479
193	03 77C02 02074	29.722	88.236	Upper Yarlung Tsangpo	E(o)	14.3	5,422
194	03 77C02 02079	29.631	88.007	Upper Yarlung Tsangpo	E(o)	12.11	5,410
195	03 77C02 02086	29.546	88.036	Upper Yarlung Tsangpo	E(o)	6.04	5,636
196	03 77C05 02092	29.756	88.261	Upper Yarlung Tsangpo	M(o)	5.36	5,618
197	03 77C14 02117	29.619	88.805	Upper Yarlung Tsangpo	E(o)	8.65	5,275
198	03 77C14 02128	29.506	88.956	Upper Yarlung Tsangpo	E(c)	7.4	5,447
199	03 77C15 02174	29.500	88.950	Upper Yarlung Tsangpo	E(o)	14.97	5,391
200	03 77G06 02181	29.563	89.354	Upper Yarlung Tsangpo	E(o)	10.26	5,427
201	03 77G09 02210	29.887	89.592	Upper Yarlung Tsangpo	E(o)	10.01	5,407
202	03 77G09 02211	29.879	89.658	Upper Yarlung Tsangpo	E(o)	8.68	5,377
203	03 77G09 02212	29.873	89.596	Upper Yarlung Tsangpo	E(o)	39.71	5,342
204	03 77G09 02213	29.867	89.596	Upper Yarlung Tsangpo	E(o)	5.91	5,342
205	03 77G09 02256	29.855	89.596	Upper Yarlung Tsangpo	0	5.18	5,291
206	03 77G09 02277	29.843	89.718	Upper Yarlung Tsangpo	E(o)	13.6	5,296
207	03 77G11 02296	29.492	89.724	Upper Yarlung Tsangpo	E(o)	9.68	5,488
208	03 77G12 02329	29.228	89.593	Upper Yarlung Tsangpo	E(o)	6.74	5,084
209	03 77G12 02333	29.222	89.609	Upper Yarlung Tsangpo	E(o)	6.6	5,072
210	03 77G13 02336	29.866	89.761	Upper Yarlung Tsangpo	E(o)	9.31	5,381
211	03 77G14 02339	29.589	89.763	Upper Yarlung Tsangpo	M(o)	6.67	5,471
212	03 77G14 02347	29.575	89.878	Upper Yarlung Tsangpo	M(o)	7.34	5,605
213	03 77G14 02358	29.509	89.882	Upper Yarlung Tsangpo	E(o)	11.9	5,420
214	03 77G15 02360	29.496	89.869	Upper Yarlung Tsangpo	E(o)	6.16	5,496
215	03 77G15 02363	29.495	89.831	Upper Yarlung Tsangpo	E(o)	13.37	5,493
216	03 77G15 02371	29.492	89.881	Upper Yarlung Tsangpo	0	7.69	5,416
217	03 77G15 02372	29.489	89.867	Upper Yarlung Tsangpo	E(o)	13.26	5,478
218	03 77G15 02373	29.487	89.776	Upper Yarlung Tsangpo	E(o)	7.29	5,429
219	03 77G15 02377	29.483	89.908	Upper Yarlung Tsangpo	E(o)	5.12	5,382
220	03 77G15 02382	29.477	89.932	Upper Yarlung Tsangpo	M(o)	13.27	5,408
221	03 77G15 02391	29.440	89.945	Upper Yarlung Tsangpo	E(o)	7.54	5,400
222	03 77G15 02396	29.421	89.950	Upper Yarlung Tsangpo	E(o)	5.79	5,365
223	03 77G15 02403	29.399	89.803	Upper Yarlung Tsangpo	E(o)	9.32	5,354
224	03 77G15 02407	29.386	89.778	Upper Yarlung Tsangpo	E(o)	8.85	5,398
225	03 77K01 02408	29.932	90.059	Upper Yarlung Tsangpo	M(o)	5.02	5,427
226	03 77K01 02409	29.912	90.063	Upper Yarlung Tsangpo	M(e)	36.3	5,131
227	03 77K01 02411	29.873	90.008	Upper Yarlung Tsangpo	M(e)	14.55	5,290
228	03 77K01 02421	29.872	90.182	Upper Yarlung Tsangpo	M(o)	5.96	5,463
229	03 77K01 02494	29.818	90.183	Upper Yarlung Tsangpo	E(o)	18.71	5,356
230	03 77K01 02496	29.773	90.151	Upper Yarlung Tsangpo	E(o)	13.83	5,271
231	03 77K02 02514	29.744	90.237	Upper Yarlung Tsangpo	E(o)	7.71	5,420
232	03 77K06 02516	29.504	90.439	Upper Yarlung Tsangpo	0	11.03	5,352
233	03 77K06 02517	29.503	90.445	Upper Yarlung Tsangpo	E(o)	8.95	5,375
234	03 77K07 02520	29.486	90.447	Upper Yarlung Tsangpo	E(o)	6.17	5,355
235	03 77K07 02529	29.484	90.436	Upper Yarlung Tsangpo	E(o)	12.88	5,332
236	03 77K07 02530	29.475	90.414	Upper Yarlung Tsangpo	E(o)	20.72	5,325
237	03 77K07 02532	29.474	90.454	Upper Yarlung Tsangpo	E(o)	8.18	5,491
238	03 77K07 02535	29.437	90.495	Upper Yarlung Tsangpo	E(o)	11.37	5,373
239	03 77K07 02603	29.408	90.445	Upper Yarlung Tsangpo	E(o)	5.57	5,358
240	03 77K10 02611	29.511	90.577	Upper Yarlung Tsangpo	E(o)	6.34	5,354
241	03 77K11 02614	29.412	90.524	Upper Yarlung Tsangpo	E(c)	7	5,417
242	03 71B16 02625	30.043	84.939	Upper Yarlung Tsangpo	M(o)	8.18	5,695
243	03 71B16 02630	30.043	84.934	Upper Yarlung Tsangpo	M(o)	7	5,705
244	03 71B16 02631	30.040	84.926	Upper Yarlung Tsangpo	M(o)	20.07	5,730
245	03 71B16 02635	30.014	84.935	Upper Yarlung Tsangpo	M(o)	6.11	5,753
246	03 71C09 02636	29.914	84.601	Upper Yarlung Tsangpo	M(o)	9.63	5,529
247	03 71C09 02638	29.866	84.624	Upper Yarlung Tsangpo	M(e)	49.03	5,395
248	03 71C09 02640	29.856	84.632	Upper Yarlung Tsangpo	M(e)	14.63	5,557

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
249	03 71C09 02645	29.845	84.676	Upper Yarlung Tsangpo	M(e)	51.54	5,536
250	03 71C09 02646	29.818	84.691	Upper Yarlung Tsangpo	M(e)	20.93	5,471
251	03 71C10 02649	29.751	84.672	Upper Yarlung Tsangpo	M(o)	10.35	5,554
252	03 71C10 02664	29.679	84.738	Upper Yarlung Tsangpo	E(o)	5.37	5,707
253	03 71C13 02665	29.970	84.879	Upper Yarlung Tsangpo	E(o)	7.15	5,750
254	03 71G01 02668	29.901	85.080	Upper Yarlung Tsangpo	E(o)	6.58	5,623
255	03 71G01 02669	29.853	85.005	Upper Yarlung Tsangpo	0	6.42	5,176
256	03 71G01 02689	29.755	85.134	Upper Yarlung Tsangpo	M(o)	7.64	5,464
257	03 71G02 02691	29.737	85.147	Upper Yarlung Tsangpo	M(o)	5.63	5,547
258	03 71G02 02699	29.728	85.211	Upper Yarlung Tsangpo	E(o)	13.64	5,374
259	03 71G05 02718	29.862	85.364	Upper Yarlung Tsangpo	E(o)	8.1	5,459
260	03 71G06 02729	29.740	85.314	Upper Yarlung Tsangpo	E(o)	12.09	5,307
261	03 71G10 02737	29.596	85.610	Upper Yarlung Tsangpo	0	6.89	5,244
262	03 71G14 02745	29.733	85.783	Upper Yarlung Tsangpo	E(o)	15.71	5,384
263	03 71G14 02755	29.603	85.864	Upper Yarlung Tsangpo	E(o)	5.24	5,333
264	03 71G14 02759	29.567	85.890	Upper Yarlung Tsangpo	0	5.63	5,181
265	03 71G14 02764	29.563	85.887	Upper Yarlung Tsangpo	0	5.27	5,184
266	03 71G14 02787	29.558	85.880	Upper Yarlung Tsangpo	0	56.48	5,186
267	03 71K05 02788	29.935	86.422	Upper Yarlung Tsangpo	0	10.79	5,477
268	03 71K06 02789	29.672	86.380	Upper Yarlung Tsangpo	E(o)	11.06	5,512
269	03 71K14 02795	29.698	86.857	Upper Yarlung Tsangpo	M(o)	5.97	5,725
270	03 71K14 02804	29.559	86.919	Upper Yarlung Tsangpo	E(o)	9.14	5,460
271	03 71K14 02809	29.534	86.943	Upper Yarlung Tsangpo	E(o)	5.88	5,339
272	03 71O02 02810	29.556	87.028	Upper Yarlung Tsangpo	0	119.59	4,729
273	03 71O02 02813	29.514	87.108	Upper Yarlung Tsangpo	E(c)	11.54	5,432
274	03 71O06 02815	29.507	87.483	Upper Yarlung Tsangpo	E(o)	7.06	5,594
275	03 71N07 02820	30.251	87.428	Upper Yarlung Tsangpo	0	20.33	4,878
276	03 71N12 02827	30.088	87.697	Upper Yarlung Tsangpo	0	19.81	4,731
277	03 71O01 02834	29.824	87.016	Upper Yarlung Tsangpo	E(o)	26.33	4,954
278	03 71O09 02845	29.905	87.680	Upper Yarlung Tsangpo	E(o)	5.42	4,728
279	03 71O09 02848	29.897	87.666	Upper Yarlung Tsangpo	E(o)	6.37	4,737
280	03 71O10 02850	29.595	87.742	Upper Yarlung Tsangpo	E(o)	7.62	4,716
281	03 71O14 02851	29.608	87.803	Upper Yarlung Tsangpo	E(o)	6.9	5,259
282	03 77B08 02868	30.236	88.321	Upper Yarlung Tsangpo	E(o)	5.19	5,483
283	03 77C05 02873	29.901	88.351	Upper Yarlung Tsangpo	M(o)	6.59	5,481
284	03 77C05 02874	29.823	88.292	Upper Yarlung Tsangpo	M(o)	6.45	5,481
285	03 77C05 02880	29.774	88.259	Upper Yarlung Tsangpo	M(o)	8.88	5,535
286	03 77B12 02904	30.168	88.620	Upper Yarlung Tsangpo	E(o)	50.13	5,029
287	03 77B12 02928	30.148	88.627	Upper Yarlung Tsangpo	E(o)	213.67	5,011
288	03 77B12 02939	30.105	88.618	Upper Yarlung Tsangpo	E(o)	26.87	4,903
289	03 77B12 02941	30.007	88.678	Upper Yarlung Tsangpo	E(o)	6.47	4,673
290	03 77C14 02955	29.581	88.892	Upper Yarlung Tsangpo	E(o)	5.14	5,397
291	03 77G09 02956	29.953	89.528	Upper Yarlung Tsangpo	M(o)	7.69	5,354
292	03 77G09 02957	29.946	89.589	Upper Yarlung Tsangpo	M(e)	6.94	5,448
293	03 77G09 02958	29.899	89.639	Upper Yarlung Tsangpo	E(o)	33.92	5,260
294	03 77G09 02961	29.894	89.620	Upper Yarlung Tsangpo	E(o)	12.12	5,460
295	03 77G09 02964	29.892	89.687	Upper Yarlung Tsangpo	E(o)	7.65	5,378
296	03 77G09 02974	29.877	89.544	Upper Yarlung Tsangpo	E(o)	12.3	5,475
297	03 77G09 02975	29.851	89.518	Upper Yarlung Tsangpo	E(o)	5.58	5,390
298	03 77G09 02978	29.850	89.534	Upper Yarlung Tsangpo	0	25.71	5,298
299	03 77G09 03002	29.843	89.528	Upper Yarlung Tsangpo	E(o)	5.49	5,351
300	03 77G09 03003	29.835	89.547	Upper Yarlung Tsangpo	E(o)	12.28	5,394
301	03 77D10 03013	28.518	88.736	Upper Yarlung Tsangpo	E(o)	5.21	5,316
302	03 77D08 03014	28.006	88.494	Teesta	M(e)	45.02	5,023
303	03 77D12 03025	28.059	88.631	Teesta	E(o)	14.81	4,917
304	03 77D12 03029	28.026	88.710	Teesta	M(e)	113.46	5,148
305	03 77D12 03032	28.014	88.652	Teesta	M(e)	11.65	5,522
306	03 77D12 03038	28.014	88.561	Teesta	E(c)	26.21	5,073
307	03 77D12 03047	28.008	88.681	Teesta	M(o)	7.84	5,681
308	03 77D12 03062	28.008	88.698	Teesta	M(e)	99.32	5,209
309	03 77D12 03067	28.007	88.571	Teesta	M(o)	26	4,998
310	03 77D12 03069	28.006	88.713	Teesta	M(e)	119.15	5,238
311	03 77D12 03077	28.002	88.639	Teesta	M(e)	32.04	5,424
312	03 77D12 03078	28.000	88.548	Teesta	M(o)	8.03	5,158
313	03 77D16 03085	28.011	88.756	Teesta	M(o)	108.12	5,094
314	03 78A01 03086	27.920	88.159	Teesta	M(e)	83.63	5,441
315	03 78A01 03087	27.913	88.196	Teesta	M(e)	128.14	5,194
316	03 78A01 03095	27.893	88.212	Teesta	I(s)	9.76	5,433
317	03 78A01 03096	27.893	88.191	Teesta	M(o)	21.27	5,496
318	03 78A01 03100	27.852	88.240	Teesta	M(e)	30.59	5,190
319	03 78A01 03108	27.843	88.232	Teesta	M(o)	9.67	5,322
320	03 78A02 03114	27.748	88.234	Teesta	M(e)	8.25	5,177
321	03 78A02 03118	27.602	88.185	Teesta	M(o)	6.82	4,775
322	03 78A02 03122	27.563	88.123	Teesta	M(o)	10.47	4,710
323	03 78A02 03125	27.533	88.086	Teesta	M(e)	36.8	4,860
324	03 78A02 03128	27.501	88.055	Teesta	E(o)	5	4,823
325	03 78A03 03133	27.488	88.213	Teesta	E(o)	7.96	4,241
326	03 78A03 03145	27.479	88.055	Teesta	E(o)	9.26	4,271
327	03 78A03 03147	27.437	88.083	Teesta	E(c)	13.56	4,280
328	03 78A05 03148	27.976	88.418	Teesta	M(o)	16.35	5,224
329	03 78A05 03158	27.974	88.422	Teesta	M(o)	12.85	5,185
330	03 78A05 03166	27.973	88.439	Teesta	E(o)	9.55	5,068
331	03 78A05 03171	27.969	88.430	Teesta	M(o)	14.31	4,974
332	03 78A05 03176	27.957	88.388	Teesta	E(o)	6.32	5,133
333	03 78A05 03198	27.952	88.296	Teesta	M(o)	5.17	5,109
334	03 78A05 03201	27.951	88.355	Teesta	M(o)	40.34	4,989
335	03 78A05 03204	27.949	88.305	Teesta	M(e)	35.9	5,049
336	03 78A05 03210	27.947	88.332	Teesta	M(o)	60.49	5,034
337	03 78A05 03225	27.943	88.272	Teesta	M(e)	6.58	5,160
338	03 78A05 03228	27.936	88.266	Teesta	M(o)	8.46	5,210
339	03 78A05 03231	27.920	88.313	Teesta	E(o)	10	5,114
340	03 78A05 03233	27.892	88.261	Teesta	E(o)	5.4	5,111
341	03 78A05 03248	27.886	88.265	Teesta	M(o)	9.68	5,111
342	03 78A05 03265	27.883	88.260	Teesta	M(o)	8.92	5,131
343	03 78A05 03270	27.881	88.250	Teesta	M(e)	14.4	5,198
344	03 78A05 03272	27.831	88.318	Teesta	E(o)	9.5	5,214
345	03 78A05 03273	27.823	88.453	Teesta	E(o)	8.22	4,567
346	03 78A05 03276	27.822	88.249	Teesta	M(e)	70.94	5,414
347	03 78A05 03286	27.817	88.261	Teesta	M(e)	12.31	5,487
348	03 78A05 03295	27.759	88.484	Teesta	E(c)	13.57	4,467
349	03 78A06 03298	27.723	88.453	Teesta	E(o)	14.3	4,199
350	03 78A06 03300	27.678	88.376	Teesta	M(e)	18.05	3,915
351	03 78A06 03302	27.669	88.497	Teesta	E(c)	8.16	4,096
352	03 78A09 03303	27.992	88.545	Teesta	M(e)	68.28	5,161
353	03 78A09 03312	27.991	88.602	Teesta	E(c)	10.11	4,778
354	03 78A09 03325	27.988	88.736	Teesta	M(o)	10.61	5,188
355	03 78A09 03326	27.982	88.508	Teesta	M(e)	34.12	4,917
356	03 78A09 03328	27.975	88.616	Teesta	M(e)	57.86	4,960
357	03 78A09 03332	27.971	88.593	Teesta	E(o)	10.09	4,748
358	03 78A09 03335	27.962	88.743	Teesta	E(o)	19.61	5,065
359	03 78A09 03342	27.961	88.650	Teesta	M(e)	18.36	4,964
360	03 78A09 03343	27.957	88.714	Teesta	M(e)	26.39	5,078
361	03 78A09 03344	27.924	88.616	Teesta	E(o)	5.41	4,773
362	03 78A09 03345	27.920	88.672	Teesta	M(e)	9.5	4,827
363	03 78A09 03347	27.901	88.627	Teesta	M(o)	5.56	5,061
364	03 78A09 03348	27.900	88.629	Teesta	M(o)	8.89	5,084
365	03 78A09 03349	27.873	88.638	Teesta	M(e)	8.75	5,118
366	03 78A09 03350	27.868	88.741	Teesta	M(o)	5.13	5,069
367	03 78A09 03352	27.864	88.747	Teesta	M(e)	18.95	5,084
368	03 78A09 03354	27.851	88.505	Teesta	E(c)	5.91	4,859
369	03 78A09 03355	27.816	88.657	Teesta	E(o)	14.59	4,603
370	03 78A09 03357	27.756	88.606	Teesta	E(c)	7.17	4,434
371	03 78A09 03361	27.751	88.692	Teesta	E(o)	9.3	4,788
372	03 78A10 03362	27.746	88.681	Teesta	E(c)	7.03	4,748
373	03 78A10 03363	27.723	88.690	Teesta	E(o)	12.13	4,472
374	03 78A10 03364	27.723	88.675	Teesta	E(o)	5.35	4,289
375	03 78A10 03367	27.700	88.514	Teesta	E(o)	7.97	4,491
376	03 78A10 03368	27.695	88.716	Teesta	E(o)	11.4	4,207
377	03 78A10 03380	27.685	88.532	Teesta	E(c)	5.24	4,087
378	03 78A10 03383	27.671	88.513	Teesta	E(c)	36.34	4,525
379	03 78A10 03390	27.668	88.687	Teesta	E(c)	14.75	4,117
380	03 78A10 03394	27.662	88.690	Teesta	E(c)	15.7	4,298
381	03 78A11 03395	27.466	88.751	Teesta	E(o)	22.25	4,052
382	03 78A13 03396	27.993	88.801	Teesta	M(o)	8.59	5,299
383	03 78A13 03398	27.990	88.816	Teesta	M(e)	174.29	5,303
384	03 78A13 03416	27.976	88.793	Teesta	E(o)	6.8	5,433
385	03 78A13 03419	27.969	88.797	Teesta	M(e)	18.44	5,361
386	03 78A13 03424	27.963	88.797	Teesta	M(o)	11.97	5,350
387	03 78A13 03427	27.936	88.784	Teesta	M(o)	10.36	5,332
388	03 78A13 03429	27.901	88.782	Teesta	M(o)	28.28	5,118
389	03 78A13 03433	27.899	88.754	Teesta	E(o)	6.77	5,221
390	03 78A13 03435	27.895	88.761	Teesta	M(e)	45.77	5,232
391	03 78A13 03445	27.873	88.789	Teesta	M(e)	10.41	4,962
392	03 78A13 03450	27.864	88.863	Teesta	M(e)	13.9	4,781
393	03 78A13 03452	27.854	88.806	Teesta	E(o)	11.38	5,051
394	03 78A13 03453	27.848	88.868	Teesta	E(o)	5.37	4,921
395	03 78A13 03454	27.797	88.801	Teesta	E(c)	9.79	4,781
396	03 78A13 03455	27.774	88.850	Teesta	E(o)	5.11	4,826

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
397	03 78A14 03457	27.730	88.833	Teesta	E(o)	14.6	4,446
398	03 78A14 03460	27.683	88.809	Teesta	E(o)	5.97	4,470
399	03 78A15 03469	27.477	88.776	Teesta	E(c)	11.04	4,633
400	03 78A15 03482	27.442	88.752	Teesta	E(c)	10.91	4,055
401	03 78A15 03486	27.434	88.770	Teesta	E(o)	8	3,947
402	03 78A15 03487	27.430	88.758	Teesta	E(o)	7.23	4,045
403	03 78A15 03499	27.402	88.770	Teesta	E(o)	7.82	3,967
404	03 78A15 03508	27.387	88.801	Teesta	E(o)	8.86	4,035
405	03 78A15 03535	27.379	88.830	Teesta	E(c)	7.71	4,096
406	03 78A15 03541	27.375	88.763	Teesta	E(o)	27.26	3,744
407	03 78A15 03549	27.372	88.846	Teesta	E(o)	5.46	4,035
408	03 78A15 03551	27.368	88.826	Teesta	E(o)	13.48	3,930
409	03 78A15 03557	27.346	88.819	Teesta	O	18.43	3,546
410	03 77H01 03574	28.805	89.155	Upper Yarlung Tsangpo	O	68.23	4,219
411	03 77H07 03576	28.327	89.430	Upper Yarlung Tsangpo	E(o)	140.5	4,426
412	03 77H08 03578	28.177	89.417	Upper Yarlung Tsangpo	O	9.38	4,474
413	03 77H08 03583	28.144	89.396	Upper Yarlung Tsangpo	O	62.48	4,473
414	03 77H08 03593	28.136	89.402	Upper Yarlung Tsangpo	O	26.78	4,474
415	03 77H08 03602	28.087	89.481	Upper Yarlung Tsangpo	M(e)	22.37	4,904
416	03 77H08 03610	28.052	89.464	Upper Yarlung Tsangpo	M(o)	6.31	4,950
417	03 77H08 03615	28.051	89.457	Upper Yarlung Tsangpo	M(o)	5.82	4,942
418	03 77H08 03616	28.025	89.428	Upper Yarlung Tsangpo	E(o)	63.43	4,791
419	03 77H08 03627	28.018	89.449	Upper Yarlung Tsangpo	M(o)	9.77	5,022
420	03 77H08 03628	28.007	89.356	Upper Yarlung Tsangpo	O	5.94	4,476
421	03 77H11 03630	28.275	89.591	Upper Yarlung Tsangpo	E(o)	5.8	4,563
422	03 77H12 03640	28.241	89.695	Upper Yarlung Tsangpo	E(o)	70.85	4,693
423	03 77H12 03648	28.228	89.638	Upper Yarlung Tsangpo	E(o)	1273.72	4,568
424	03 77H12 03650	28.210	89.745	Upper Yarlung Tsangpo	M(o)	44.9	4,909
425	03 77H12 03659	28.203	89.713	Upper Yarlung Tsangpo	M(o)	13.94	4,795
426	03 77H12 03660	28.190	89.674	Upper Yarlung Tsangpo	E(c)	8.54	4,899
427	03 77H12 03664	28.186	89.598	Upper Yarlung Tsangpo	M(e)	33	4,895
428	03 77H12 03677	28.185	89.661	Upper Yarlung Tsangpo	E(c)	21.81	4,886
429	03 77H12 03688	28.181	89.535	Upper Yarlung Tsangpo	E(o)	82.15	4,694
430	03 77H12 03690	28.150	89.564	Upper Yarlung Tsangpo	M(o)	20.05	4,897
431	03 77H12 03692	28.147	89.556	Upper Yarlung Tsangpo	M(o)	9.76	5,126
432	03 77H12 03700	28.137	89.534	Upper Yarlung Tsangpo	M(e)	49.92	5,292
433	03 77H12 03710	28.123	89.514	Upper Yarlung Tsangpo	M(o)	10.96	5,202
434	03 77H15 03719	28.279	89.994	Upper Yarlung Tsangpo	I(s)	24.2	5,087
435	03 77H16 03723	28.248	89.851	Upper Yarlung Tsangpo	M(o)	15.47	5,127
436	03 77H16 03738	28.243	89.846	Upper Yarlung Tsangpo	M(o)	9.79	5,156
437	03 77H16 03740	28.238	89.963	Upper Yarlung Tsangpo	M(e)	13.77	5,501
438	03 77H16 03742	28.230	89.887	Upper Yarlung Tsangpo	M(e)	151.09	4,921
439	03 77L03 03380	28.385	90.089	Upper Yarlung Tsangpo	M(o)	9.9	5,715
440	03 77L03 03383	28.378	90.095	Upper Yarlung Tsangpo	M(o)	15.01	5,671
441	03 77L03 03390	28.354	90.098	Upper Yarlung Tsangpo	M(o)	10.18	5,624
442	03 77L03 03394	28.264	90.068	Upper Yarlung Tsangpo	M(e)	188.07	5,149
443	03 77L04 03395	28.236	90.104	Upper Yarlung Tsangpo	M(e)	585.02	5,126
444	03 78A13 03396	27.965	88.895	Upper Yarlung Tsangpo	M(e)	23.97	5,423
445	03 78A13 03398	27.939	88.907	Upper Yarlung Tsangpo	E(o)	5.47	5,544
446	03 78E05 03416	27.994	89.397	Upper Yarlung Tsangpo	E(o)	6.74	4,625
447	03 78E05 03419	27.992	89.424	Upper Yarlung Tsangpo	E(o)	16.31	4,713
448	03 78E05 03424	27.969	89.379	Upper Yarlung Tsangpo	E(o)	66.73	4,568
449	03 78E05 03427	27.963	89.413	Upper Yarlung Tsangpo	E(o)	45.42	4,576
450	03 78E05 03429	27.959	89.397	Upper Yarlung Tsangpo	E(o)	181.69	4,576
451	03 78E05 03433	27.941	89.389	Upper Yarlung Tsangpo	E(o)	279.3	4,572
452	03 78E05 03435	27.922	89.388	Upper Yarlung Tsangpo	E(o)	5.78	4,612
453	03 78E05 03445	27.907	89.380	Upper Yarlung Tsangpo	E(o)	6.8	4,751
454	03 78E05 03450	27.884	89.351	Upper Yarlung Tsangpo	M(e)	17.43	4,991
455	03 78E05 03452	27.881	89.325	Upper Yarlung Tsangpo	M(o)	13.54	5,123
456	03 78E05 03453	27.878	89.296	Upper Yarlung Tsangpo	M(o)	41.23	5,236
457	03 78E05 03454	27.878	89.312	Upper Yarlung Tsangpo	M(e)	61.73	5,001
458	03 78E05 03455	27.877	89.326	Upper Yarlung Tsangpo	M(o)	5.2	5,124
459	03 78E05 03457	27.874	89.297	Upper Yarlung Tsangpo	M(o)	7.06	5,243
460	03 78E05 03460	27.855	89.267	Upper Yarlung Tsangpo	M(o)	42.55	5,213
461	03 78A13 03469	27.900	88.930	Amo Chu	M(o)	16.4	5,121
462	03 78A13 03482	27.854	88.945	Amo Chu	E(o)	49.31	4,874
463	03 78A13 03486	27.847	88.922	Amo Chu	M(o)	5.03	4,636
464	03 78A13 03487	27.844	88.940	Amo Chu	E(o)	27.95	4,863
465	03 78A13 03499	27.811	88.904	Amo Chu	E(c)	7.97	4,915
466	03 78A13 03508	27.794	88.894	Amo Chu	E(c)	7.16	4,968
467	03 78A14 03535	27.654	88.858	Amo Chu	E(c)	11.65	4,755
468	03 78A14 03541	27.636	88.817	Amo Chu	E(c)	15.32	4,870
469	03 78A14 03549	27.616	88.881	Amo Chu	E(c)	12.81	4,670
470	03 78A14 03551	27.612	88.904	Amo Chu	E(c)	37.14	4,036
471	03 78A14 03557	27.599	88.858	Amo Chu	E(c)	12.48	4,581
472	03 78A14 03574	27.586	88.850	Amo Chu	E(o)	6.09	4,455
473	03 78A14 03576	27.583	88.843	Amo Chu	E(o)	5.98	4,360
474	03 78A14 03578	27.578	88.805	Amo Chu	E(c)	5.07	4,689
475	03 78A14 03583	27.565	88.799	Amo Chu	E(o)	6.61	4,754
476	03 78A14 03593	27.523	88.816	Amo Chu	E(c)	8.96	4,303
477	03 78A15 03602	27.496	88.791	Amo Chu	E(c)	15.53	4,807
478	03 78A15 03610	27.467	88.792	Amo Chu	E(c)	6.54	4,537
479	03 78A15 03615	27.465	88.818	Amo Chu	E(c)	16.84	4,753
480	03 78A15 03616	27.464	88.829	Amo Chu	E(c)	21.74	4,531
481	03 78A15 03627	27.423	88.819	Amo Chu	E(c)	7.41	4,399
482	03 78A15 03628	27.420	88.812	Amo Chu	E(c)	16.12	4,434
483	03 78A15 03630	27.411	88.819	Amo Chu	E(c)	9.1	4,267
484	03 78A15 03640	27.367	88.878	Amo Chu	E(o)	5.67	4,215
485	03 78A15 03648	27.335	88.908	Amo Chu	E(o)	7.99	4,295
486	03 78A15 03650	27.320	88.939	Amo Chu	E(o)	5.23	4,154
487	03 78A15 03659	27.277	88.912	Amo Chu	E(o)	7.56	3,981
488	03 78A15 03660	27.274	88.944	Amo Chu	E(c)	15.8	3,897
489	03 78E01 03664	27.809	89.230	Amo Chu	M(e)	52.68	5,137
490	03 78E01 03677	27.760	89.223	Amo Chu	E(c)	6.36	5,082
491	03 78E02 03688	27.709	89.251	Amo Chu	E(o)	6.52	4,649
492	03 78E02 03690	27.639	89.138	Amo Chu	E(o)	7.59	4,531
493	03 78E02 03692	27.634	89.089	Amo Chu	E(o)	9.89	4,543
494	03 78E02 03700	27.597	89.163	Amo Chu	E(c)	8.52	4,517
495	03 78E02 03710	27.580	89.217	Amo Chu	E(o)	5.73	4,368
496	03 78E02 03719	27.548	89.231	Amo Chu	E(o)	5.3	4,089
497	03 78E02 03723	27.536	89.168	Amo Chu	E(o)	30.73	4,462
498	03 78E02 03738	27.510	89.144	Amo Chu	E(c)	9.22	4,625
499	03 78E02 03740	27.508	89.091	Amo Chu	E(o)	9.83	4,393
500	03 78E02 03742	27.506	89.079	Amo Chu	E(c)	22.56	4,145
501	03 78E03 03744	27.499	89.066	Amo Chu	E(o)	13.28	4,149
502	03 78E03 03745	27.498	89.093	Amo Chu	E(c)	10.96	4,569
503	03 78E03 03746	27.494	89.192	Amo Chu	E(c)	5.61	4,192
504	03 78E03 03749	27.492	89.149	Amo Chu	E(c)	27.58	4,064
505	03 78E03 03750	27.492	89.135	Amo Chu	E(c)	5.15	4,489
506	03 78E03 03754	27.484	89.021	Amo Chu	E(o)	7.61	3,671
507	03 78E03 03759	27.475	89.137	Amo Chu	E(c)	6.78	4,172
508	03 78E03 03764	27.469	89.070	Amo Chu	E(c)	5.34	4,252
509	03 78E03 03766	27.465	89.085	Amo Chu	E(c)	6.13	4,168
510	03 78E03 03767	27.464	89.129	Amo Chu	E(o)	6.44	3,952
511	03 78E03 03779	27.429	89.116	Amo Chu	E(c)	5.96	4,125
512	03 78E03 03783	27.417	89.102	Amo Chu	E(c)	5.07	4,150
513	03 78E03 03788	27.402	89.156	Amo Chu	E(c)	13.62	4,180
514	03 78E03 03794	27.371	89.144	Amo Chu	E(c)	5.42	3,962
515	03 78E03 03803	27.325	89.140	Amo Chu	E(o)	11.05	4,092
516	03 78E05 03815	27.803	89.350	Amo Chu	M(e)	12.41	4,349
517	03 78E05 03827	27.766	89.369	Amo Chu	E(o)	10.47	4,396
518	03 78E05 03833	27.760	89.488	Amo Chu	E(c)	5.89	4,861
519	03 78E05 03835	27.758	89.371	Amo Chu	E(o)	8.4	4,391
520	03 78E06 03844	27.687	89.408	Amo Chu	M(o)	18.51	4,798
521	03 78E06 03847	27.644	89.462	Amo Chu	E(o)	35.14	4,220
522	03 78E06 03854	27.584	89.487	Amo Chu	E(o)	46.34	4,313
523	03 78E06 03858	27.569	89.378	Amo Chu	E(c)	22.78	4,239
524	03 78E10 03888	27.585	89.555	Amo Chu	E(o)	6.85	4,193
525	03 78E10 03889	27.584	89.515	Amo Chu	E(o)	7.33	4,254
526	03 78E10 03890	27.583	89.499	Amo Chu	E(o)	24.77	4,421
527	03 78E10 03895	27.574	89.525	Amo Chu	E(o)	10.62	4,344
528	03 78E10 03897	27.568	89.524	Amo Chu	E(o)	11.36	4,450
529	03 78E10 03904	27.557	89.565	Amo Chu	E(o)	10.06	4,189
530	03 78E10 03907	27.547	89.505	Amo Chu	E(o)	8.36	3,856
531	03 78E10 03910	27.534	89.530	Amo Chu	E(o)	8.42	4,236
532	03 78E11 03938	27.267	89.706	Amo Chu	E(o)	10.38	4,447
533	03 78E11 03943	27.260	89.705	Amo Chu	E(o)	8.01	4,447
534	03 78E12 03947	27.243	89.692	Amo Chu	E(o)	5.89	4,373
535	03 78A15 03962	27.330	88.846	Amo Chu	E(o)	27.8	3,901
536	03 78A15 03963	27.328	88.885	Amo Chu	E(o)	7.44	4,297
537	03 77H12 03979	28.171	89.684	Puna Tsang Chu	M(e)	11	4,781
538	03 77H12 03982	28.139	89.742	Puna Tsang Chu	E(c)	12.81	4,842
539	03 77H12 03984	28.136	89.641	Puna Tsang Chu	E(o)	8.94	4,761
540	03 77H12 03988	28.127	89.648	Puna Tsang Chu	E(o)	7.98	4,621
541	03 77H12 03996	28.115	89.648	Puna Tsang Chu	E(o)	7.57	4,433
542	03 77H12 03997	28.115	89.602	Puna Tsang Chu	M(o)	6.14	4,164
543	03 77H12 03998	28.106	89.614	Puna Tsang Chu	E(o)	6.19	4,444
544	03 77H12 04008	28.070	89.516	Puna Tsang Chu	M(e)	7.4	4,770

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
545	03 77H12 04014	28.044	89.554	Puna Tsang Chu	E(c)	5.34	4,873
546	03 77H12 04015	28.042	89.627	Puna Tsang Chu	E(c)	16.83	4,698
547	03 77H12 04034	28.028	89.600	Puna Tsang Chu	M(o)	9.46	4,993
548	03 77H16 04051	28.172	89.848	Puna Tsang Chu	M(e)	23.57	4,514
549	03 77H16 04052	28.167	89.852	Puna Tsang Chu	M(e)	5.85	4,561
550	03 77H16 04055	28.156	89.868	Puna Tsang Chu	M(o)	5.33	5,042
551	03 77H16 04060	28.145	89.841	Puna Tsang Chu	E(o)	12.19	5,123
552	03 77H16 04076	28.114	89.909	Puna Tsang Chu	M(e)	43.78	4,347
553	03 77H16 04078	28.105	89.898	Puna Tsang Chu	M(e)	25.05	4,270
554	03 77H16 04110	28.061	89.770	Puna Tsang Chu	E(c)	7.61	4,900
555	03 77H16 04127	28.036	89.894	Puna Tsang Chu	E(o)	5.95	5,200
556	03 77H16 04131	28.030	89.855	Puna Tsang Chu	M(o)	8.09	4,740
557	03 77H16 04132	28.030	89.893	Puna Tsang Chu	M(o)	10.59	5,036
558	03 77H16 04148	28.012	89.868	Puna Tsang Chu	M(e)	8.25	4,893
559	03 77H16 04154	28.011	89.884	Puna Tsang Chu	M(o)	22.23	5,015
560	03 77H16 04159	28.007	89.863	Puna Tsang Chu	E(o)	23.34	4,846
561	03 77H16 04164	28.005	89.956	Puna Tsang Chu	E(c)	12.55	4,622
562	03 77H16 04167	28.001	89.890	Puna Tsang Chu	M(o)	8.13	5,078
563	03 77L04 04181	28.112	90.028	Puna Tsang Chu	M(e)	37.11	4,689
564	03 77L04 04187	28.107	90.247	Puna Tsang Chu	M(e)	132.27	4,369
565	03 77L04 04188	28.102	90.231	Puna Tsang Chu	M(e)	34.98	4,332
566	03 77L04 04194	28.095	90.043	Puna Tsang Chu	E(o)	6.66	5,122
567	03 77L04 04196	28.091	90.041	Puna Tsang Chu	E(o)	9.72	5,046
568	03 77L04 04201	28.083	90.113	Puna Tsang Chu	I(s)	7.53	4,145
569	03 77L04 04205	28.076	90.083	Puna Tsang Chu	E(o)	7.51	4,716
570	03 77L04 04211	28.069	90.084	Puna Tsang Chu	E(o)	9.46	4,655
571	03 77L04 04214	28.066	90.231	Puna Tsang Chu	E(o)	11.03	4,739
572	03 77L04 04217	28.060	90.029	Puna Tsang Chu	I(s)	7.3	4,398
573	03 77L04 04220	28.057	90.249	Puna Tsang Chu	E(o)	8.41	5,127
574	03 77L04 04238	28.033	90.058	Puna Tsang Chu	E(o)	6.83	4,439
575	03 77L04 04240	28.023	90.194	Puna Tsang Chu	E(o)	5.14	5,218
576	03 77L04 04241	28.022	90.179	Puna Tsang Chu	E(o)	17.58	5,081
577	03 77L04 04243	28.016	90.210	Puna Tsang Chu	E(o)	54.12	5,127
578	03 77L04 04252	28.011	90.187	Puna Tsang Chu	E(o)	19.51	5,144
579	03 77L04 04254	28.009	90.161	Puna Tsang Chu	E(o)	7.75	5,053
580	03 77L04 04256	28.008	90.149	Puna Tsang Chu	M(o)	6.62	5,029
581	03 77L04 04261	28.007	90.106	Puna Tsang Chu	E(c)	10.94	4,544
582	03 77L04 04262	28.006	90.139	Puna Tsang Chu	M(e)	9.91	5,068
583	03 77L04 04265	28.003	90.150	Puna Tsang Chu	E(o)	14.27	5,018
584	03 77L04 04269	28.002	90.139	Puna Tsang Chu	M(e)	15.71	5,063
585	03 77L08 04272	28.092	90.301	Puna Tsang Chu	M(e)	153.89	4,513
586	03 77L08 04273	28.086	90.326	Puna Tsang Chu	M(e)	10.19	4,706
587	03 77L08 04277	28.071	90.310	Puna Tsang Chu	M(o)	5.37	5,046
588	03 77L08 04282	28.059	90.313	Puna Tsang Chu	M(e)	7.87	5,108
589	03 77L08 04284	28.058	90.263	Puna Tsang Chu	E(o)	7.18	5,106
590	03 77L08 04293	28.030	90.295	Puna Tsang Chu	M(o)	6.64	5,311
591	03 77L08 04295	28.028	90.271	Puna Tsang Chu	M(e)	20.07	5,211
592	03 77L08 04300	28.012	90.280	Puna Tsang Chu	M(e)	14.82	5,286
593	03 77L08 04301	28.008	90.276	Puna Tsang Chu	M(e)	7.12	5,278
594	03 78E05 04314	27.928	89.456	Puna Tsang Chu	E(c)	5.23	4,557
595	03 78E05 04319	27.839	89.389	Puna Tsang Chu	M(e)	17.71	4,333
596	03 78E09 04347	27.972	89.642	Puna Tsang Chu	E(o)	5.16	4,529
597	03 78E09 04350	27.970	89.612	Puna Tsang Chu	E(o)	14.65	4,679
598	03 78E09 04358	27.961	89.655	Puna Tsang Chu	E(c)	7.49	4,495
599	03 78E09 04359	27.961	89.663	Puna Tsang Chu	E(o)	7.16	4,421
600	03 78E09 04377	27.948	89.649	Puna Tsang Chu	E(c)	10.24	4,310
601	03 78E09 04398	27.922	89.636	Puna Tsang Chu	E(o)	10.95	4,269
602	03 78E09 04402	27.911	89.651	Puna Tsang Chu	E(o)	13.05	4,226
603	03 78E09 04414	27.840	89.600	Puna Tsang Chu	E(o)	11.62	4,180
604	03 78E09 04421	27.803	89.628	Puna Tsang Chu	E(c)	5.26	4,283
605	03 78E10 04426	27.738	89.611	Puna Tsang Chu	E(c)	6.28	4,277
606	03 78E11 04429	27.266	89.726	Puna Tsang Chu	E(o)	14.47	4,420
607	03 78E11 04430	27.260	89.730	Puna Tsang Chu	E(o)	12.2	4,340
608	03 78E13 04446	27.988	89.892	Puna Tsang Chu	M(o)	10.9	5,130
609	03 78E13 04451	27.982	89.896	Puna Tsang Chu	M(o)	33.8	5,143
610	03 78E13 04456	27.974	89.896	Puna Tsang Chu	M(e)	22.77	5,137
611	03 78E13 04457	27.973	89.930	Puna Tsang Chu	E(c)	65	5,076
612	03 78E13 04460	27.963	89.846	Puna Tsang Chu	E(c)	6.92	4,595
613	03 78E13 04467	27.951	89.881	Puna Tsang Chu	E(o)	6.33	4,963
614	03 78E13 04470	27.949	89.933	Puna Tsang Chu	M(o)	6.83	5,052
615	03 78E13 04481	27.940	89.930	Puna Tsang Chu	M(o)	72.67	5,002
616	03 78E13 04482	27.940	89.906	Puna Tsang Chu	E(o)	14.09	5,030
617	03 78E13 04484	27.936	89.884	Puna Tsang Chu	M(o)	8.04	4,886
618	03 78E13 04497	27.928	89.900	Puna Tsang Chu	E(o)	24.9	4,946

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
619	03 78E13 04501	27.923	89.933	Puna Tsang Chu	M(o)	7.08	4,831
620	03 78E13 04502	27.922	89.886	Puna Tsang Chu	E(o)	6.59	4,844
621	03 78E13 04506	27.920	89.810	Puna Tsang Chu	E(c)	14.55	4,260
622	03 78E13 04508	27.915	89.861	Puna Tsang Chu	E(c)	8.69	4,747
623	03 78E13 04515	27.909	89.897	Puna Tsang Chu	E(o)	6.86	4,870
624	03 78E13 04524	27.903	89.898	Puna Tsang Chu	E(c)	12.96	4,784
625	03 78E13 04536	27.896	89.885	Puna Tsang Chu	E(o)	11.89	4,573
626	03 78E13 04539	27.894	89.944	Puna Tsang Chu	E(o)	20.69	4,858
627	03 78E13 04545	27.885	89.949	Puna Tsang Chu	E(c)	9.52	4,571
628	03 78E13 04550	27.880	89.846	Puna Tsang Chu	E(o)	8.59	4,581
629	03 78E13 04553	27.877	89.845	Puna Tsang Chu	E(o)	6.89	4,594
630	03 78E13 04561	27.870	89.843	Puna Tsang Chu	E(o)	24.07	4,509
631	03 78E13 04573	27.864	89.926	Puna Tsang Chu	E(o)	37.61	4,524
632	03 78E13 04577	27.859	89.969	Puna Tsang Chu	E(c)	12.27	4,326
633	03 78E13 04583	27.855	89.798	Puna Tsang Chu	E(o)	6.43	4,001
634	03 78E13 04591	27.843	89.910	Puna Tsang Chu	E(o)	16.26	4,317
635	03 78E13 04596	27.839	89.945	Puna Tsang Chu	E(o)	6	4,457
636	03 78E13 04599	27.835	89.912	Puna Tsang Chu	E(o)	7.59	4,120
637	03 78E13 04601	27.833	89.960	Puna Tsang Chu	E(c)	16.28	4,127
638	03 78E13 04603	27.829	89.944	Puna Tsang Chu	E(c)	36.57	4,456
639	03 78E13 04606	27.825	89.957	Puna Tsang Chu	E(c)	6.12	4,249
640	03 78E13 04608	27.823	89.869	Puna Tsang Chu	E(c)	6.01	4,188
641	03 78E13 04615	27.815	89.939	Puna Tsang Chu	E(c)	17.11	4,146
642	03 78E13 04617	27.813	89.849	Puna Tsang Chu	E(o)	5.09	4,263
643	03 78E13 04621	27.809	89.923	Puna Tsang Chu	E(o)	5.81	3,907
644	03 78E13 04622	27.807	89.846	Puna Tsang Chu	E(o)	5.13	4,234
645	03 78E13 04623	27.807	89.861	Puna Tsang Chu	E(o)	8.39	4,237
646	03 78E13 04634	27.793	89.843	Puna Tsang Chu	E(o)	7.75	4,191
647	03 78E13 04640	27.773	89.843	Puna Tsang Chu	E(o)	5.69	4,001
648	03 78I01 04644	27.997	90.233	Puna Tsang Chu	E(c)	11.26	4,990
649	03 78I01 04645	27.995	90.222	Puna Tsang Chu	E(o)	23.03	4,936
650	03 78I01 04648	27.991	90.216	Puna Tsang Chu	E(o)	18.37	4,936
651	03 78I01 04649	27.991	90.142	Puna Tsang Chu	M(e)	9.99	4,977
652	03 78I01 04653	27.988	90.131	Puna Tsang Chu	M(e)	19.2	5,045
653	03 78I01 04654	27.985	90.149	Puna Tsang Chu	M(o)	14.07	4,911
654	03 78I01 04657	27.982	90.245	Puna Tsang Chu	M(o)	17.66	5,095
655	03 78I01 04658	27.977	90.233	Puna Tsang Chu	M(o)	67.28	5,072
656	03 78I01 04662	27.970	90.210	Puna Tsang Chu	E(o)	5.73	4,902
657	03 78I01 04663	27.968	90.115	Puna Tsang Chu	E(c)	5.6	5,002
658	03 78I01 04665	27.964	90.147	Puna Tsang Chu	E(o)	23.28	4,882
659	03 78I01 04670	27.956	90.150	Puna Tsang Chu	E(o)	6.02	4,824
660	03 78I01 04671	27.956	90.245	Puna Tsang Chu	M(o)	9.58	5,143
661	03 78I01 04674	27.954	90.078	Puna Tsang Chu	E(c)	9.25	4,783
662	03 78I01 04689	27.942	90.095	Puna Tsang Chu	E(o)	9.92	4,644
663	03 78I01 04690	27.941	90.190	Puna Tsang Chu	E(o)	17.54	4,626
664	03 78I01 04694	27.939	90.155	Puna Tsang Chu	E(o)	7.76	4,507
665	03 78I01 04703	27.931	90.209	Puna Tsang Chu	E(c)	12.41	4,997
666	03 78I01 04704	27.931	90.090	Puna Tsang Chu	E(o)	14.52	4,521
667	03 78I01 04710	27.922	90.215	Puna Tsang Chu	M(o)	5.5	5,194
668	03 78I01 04711	27.920	90.075	Puna Tsang Chu	E(o)	10.13	4,326
669	03 78I01 04715	27.916	90.209	Puna Tsang Chu	M(l)	7.38	4,910
670	03 78I01 04716	27.916	90.068	Puna Tsang Chu	E(o)	7.45	4,296
671	03 78I01 04717	27.916	90.077	Puna Tsang Chu	E(o)	6.99	4,239
672	03 78I01 04718	27.915	90.244	Puna Tsang Chu	M(o)	12.93	5,171
673	03 78I01 04721	27.912	90.172	Puna Tsang Chu	E(o)	5.97	4,585
674	03 78I01 04729	27.901	90.173	Puna Tsang Chu	E(o)	45.13	4,671
675	03 78I01 04734	27.894	90.180	Puna Tsang Chu	E(o)	15.99	4,812
676	03 78I01 04735	27.893	90.219	Puna Tsang Chu	M(o)	16.23	5,013
677	03 78I01 04748	27.881	90.112	Puna Tsang Chu	E(c)	5.67	4,212
678	03 78I01 04749	27.877	90.179	Puna Tsang Chu	E(o)	9.71	4,841
679	03 78I01 04750	27.877	90.185	Puna Tsang Chu	E(o)	14.13	4,828
680	03 78I01 04752	27.876	90.098	Puna Tsang Chu	E(o)	7.79	4,324
681	03 78I01 04753	27.875	90.207	Puna Tsang Chu	M(e)	40.55	4,913
682	03 78I01 04762	27.857	90.191	Puna Tsang Chu	E(o)	16.19	4,733
683	03 78I01 04767	27.850	90.191	Puna Tsang Chu	E(o)	24.59	4,770
684	03 78I01 04768	27.850	90.213	Puna Tsang Chu	E(o)	10.53	4,855
685	03 78I01 04770	27.848	90.246	Puna Tsang Chu	E(o)	10.8	4,803
686	03 78I01 04772	27.845	90.131	Puna Tsang Chu	E(c)	5.19	4,240
687	03 78I01 04773	27.845	90.216	Puna Tsang Chu	E(o)	7.11	4,812
688	03 78I01 04783	27.837	90.237	Puna Tsang Chu	E(o)	6.84	4,771
689	03 78I01 04784	27.836	90.186	Puna Tsang Chu	E(c)	11.59	4,573
690	03 78I01 04790	27.829	90.157	Puna Tsang Chu	E(c)	23.89	4,428
691	03 78I01 04792	27.827	90.222	Puna Tsang Chu	E(o)	30.71	4,657
692	03 78I01 04794	27.820	90.210	Puna Tsang Chu	E(o)	8.49	4,669

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
693	03 78I01 04800	27.806	90.207	Puna Tsang Chu	E(o)	8.02	4,799
694	03 78I01 04805	27.802	90.239	Puna Tsang Chu	E(o)	12.45	4,762
695	03 78I01 04806	27.802	90.165	Puna Tsang Chu	E(o)	7.03	4,283
696	03 78I01 04807	27.800	90.231	Puna Tsang Chu	E(o)	74.59	4,758
697	03 78I01 04810	27.793	90.200	Puna Tsang Chu	E(o)	17.25	4,556
698	03 78I01 04814	27.780	90.211	Puna Tsang Chu	E(o)	9.49	4,522
699	03 78I01 04816	27.773	90.209	Puna Tsang Chu	E(o)	9.59	4,524
700	03 78I01 04817	27.765	90.212	Puna Tsang Chu	E(o)	5.56	4,702
701	03 78I01 04821	27.761	90.172	Puna Tsang Chu	E(c)	15.44	4,333
702	03 78I01 04824	27.757	90.196	Puna Tsang Chu	E(o)	19.73	4,442
703	03 78I01 04826	27.753	90.164	Puna Tsang Chu	E(c)	13.22	4,226
704	03 78I02 04836	27.740	90.187	Puna Tsang Chu	E(c)	10.68	4,287
705	03 78I02 04838	27.738	90.160	Puna Tsang Chu	E(o)	11.91	4,447
706	03 78I02 04848	27.720	90.172	Puna Tsang Chu	E(c)	6.19	4,267
707	03 78I05 04855	27.996	90.288	Puna Tsang Chu	M(e)	41.92	5,327
708	03 78I05 04856	27.995	90.261	Puna Tsang Chu	M(e)	13.3	5,148
709	03 78I05 04858	27.992	90.299	Puna Tsang Chu	M(e)	11.73	5,345
710	03 78I05 04859	27.988	90.263	Puna Tsang Chu	M(o)	6.41	5,167
711	03 78I05 04860	27.964	90.259	Puna Tsang Chu	M(o)	33.51	5,226
712	03 78I05 04866	27.952	90.255	Puna Tsang Chu	M(o)	15.09	5,184
713	03 78I05 04870	27.925	90.259	Puna Tsang Chu	M(e)	11.54	5,126
714	03 78I05 04871	27.919	90.262	Puna Tsang Chu	M(e)	22.69	5,144
715	03 78I05 04874	27.897	90.252	Puna Tsang Chu	M(o)	8.57	5,169
716	03 78I05 04878	27.862	90.254	Puna Tsang Chu	E(o)	7.27	4,947
717	03 78I05 04883	27.844	90.258	Puna Tsang Chu	M(o)	5.59	5,017
718	03 78I05 04884	27.841	90.253	Puna Tsang Chu	M(o)	8.44	5,006
719	03 78I05 04890	27.764	90.276	Puna Tsang Chu	E(o)	8.74	4,419
720	03 78I07 04895	27.295	90.355	Puna Tsang Chu	E(c)	5.04	4,258
721	03 77J04 04900	30.075	90.157	Lhasa Tsangpo	M(e)	13.75	5,743
722	03 77J04 04902	30.070	90.153	Lhasa Tsangpo	M(e)	9.98	5,732
723	03 77J07 04916	30.369	90.453	Lhasa Tsangpo	M(o)	6.09	5,611
724	03 77J07 04917	30.366	90.457	Lhasa Tsangpo	M(o)	10.71	5,598
725	03 77J07 04919	30.351	90.498	Lhasa Tsangpo	M(e)	12.41	5,507
726	03 77J07 04925	30.285	90.458	Lhasa Tsangpo	M(o)	6.93	5,711
727	03 77J11 04956	30.473	90.702	Lhasa Tsangpo	M(l)	20.39	5,534
728	03 77J11 04958	30.467	90.708	Lhasa Tsangpo	M(e)	15.9	5,512
729	03 77J11 04962	30.451	90.651	Lhasa Tsangpo	M(o)	11.83	5,597
730	03 77J11 04966	30.446	90.649	Lhasa Tsangpo	M(o)	16.19	5,576
731	03 77J11 04969	30.442	90.626	Lhasa Tsangpo	E(o)	9.99	5,673
732	03 77J11 04973	30.440	90.687	Lhasa Tsangpo	M(o)	5.22	5,666
733	03 77J11 04999	30.259	90.558	Lhasa Tsangpo	M(o)	5.67	5,294
734	03 77J14 05017	30.548	90.912	Lhasa Tsangpo	E(o)	6.38	5,542
735	03 77J14 05033	30.518	90.828	Lhasa Tsangpo	E(o)	27.52	5,352
736	03 77J14 05040	30.510	90.939	Lhasa Tsangpo	E(o)	5.44	5,346
737	03 77J14 05043	30.508	90.832	Lhasa Tsangpo	E(o)	7.87	5,326
738	03 77J14 05048	30.502	90.912	Lhasa Tsangpo	E(o)	27.02	5,342
739	03 77J15 05050	30.499	90.947	Lhasa Tsangpo	0	12.73	5,236
740	03 77J15 05060	30.479	90.966	Lhasa Tsangpo	E(o)	85.72	5,035
741	03 77J15 05061	30.477	90.910	Lhasa Tsangpo	0	5.36	5,049
742	03 77K01 05084	29.894	90.236	Lhasa Tsangpo	M(o)	5.46	5,494
743	03 77K01 05093	29.791	90.246	Lhasa Tsangpo	E(o)	33.69	5,120
744	03 77K01 05095	29.776	90.205	Lhasa Tsangpo	E(o)	6.52	5,332
745	03 77K10 05143	29.652	90.612	Lhasa Tsangpo	M(e)	5.92	5,546
746	03 77K10 05153	29.615	90.605	Lhasa Tsangpo	0	22.03	5,248
747	03 77K10 05164	29.604	90.612	Lhasa Tsangpo	E(c)	5.6	5,601
748	03 77K10 05165	29.603	90.657	Lhasa Tsangpo	E(o)	10.93	5,451
749	03 77K10 05176	29.586	90.545	Lhasa Tsangpo	E(o)	6.78	5,469
750	03 77N05 05209	30.944	91.488	Lhasa Tsangpo	M(o)	5.07	5,577
751	03 77N05 05215	30.792	91.456	Lhasa Tsangpo	E(o)	7.32	5,238
752	03 77N10 05230	30.700	91.712	Lhasa Tsangpo	E(o)	5.08	5,299
753	03 77N14 05255	30.702	91.815	Lhasa Tsangpo	E(o)	5.09	5,278
754	03 77N16 05290	30.209	91.966	Lhasa Tsangpo	E(o)	12.88	4,993
755	03 77N16 05292	30.187	91.988	Lhasa Tsangpo	E(c)	18.95	5,159
756	03 77N16 05294	30.177	91.995	Lhasa Tsangpo	E(o)	10.11	5,098
757	03 77O10 05320	29.614	91.564	Lhasa Tsangpo	0	9.75	5,022
758	03 77O10 05326	29.556	91.638	Lhasa Tsangpo	E(o)	16.92	5,276
759	03 77O14 05343	29.580	91.964	Lhasa Tsangpo	E(o)	5.01	5,046
760	03 82A12 05348	31.102	92.699	Lhasa Tsangpo	E(o)	48.57	5,003
761	03 82A12 05349	31.086	92.724	Lhasa Tsangpo	E(o)	17.75	5,025
762	03 82A15 05357	31.256	92.984	Lhasa Tsangpo	0	9.49	5,035
763	03 82A16 05359	31.154	92.817	Lhasa Tsangpo	0	23.78	5,030
764	03 82A16 05366	31.138	92.998	Lhasa Tsangpo	0	13.99	4,894
765	03 82A16 05382	31.120	92.833	Lhasa Tsangpo	0	388.59	4,902
766	03 82A16 05383	31.119	92.816	Lhasa Tsangpo	0	5.24	4,906
767	03 82A16 05389	31.115	92.945	Lhasa Tsangpo	0	5.11	4,902
768	03 82A16 05393	31.112	92.815	Lhasa Tsangpo	0	68.03	4,905
769	03 82A16 05396	31.109	92.952	Lhasa Tsangpo	0	97.67	4,894
770	03 82A16 05406	31.105	92.767	Lhasa Tsangpo	0	5.59	4,937
771	03 82A16 05432	31.070	92.935	Lhasa Tsangpo	0	6.76	4,877
772	03 82A16 05433	31.063	92.981	Lhasa Tsangpo	0	8.85	4,934
773	03 82A16 05434	31.062	92.995	Lhasa Tsangpo	0	6.03	4,949
774	03 82A16 05437	31.056	92.966	Lhasa Tsangpo	0	8.84	4,923
775	03 82A16 05440	31.053	92.904	Lhasa Tsangpo	0	7.5	4,860
776	03 82A16 05442	31.052	92.961	Lhasa Tsangpo	0	12.85	4,922
777	03 82A16 05443	31.051	92.812	Lhasa Tsangpo	E(o)	35.43	4,930
778	03 82A16 05447	31.036	92.787	Lhasa Tsangpo	0	94.42	4,908
779	03 82A16 05449	31.033	92.856	Lhasa Tsangpo	0	5.87	4,836
780	03 82A16 05460	31.010	92.826	Lhasa Tsangpo	0	6.18	4,832
781	03 82A16 05463	31.010	92.928	Lhasa Tsangpo	0	7.55	4,903
782	03 82A16 05472	31.004	92.830	Lhasa Tsangpo	0	7.64	4,830
783	03 82B01 05486	30.766	92.009	Lhasa Tsangpo	0	5.04	4,850
784	03 82B02 05487	30.658	92.021	Lhasa Tsangpo	E(o)	5.72	5,306
785	03 82B03 05525	30.340	92.229	Lhasa Tsangpo	E(o)	7.26	5,253
786	03 82B04 05560	30.192	92.009	Lhasa Tsangpo	E(o)	26.71	5,203
787	03 82B04 05566	30.170	92.002	Lhasa Tsangpo	E(o)	13.35	5,027
788	03 82B04 05574	30.060	92.215	Lhasa Tsangpo	0	6.49	5,054
789	03 82B08 05618	30.217	92.423	Lhasa Tsangpo	E(o)	5.26	5,201
790	03 82B08 05623	30.199	92.413	Lhasa Tsangpo	0	10.72	4,955
791	03 82B08 05639	30.081	92.390	Lhasa Tsangpo	E(o)	13.71	4,971
792	03 82B08 05640	30.078	92.406	Lhasa Tsangpo	E(o)	28.02	5,038
793	03 82B08 05649	30.048	92.364	Lhasa Tsangpo	0	5.37	5,114
794	03 82B09 05662	30.754	92.745	Lhasa Tsangpo	E(o)	18.7	4,872
795	03 82B10 05667	30.523	92.717	Lhasa Tsangpo	E(o)	5.39	5,202
796	03 82B10 05668	30.507	92.735	Lhasa Tsangpo	E(o)	29.87	5,140
797	03 82B11 05671	30.494	92.646	Lhasa Tsangpo	E(o)	98.02	4,817
798	03 82B11 05675	30.438	92.679	Lhasa Tsangpo	E(o)	11.44	5,111
799	03 82B11 05682	30.390	92.671	Lhasa Tsangpo	E(o)	7.42	5,042
800	03 82B11 05683	30.381	92.743	Lhasa Tsangpo	E(o)	15.7	5,132
801	03 82B11 05688	30.350	92.735	Lhasa Tsangpo	E(o)	87.32	5,112
802	03 82B11 05694	30.323	92.651	Lhasa Tsangpo	E(o)	5.51	5,111
803	03 82B11 05697	30.292	92.682	Lhasa Tsangpo	E(o)	14.59	5,168
804	03 82B11 05700	30.288	92.511	Lhasa Tsangpo	0	11.27	5,182
805	03 82B11 05701	30.276	92.518	Lhasa Tsangpo	E(o)	6.21	5,194
806	03 82B11 05707	30.261	92.510	Lhasa Tsangpo	E(c)	7	5,216
807	03 82B11 05710	30.256	92.596	Lhasa Tsangpo	E(o)	17.98	5,021
808	03 82B11 05711	30.253	92.503	Lhasa Tsangpo	0	21.86	5,056
809	03 82B11 05712	30.253	92.548	Lhasa Tsangpo	E(o)	5	5,088
810	03 82B12 05720	30.237	92.549	Lhasa Tsangpo	E(o)	33.39	5,061
811	03 82B12 05724	30.231	92.563	Lhasa Tsangpo	0	23.52	5,048
812	03 82B12 05726	30.230	92.506	Lhasa Tsangpo	E(o)	6.5	5,043
813	03 82B12 05732	30.218	92.536	Lhasa Tsangpo	0	12.44	5,017
814	03 82B12 05733	30.217	92.569	Lhasa Tsangpo	E(o)	17.84	5,037
815	03 82B12 05734	30.216	92.517	Lhasa Tsangpo	0	48.36	4,981
816	03 82B12 05737	30.210	92.573	Lhasa Tsangpo	E(o)	32.43	5,037
817	03 82B12 05741	30.189	92.541	Lhasa Tsangpo	0	42.22	4,955
818	03 82B12 05742	30.164	92.541	Lhasa Tsangpo	E(o)	9.71	5,132
819	03 82B13 05749	30.999	92.990	Lhasa Tsangpo	E(o)	18.44	5,010
820	03 82B13 05755	30.996	92.832	Lhasa Tsangpo	0	23.34	4,830
821	03 82B13 05756	30.996	92.818	Lhasa Tsangpo	0	9.55	4,827
822	03 82B13 05777	30.988	92.889	Lhasa Tsangpo	0	13.11	4,956
823	03 82B13 05785	30.976	92.941	Lhasa Tsangpo	E(o)	441.76	4,904
824	03 82B13 05789	30.957	92.825	Lhasa Tsangpo	0	16.94	4,920
825	03 82B13 05790	30.956	92.867	Lhasa Tsangpo	0	23.23	4,890
826	03 82B13 05792	30.949	92.890	Lhasa Tsangpo	0	118.54	4,892
827	03 82B13 05795	30.935	92.828	Lhasa Tsangpo	0	222.71	4,886
828	03 82B13 05797	30.934	92.775	Lhasa Tsangpo	E(o)	122.17	4,835
829	03 82B13 05800	30.931	92.761	Lhasa Tsangpo	E(o)	9.23	4,841
830	03 82B13 05803	30.906	92.817	Lhasa Tsangpo	E(o)	177.1	4,960
831	03 82B13 05804	30.896	92.910	Lhasa Tsangpo	E(o)	266.63	4,923
832	03 82B13 05805	30.894	92.951	Lhasa Tsangpo	E(o)	205.95	4,958
833	03 82B13 05806	30.893	92.860	Lhasa Tsangpo	0	12.43	4,921
834	03 82B13 05808	30.879	92.881	Lhasa Tsangpo	E(o)	52.44	4,982
835	03 82B13 05809	30.878	92.860	Lhasa Tsangpo	E(o)	21.32	4,925
836	03 82B14 05812	30.749	92.851	Lhasa Tsangpo	E(o)	8.13	4,905
837	03 82B14 05818	30.739	92.775	Lhasa Tsangpo	E(o)	11.7	4,864
838	03 82B14 05820	30.737	92.889	Lhasa Tsangpo	E(o)	5.69	4,912
839	03 82B14 05821	30.736	92.875	Lhasa Tsangpo	E(o)	20.95	4,911
840	03 82B14 05827	30.553	92.871	Lhasa Tsangpo	E(o)	6.93	5,112

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
841	03 82B15 05828	30.488	92.757	Lhasa Tsangpo	E(o)	9.34	5,150
842	03 82B15 05830	30.451	92.776	Lhasa Tsangpo	E(o)	6.52	5,086
843	03 82B15 05831	30.408	92.777	Lhasa Tsangpo	E(o)	5.48	5,169
844	03 82C01 05833	29.989	92.191	Lhasa Tsangpo	E(o)	13.63	5,123
845	03 82C01 05834	29.972	92.223	Lhasa Tsangpo	0	9.92	5,005
846	03 82C01 05835	29.965	92.194	Lhasa Tsangpo	E(o)	8.71	5,164
847	03 82C01 05836	29.965	92.201	Lhasa Tsangpo	E(o)	5.82	5,162
848	03 82C01 05855	29.928	92.068	Lhasa Tsangpo	E(o)	14	4,939
849	03 82C01 05859	29.916	92.045	Lhasa Tsangpo	E(c)	6.06	5,138
850	03 82C01 05860	29.914	92.036	Lhasa Tsangpo	E(o)	5.93	5,087
851	03 82C01 05861	29.911	92.073	Lhasa Tsangpo	E(c)	6.45	5,135
852	03 82C01 05864	29.876	92.172	Lhasa Tsangpo	E(o)	5.19	5,153
853	03 82C01 05867	29.866	92.208	Lhasa Tsangpo	E(o)	16.79	5,227
854	03 82C01 05869	29.865	92.192	Lhasa Tsangpo	E(o)	6.03	5,199
855	03 82C01 05880	29.830	92.242	Lhasa Tsangpo	E(o)	15.07	5,179
856	03 82C02 05890	29.582	92.001	Lhasa Tsangpo	E(o)	5.05	5,255
857	03 82C02 05894	29.570	92.043	Lhasa Tsangpo	E(o)	13.57	5,312
858	03 82C05 05900	29.814	92.374	Lhasa Tsangpo	E(o)	7.39	4,970
859	03 82C05 05903	29.808	92.395	Lhasa Tsangpo	E(o)	24.92	5,052
860	03 82C05 05907	29.799	92.491	Lhasa Tsangpo	E(o)	8.26	5,044
861	03 82C05 05909	29.796	92.413	Lhasa Tsangpo	E(o)	15.75	4,975
862	03 82C05 05910	29.796	92.352	Lhasa Tsangpo	E(o)	7.8	4,840
863	03 82C05 05911	29.795	92.389	Lhasa Tsangpo	E(o)	17.68	4,976
864	03 82C05 05921	29.784	92.439	Lhasa Tsangpo	E(o)	8.97	4,938
865	03 82C05 05928	29.779	92.388	Lhasa Tsangpo	E(o)	154.54	4,916
866	03 82C05 05929	29.778	92.457	Lhasa Tsangpo	E(o)	11.84	4,996
867	03 82C05 05932	29.770	92.442	Lhasa Tsangpo	E(o)	14.89	4,924
868	03 82C05 05935	29.756	92.397	Lhasa Tsangpo	0	5.29	4,865
869	03 82C06 05938	29.734	92.387	Lhasa Tsangpo	0	16.53	4,746
870	03 82C06 05940	29.686	92.480	Lhasa Tsangpo	E(o)	7.69	5,172
871	03 82C06 05941	29.667	92.394	Lhasa Tsangpo	E(o)	53.86	4,677
872	03 82C06 05942	29.639	92.253	Lhasa Tsangpo	E(o)	35.47	4,862
873	03 82C06 05943	29.619	92.327	Lhasa Tsangpo	E(o)	11.54	4,974
874	03 82E04 05974	31.161	93.190	Lhasa Tsangpo	0	5.05	5,042
875	03 82E04 05977	31.159	93.092	Lhasa Tsangpo	0	8.75	4,997
876	03 82E04 05998	31.151	93.114	Lhasa Tsangpo	0	8.35	5,003
877	03 82E04 05999	31.150	93.080	Lhasa Tsangpo	0	5.43	4,989
878	03 82E04 06002	31.148	93.097	Lhasa Tsangpo	0	10.32	4,994
879	03 82E04 06003	31.148	93.011	Lhasa Tsangpo	0	5.82	4,898
880	03 82E04 06005	31.147	93.119	Lhasa Tsangpo	0	27.83	5,002
881	03 82E04 06009	31.141	93.093	Lhasa Tsangpo	0	6.88	4,992
882	03 82E04 06022	31.132	93.177	Lhasa Tsangpo	0	692.16	5,007
883	03 82E04 06038	31.122	93.118	Lhasa Tsangpo	0	7.88	5,012
884	03 82E04 06040	31.119	93.148	Lhasa Tsangpo	0	9.11	5,020
885	03 82E04 06049	31.113	93.070	Lhasa Tsangpo	0	5.91	4,973
886	03 82E04 06051	31.111	93.145	Lhasa Tsangpo	0	7.49	5,022
887	03 82E04 06064	31.106	93.122	Lhasa Tsangpo	0	5.51	5,030
888	03 82E04 06068	31.103	93.144	Lhasa Tsangpo	E(o)	101.01	5,024
889	03 82E04 06083	31.081	93.163	Lhasa Tsangpo	E(o)	14.03	5,071
890	03 82E04 06086	31.078	93.050	Lhasa Tsangpo	0	40.27	4,950
891	03 82E04 06096	31.004	93.088	Lhasa Tsangpo	E(o)	71.5	5,040
892	03 82E08 06104	31.065	93.292	Lhasa Tsangpo	E(o)	51.21	5,047
893	03 82E08 06106	31.054	93.301	Lhasa Tsangpo	E(o)	20.6	5,055
894	03 82F01 06110	30.963	93.072	Lhasa Tsangpo	E(o)	5.02	5,068
895	03 82F01 06111	30.909	93.016	Lhasa Tsangpo	0	15.25	4,958
896	03 82F01 06112	30.903	93.018	Lhasa Tsangpo	E(o)	11.34	4,957
897	03 82F01 06114	30.883	93.000	Lhasa Tsangpo	E(o)	5.79	5,029
898	03 77K08 06137	29.026	90.273	Upper Yarlung Tsangpo	M(o)	5.89	5,553
899	03 77K08 06140	29.009	90.258	Upper Yarlung Tsangpo	M(e)	9.38	5,552
900	03 77L01 06141	28.928	90.223	Upper Yarlung Tsangpo	M(e)	48.29	5,109
901	03 77L01 06142	28.890	90.225	Upper Yarlung Tsangpo	M(e)	8.2	4,873
902	03 77L03 06146	28.408	90.102	Upper Yarlung Tsangpo	M(o)	5.55	5,615
903	03 77L03 06157	28.278	90.226	Upper Yarlung Tsangpo	M(e)	86.59	5,301
904	03 77L03 06160	28.257	90.192	Upper Yarlung Tsangpo	M(e)	10.09	5,451
905	03 77L04 06161	28.245	90.185	Upper Yarlung Tsangpo	M(e)	60.02	5,455
906	03 77L07 06182	28.265	90.276	Upper Yarlung Tsangpo	M(e)	11.44	5,829
907	03 77L08 06183	28.226	90.257	Upper Yarlung Tsangpo	M(e)	8.7	5,499
908	03 77L08 06184	28.223	90.264	Upper Yarlung Tsangpo	M(o)	7.75	5,516
909	03 77L11 06199	28.454	90.622	Upper Yarlung Tsangpo	M(e)	19.35	5,286
910	03 77P02 06204	28.592	91.115	Upper Yarlung Tsangpo	E(o)	11.65	5,362
911	03 77P02 06206	28.587	91.155	Upper Yarlung Tsangpo	E(o)	10.48	5,563
912	03 77P02 06217	28.571	91.176	Upper Yarlung Tsangpo	M(o)	9.57	5,410
913	03 77P02 06219	28.567	91.171	Upper Yarlung Tsangpo	M(e)	6.82	5,399
914	03 77P10 06238	28.546	91.525	Upper Yarlung Tsangpo	0	101.76	5,083

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
915	03 77P10 06239	28.538	91.597	Upper Yarlung Tsangpo	0	26.23	5,070
916	03 77P10 06242	28.530	91.562	Upper Yarlung Tsangpo	0	45.15	5,153
917	03 77L08 06252	28.238	90.496	Manas	M(e)	15.24	5,608
918	03 77L08 06255	28.204	90.384	Manas	M(e)	33.11	5,424
919	03 77L08 06262	28.151	90.409	Manas	I(s)	8.01	4,836
920	03 77L11 06270	28.462	90.690	Manas	E(o)	5.01	5,145
921	03 77L11 06277	28.333	90.674	Manas	M(e)	11.37	4,650
922	03 77L11 06285	28.303	90.741	Manas	E(c)	10.96	4,769
923	03 77L11 06288	28.300	90.647	Manas	M(e)	28.67	5,467
924	03 77L11 06289	28.299	90.607	Manas	M(e)	11.67	5,354
925	03 77L11 06292	28.296	90.745	Manas	M(o)	9.35	4,731
926	03 77L11 06298	28.273	90.736	Manas	M(e)	167.03	4,510
927	03 77L11 06300	28.272	90.589	Manas	M(e)	45.4	5,414
928	03 77L11 06301	28.270	90.722	Manas	M(o)	8.21	4,620
929	03 77L12 06307	28.247	90.712	Manas	M(e)	18.15	4,689
930	03 77L12 06313	28.244	90.743	Manas	M(e)	11.99	4,657
931	03 77L12 06314	28.241	90.724	Manas	M(e)	88.56	4,654
932	03 77L12 06315	28.241	90.506	Manas	M(e)	21.53	5,470
933	03 77L12 06327	28.207	90.663	Manas	M(o)	5.71	5,070
934	03 77L12 06340	28.170	90.533	Manas	M(e)	5.7	5,596
935	03 77L12 06341	28.166	90.576	Manas	M(e)	5.4	5,413
936	03 77L12 06346	28.136	90.587	Manas	M(e)	6	5,373
937	03 77L12 06348	28.129	90.604	Manas	M(e)	10.46	5,199
938	03 77L12 06349	28.123	90.566	Manas	M(e)	67.52	5,172
939	03 77L12 06358	28.096	90.738	Manas	M(e)	67.74	5,004
940	03 77L12 06362	28.086	90.605	Manas	M(e)	35.31	5,202
941	03 77L12 06363	28.081	90.652	Manas	E(o)	18.65	4,999
942	03 77L12 06366	28.078	90.743	Manas	M(o)	17.78	5,172
943	03 77L12 06369	28.078	90.661	Manas	M(e)	10.04	5,074
944	03 77L12 06370	28.078	90.584	Manas	M(o)	10.66	5,312
945	03 77L12 06377	28.071	90.656	Manas	M(o)	40.3	5,020
946	03 77L12 06381	28.064	90.648	Manas	M(o)	24.57	5,105
947	03 77L12 06383	28.059	90.602	Manas	M(e)	40.1	4,862
948	03 77L12 06385	28.049	90.597	Manas	M(e)	31.09	4,990
949	03 77L12 06386	28.048	90.587	Manas	M(o)	6.14	5,151
950	03 77L15 06389	28.353	90.851	Manas	E(o)	14.81	4,624
951	03 77L15 06409	28.307	90.852	Manas	E(o)	14.1	4,648
952	03 77L15 06415	28.296	90.881	Manas	E(o)	6.56	4,895
953	03 77L15 06422	28.281	90.750	Manas	M(o)	30.82	4,722
954	03 77L15 06426	28.279	90.791	Manas	E(o)	8.26	5,078
955	03 77L16 06450	28.086	90.787	Manas	M(e)	216.41	5,165
956	03 77L16 06456	28.059	90.903	Manas	E(o)	52.05	4,768
957	03 77L16 06459	28.053	90.898	Manas	M(e)	7.11	4,771
958	03 77L16 06460	28.049	90.953	Manas	E(o)	40.51	4,642
959	03 77L16 06461	28.046	90.919	Manas	M(o)	16.66	4,933
960	03 77L16 06463	28.040	90.907	Manas	M(o)	11.45	4,924
961	03 77L16 06473	28.029	90.993	Manas	E(o)	6.16	4,222
962	03 77L16 06474	28.026	90.960	Manas	E(c)	9.87	4,618
963	03 77L16 06477	28.023	90.943	Manas	E(o)	10	4,601
964	03 77L16 06481	28.021	90.840	Manas	M(o)	15.82	4,985
965	03 77L16 06486	28.018	90.843	Manas	M(o)	18.96	4,957
966	03 77L16 06488	28.016	90.929	Manas	E(o)	18.07	4,801
967	03 77L16 06489	28.015	90.979	Manas	E(o)	12.17	4,252
968	03 77L16 06492	28.013	90.984	Manas	E(c)	20.9	4,277
969	03 77L16 06498	28.007	90.978	Manas	E(c)	9.75	4,399
970	03 77L16 06503	28.003	90.905	Manas	E(o)	87.32	4,754
971	03 77L16 06505	28.001	90.932	Manas	E(o)	13.93	4,663
972	03 77P02 06514	28.557	91.191	Manas	M(o)	8.69	5,341
973	03 77P03 06540	28.351	91.079	Manas	M(e)	77.2	4,787
974	03 77P03 06545	28.305	91.070	Manas	M(e)	18.87	4,727
975	03 77P04 06559	28.082	91.209	Manas	E(o)	6.98	4,269
976	03 77P04 06564	28.075	91.234	Manas	E(c)	11.43	4,686
977	03 77P04 06566	28.073	91.144	Manas	E(c)	8.61	4,306
978	03 77P04 06572	28.058	91.169	Manas	E(c)	7.34	4,262
979	03 77P04 06578	28.045	91.004	Manas	E(o)	12.84	4,085
980	03 77P04 06580	28.034	91.003	Manas	E(o)	76.9	4,200
981	03 77P04 06582	28.031	91.032	Manas	E(o)	6.37	4,328
982	03 77P04 06585	28.023	91.036	Manas	E(o)	11.43	4,260
983	03 77P04 06594	28.013	91.044	Manas	E(o)	10.44	4,421
984	03 77P04 06596	28.010	91.027	Manas	E(o)	12.41	4,251
985	03 77P04 06599	28.007	91.080	Manas	E(o)	8.32	4,101
986	03 77P04 06604	28.002	91.095	Manas	E(c)	6.79	4,202
987	03 77P06 06605	28.518	91.487	Manas	0	16.29	5,125
988	03 77P07 06607	28.489	91.487	Manas	E(o)	5.73	5,191

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
989	03 77P08 06632	28.088	91.257	Manas	E(o)	56.11	4,630
990	03 77P08 06633	28.088	91.334	Manas	M(o)	5.71	5,144
991	03 77P08 06639	28.081	91.415	Manas	M(o)	6.44	5,384
992	03 77P08 06650	28.051	91.275	Manas	E(o)	9.04	4,862
993	03 77P08 06651	28.045	91.261	Manas	E(o)	12.47	4,600
994	03 77P08 06652	28.043	91.294	Manas	E(o)	12.82	4,780
995	03 77P08 06653	28.039	91.253	Manas	E(o)	8.6	4,570
996	03 77P08 06656	28.018	91.307	Manas	E(c)	8.91	4,978
997	03 77P08 06659	28.012	91.292	Manas	E(c)	11.21	4,622
998	03 77P08 06665	28.002	91.325	Manas	E(o)	5.21	4,808
999	03 77P08 06666	28.001	91.262	Manas	E(o)	18.16	4,464
1000	03 78I13 06682	27.988	90.817	Manas	E(o)	10.54	4,905
1001	03 78I13 06683	30.478	82.173	Manas	E(o)	10.85	4,737
1002	03 78I13 06688	30.468	82.060	Manas	E(o)	22.1	4,579
1003	03 78I13 06689	30.463	82.100	Manas	E(o)	7.63	4,693
1004	03 78I13 06708	30.461	82.108	Manas	E(o)	12.03	4,606
1005	03 78I13 06709	30.431	82.181	Manas	E(o)	6.31	4,777
1006	03 78I13 06724	30.413	82.171	Manas	E(c)	11.2	4,426
1007	03 78I13 06730	30.412	82.164	Manas	E(o)	7.42	4,386
1008	03 78I13 06732	30.398	82.192	Manas	E(o)	6.96	4,571
1009	03 78I13 06735	30.371	82.061	Manas	E(o)	11.87	4,504
1010	03 78I13 06741	30.371	82.043	Manas	E(o)	5.18	4,872
1011	03 78I13 06760	30.366	82.156	Manas	E(o)	5.97	4,620
1012	03 78I13 06761	30.362	82.055	Manas	E(o)	6.82	4,522
1013	03 78I13 06769	30.352	82.238	Manas	E(o)	14.42	4,509
1014	03 78I13 06771	30.340	82.141	Manas	E(c)	6.33	4,420
1015	03 78I13 06774	30.310	82.200	Manas	E(c)	13.54	4,290
1016	03 78I13 06776	30.286	82.137	Manas	E(c)	6.03	4,295
1017	03 78I13 06782	30.282	82.169	Manas	E(o)	33.11	4,361
1018	03 78I13 06785	30.255	82.209	Manas	E(c)	25.72	4,359
1019	03 78I13 06788	30.221	82.232	Manas	E(c)	5.63	4,307
1020	03 78I13 06789	30.865	82.477	Manas	E(c)	11.54	4,203
1021	03 78I13 06792	30.761	82.394	Manas	E(o)	10.38	4,600
1022	03 78I13 06798	30.755	82.381	Manas	E(o)	6.67	4,083
1023	03 78I13 06801	30.432	82.362	Manas	E(c)	6.95	4,163
1024	03 78M01 06808	30.419	82.302	Manas	E(o)	8.03	4,356
1025	03 78M01 06823	30.410	82.262	Manas	E(o)	15.78	4,311
1026	03 78M01 06825	30.407	82.355	Manas	E(o)	5.76	4,555
1027	03 78M01 06831	30.406	82.256	Manas	E(o)	13.72	4,055
1028	03 78M01 06835	30.399	82.296	Manas	E(o)	14.74	4,347
1029	03 78M01 06836	30.371	82.273	Manas	E(o)	10.02	4,180
1030	03 78M01 06838	30.342	82.271	Manas	E(o)	7.36	4,162
1031	03 78M01 06839	30.329	82.270	Manas	E(o)	12.25	4,162
1032	03 78M01 06846	30.328	82.258	Manas	E(o)	15.09	4,077
1033	03 78M05 06848	30.318	82.272	Manas	E(c)	17.81	4,522
1034	03 78M05 06850	30.311	82.259	Manas	E(o)	5.69	4,763
1035	03 78M05 06854	30.299	82.252	Manas	E(o)	9.33	4,631
1036	03 78M05 06855	30.217	82.486	Manas	E(c)	5.7	4,399
1037	03 78M05 06858	30.138	82.355	Manas	E(o)	6.97	4,820
1038	03 78M05 06859	30.106	82.404	Manas	E(c)	13.31	4,858
1039	03 78M05 06866	30.103	82.270	Manas	E(c)	6.93	4,835
1040	03 78M05 06868	30.079	82.343	Manas	E(c)	39.76	4,732
1041	03 78M05 06869	30.053	82.376	Manas	E(o)	20.27	4,371
1042	03 78M05 06871	30.037	82.419	Manas	E(o)	7.32	4,850
1043	03 78M05 06874	30.037	82.411	Manas	E(o)	7.9	4,554
1044	03 78M05 06875	30.029	82.415	Manas	E(c)	26.95	4,744
1045	03 78M05 06877	30.857	82.572	Manas	E(c)	31.66	4,625
1046	03 78M05 06880	30.832	82.526	Manas	E(c)	21.44	4,060
1047	03 78M05 06884	30.807	82.750	Manas	E(o)	12.54	4,802
1048	03 78M05 06885	30.803	82.710	Manas	E(o)	5.11	4,723
1049	03 78M05 06889	30.795	82.706	Manas	E(c)	19.59	3,980
1050	03 78M05 06891	30.787	82.730	Manas	E(o)	7.84	3,860
1051	03 77L08 06899	30.608	82.652	Manas	M(o)	48.12	5,278
1052	03 77L08 06904	30.257	82.589	Manas	M(e)	84.1	5,216
1053	03 77L08 06928	30.881	82.859	Manas	M(e)	72.68	5,182
1054	03 77L08 06930	30.837	82.958	Manas	M(o)	16.95	5,300
1055	03 77L08 06934	30.811	82.754	Manas	M(o)	8.42	5,283
1056	03 77L08 06943	30.690	82.802	Manas	M(o)	35.64	5,376
1057	03 77L08 06949	30.654	82.880	Manas	M(o)	10.53	5,461
1058	03 77L12 06959	30.581	82.946	Manas	E(c)	8.6	4,963
1059	03 77L12 06962	30.572	82.906	Manas	E(c)	17.91	5,002
1060	03 77L12 06963	30.566	82.942	Manas	M(o)	15.05	4,993
1061	03 77L12 06970	30.563	82.921	Manas	M(o)	26.46	5,172
1062	03 77L12 06971	30.560	82.964	Manas	E(o)	31.04	4,715

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1063	03 77L12 06976	30.555	82.946	Manas	M(o)	5.21	4,798
1064	03 77L12 06996	30.551	82.958	Manas	M(e)	5.4	5,117
1065	03 77L12 07005	30.550	82.929	Manas	M(e)	145.52	4,868
1066	03 77L12 07012	30.116	82.756	Manas	M(o)	5.1	5,168
1067	03 77L12 07026	29.984	82.479	Manas	M(o)	6.56	5,155
1068	03 77L12 07028	29.969	82.496	Manas	M(o)	13.49	5,155
1069	03 77L12 07030	29.965	82.490	Manas	M(o)	8.95	5,066
1070	03 77L12 07031	29.985	82.535	Manas	E(o)	33.03	4,927
1071	03 77L12 07032	29.980	82.567	Manas	I(s)	23.97	4,700
1072	03 78I05 07048	29.980	82.589	Manas	M(o)	7.57	5,000
1073	03 78I05 07058	29.973	82.542	Manas	M(l)	33.1	5,178
1074	03 78I05 07064	29.962	82.508	Manas	M(o)	13.26	5,242
1075	03 78I05 07069	29.940	82.603	Manas	M(o)	6.11	5,270
1076	03 78I05 07071	29.928	82.610	Manas	M(l)	21.73	5,093
1077	03 78I05 07073	29.924	82.618	Manas	M(o)	20.26	5,233
1078	03 78I05 07079	29.916	82.665	Manas	M(o)	22.19	5,314
1079	03 78I05 07084	29.840	82.782	Manas	M(o)	22.89	5,208
1080	03 78I05 07112	29.796	82.853	Manas	M(o)	10.42	5,273
1081	03 78I05 07125	29.762	82.885	Manas	M(o)	19.37	5,203
1082	03 78I05 07132	29.735	82.974	Manas	M(o)	10	5,183
1083	03 78I05 07136	29.688	82.984	Manas	E(o)	8.06	5,017
1084	03 78I05 07142	30.538	83.044	Manas	M(o)	17.69	5,143
1085	03 78I05 07148	30.529	83.073	Manas	M(o)	7.08	5,183
1086	03 78I05 07153	30.751	83.327	Manas	M(o)	8.7	5,181
1087	03 78I05 07154	30.699	83.306	Manas	M(o)	22.46	5,160
1088	03 78I05 07169	30.656	83.314	Manas	M(o)	7.95	5,103
1089	03 78I05 07173	30.580	83.365	Manas	M(e)	114.2	5,059
1090	03 78I05 07183	30.530	83.295	Manas	M(o)	15.99	5,116
1091	03 78I05 07184	30.604	83.694	Manas	M(o)	9.46	5,115
1092	03 78I05 07189	30.591	83.519	Manas	M(o)	24.66	5,038
1093	03 78I05 07190	30.563	83.518	Manas	E(o)	9.82	5,159
1094	03 78I05 07192	30.551	83.512	Manas	M(e)	41.54	5,033
1095	03 78I05 07195	30.669	83.764	Manas	M(o)	6.76	5,079
1096	03 78I05 07202	30.662	83.763	Manas	M(e)	18.64	4,959
1097	03 78I05 07204	30.659	83.757	Manas	M(o)	9.06	4,949
1098	03 78I05 07205	30.617	83.754	Manas	M(o)	5.49	5,063
1099	03 78I05 07206	30.612	83.764	Manas	E(c)	5.09	5,016
1100	03 78I05 07215	30.546	83.862	Manas	M(o)	13.41	5,050
1101	03 78I05 07219	30.500	83.963	Manas	E(o)	19.16	4,902
1102	03 78I05 07223	30.492	83.842	Manas	E(o)	7.13	4,997
1103	03 78I05 07236	30.480	83.908	Manas	E(o)	7.35	4,976
1104	03 78I05 07240	30.476	83.871	Manas	E(o)	6	4,852
1105	03 78I05 07252	30.465	83.984	Manas	E(o)	7.08	4,872
1106	03 78I05 07257	30.461	83.898	Manas	E(o)	21.42	4,898
1107	03 78I05 07258	30.461	83.973	Manas	E(c)	12.12	4,764
1108	03 78I05 07262	30.431	83.996	Manas	E(o)	11.15	4,776
1109	03 78I05 07263	30.417	83.964	Manas	E(o)	11.48	4,815
1110	03 78I05 07267	30.414	83.929	Manas	E(c)	33.42	4,701
1111	03 78I05 07272	29.731	83.073	Manas	E(c)	11.36	4,825
1112	03 78I05 07279	29.726	83.105	Manas	E(c)	14.6	4,759
1113	03 78I05 07282	29.693	83.025	Manas	E(c)	10.94	4,826
1114	03 78I05 07283	29.692	83.043	Manas	E(c)	27.76	4,527
1115	03 78I05 07294	29.689	83.190	Manas	E(o)	12.78	4,563
1116	03 78I05 07295	29.686	83.097	Manas	E(c)	11.02	4,532
1117	03 78I05 07297	29.680	83.138	Manas	E(o)	8.47	4,564
1118	03 78I05 07300	29.674	83.182	Manas	E(c)	8.52	4,715
1119	03 78I05 07302	29.668	83.108	Manas	E(c)	25.82	4,689
1120	03 78I05 07303	29.668	83.031	Manas	E(c)	9.48	4,587
1121	03 78I05 07305	29.662	83.222	Manas	E(c)	5.78	4,584
1122	03 78I05 07312	29.655	83.084	Manas	E(c)	10.83	4,630
1123	03 78I05 07313	29.655	83.106	Manas	E(o)	7.1	4,570
1124	03 78I06 07315	29.647	83.234	Manas	E(o)	17.2	4,569
1125	03 78I06 07316	29.644	83.110	Manas	E(c)	10.21	4,389
1126	03 78I06 07317	29.640	83.059	Manas	E(o)	5.62	4,314
1127	03 78I06 07318	29.632	83.151	Manas	E(c)	30.88	4,231
1128	03 78I06 07319	29.632	83.215	Manas	E(o)	15.98	4,322
1129	03 78I06 07335	29.627	83.131	Manas	E(c)	9.57	4,174
1130	03 78I09 07358	29.619	83.196	Manas	E(o)	11.39	5,103
1131	03 78I09 07363	29.620	83.298	Manas	M(o)	5.04	5,076
1132	03 78I09 07364	29.604	83.376	Manas	E(o)	6.36	5,005
1133	03 78I09 07366	29.582	83.355	Manas	M(o)	8.27	5,217
1134	03 78I09 07369	29.580	83.287	Manas	M(o)	7.16	4,856
1135	03 78I09 07375	29.511	83.444	Manas	M(e)	18.16	5,199
1136	03 78I09 07377	29.499	83.428	Manas	E(o)	5.92	5,081

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1137	03 78I09 07381	29.484	83.371	Manas	M(e)	7.09	5,021
1138	03 78I09 07382	29.449	83.441	Manas	M(e)	12.14	5,028
1139	03 78I09 07391	29.446	83.430	Manas	E(o)	9.47	4,964
1140	03 78I09 07396	29.388	83.443	Manas	E(o)	25	5,101
1141	03 78I09 07397	29.352	83.579	Manas	E(o)	7.45	5,020
1142	03 78I09 07416	29.322	83.646	Manas	E(o)	8.93	4,915
1143	03 78I09 07419	29.268	83.618	Manas	E(o)	9.04	4,982
1144	03 78I09 07438	29.267	83.519	Manas	E(o)	11.2	4,848
1145	03 78I09 07447	29.248	83.541	Manas	E(c)	59.94	5,036
1146	03 78I09 07453	29.221	83.686	Manas	E(o)	5.45	4,838
1147	03 78I09 07460	30.580	84.068	Manas	M(e)	8.32	5,057
1148	03 78I09 07462	30.398	84.041	Manas	M(o)	5.64	4,987
1149	03 78I09 07468	30.391	84.096	Manas	E(o)	29.18	4,774
1150	03 78I09 07470	30.457	83.861	Manas	E(o)	13.38	5,082
1151	03 78I09 07471	30.453	83.846	Manas	E(c)	38.13	4,935
1152	03 78I09 07474	30.450	83.852	Manas	M(o)	11.08	4,939
1153	03 78I09 07479	30.438	83.882	Manas	E(c)	8.26	4,568
1154	03 78I09 07481	30.425	83.864	Manas	E(c)	5.39	4,735
1155	03 78I09 07487	30.421	83.866	Manas	E(c)	24.13	4,977
1156	03 78I09 07488	29.470	83.764	Manas	E(o)	12.32	4,640
1157	03 78I09 07499	29.918	84.478	Manas	E(o)	12.81	4,875
1158	03 78I09 07500	29.904	84.499	Manas	E(o)	18.83	4,666
1159	03 78I09 07503	29.887	84.537	Manas	E(o)	23.37	4,664
1160	03 78I09 07504	29.773	84.631	Manas	E(o)	16.89	4,599
1161	03 78I09 07505	29.766	84.622	Manas	E(o)	6.34	4,677
1162	03 78I09 07510	29.691	84.683	Manas	E(o)	74.98	4,770
1163	03 78I09 07511	29.681	84.570	Manas	E(o)	8.66	4,499
1164	03 78I09 07514	29.122	84.744	Manas	E(o)	11.88	4,406
1165	03 78I09 07517	29.077	84.799	Manas	E(o)	5.45	4,930
1166	03 78I09 07518	29.076	84.839	Manas	E(o)	7.97	4,582
1167	03 78I09 07528	28.958	84.236	Manas	E(o)	12.54	4,767
1168	03 78I09 07534	28.928	84.300	Manas	E(c)	9.79	4,567
1169	03 78I09 07535	28.909	84.348	Manas	E(o)	8.94	4,787
1170	03 78I09 07537	28.908	84.508	Manas	E(o)	10.37	4,363
1171	03 78I09 07542	28.842	84.821	Manas	E(c)	9.78	4,850
1172	03 78I09 07553	29.004	85.019	Manas	E(c)	10.11	4,704
1173	03 78I09 07554	29.003	85.055	Manas	E(o)	10.15	4,647
1174	03 78I09 07557	28.984	85.022	Manas	E(c)	18.31	4,574
1175	03 78I09 07559	29.291	86.391	Manas	E(c)	40.52	4,462
1176	03 78I09 07560	29.250	86.320	Manas	E(c)	9.91	4,336
1177	03 78I09 07565	29.150	86.350	Manas	E(o)	26.59	4,550
1178	03 78I09 07571	29.162	87.380	Manas	E(c)	8.69	4,547
1179	03 78I09 07572	29.642	87.925	Manas	E(c)	8.01	4,551
1180	03 78I09 07579	29.584	87.916	Manas	E(c)	6.6	4,679
1181	03 78I09 07583	28.847	87.568	Manas	E(c)	5.14	4,511
1182	03 78I09 07590	28.832	87.560	Manas	E(o)	10.8	4,338
1183	03 78I09 07592	28.830	87.603	Manas	E(o)	12.42	4,614
1184	03 78I09 07593	28.811	87.551	Manas	E(o)	5.05	4,388
1185	03 78I09 07601	28.810	87.658	Manas	E(c)	12.45	4,410
1186	03 78I09 07604	28.804	87.625	Manas	E(c)	6.38	4,289
1187	03 78I09 07610	28.799	87.603	Manas	E(o)	6.43	4,261
1188	03 78I09 07611	28.796	87.641	Manas	E(o)	5.19	4,576
1189	03 78I10 07636	29.754	88.240	Manas	E(c)	8.66	4,216
1190	03 78I10 07651	29.749	88.246	Manas	E(c)	7.38	4,359
1191	03 78I10 07657	29.742	88.221	Manas	E(c)	9.48	4,191
1192	03 78I10 07661	29.731	88.239	Manas	E(o)	5.29	4,110
1193	03 78I10 07663	29.722	88.236	Manas	E(o)	9	3,953
1194	03 78I13 07685	29.631	88.007	Manas	M(o)	16.41	5,031
1195	03 78I13 07689	29.546	88.036	Manas	M(o)	7.71	4,953
1196	03 78I13 07692	29.756	88.261	Manas	E(c)	7.13	4,901
1197	03 78I13 07694	29.619	88.805	Manas	M(o)	35.67	4,804
1198	03 78I13 07697	29.506	88.956	Manas	E(o)	44.54	4,712
1199	03 78I13 07703	29.500	88.950	Manas	E(o)	16.34	4,845
1200	03 78I13 07706	29.563	89.354	Manas	E(o)	10.66	4,807
1201	03 78I13 07709	29.887	89.592	Manas	E(o)	27.12	4,453
1202	03 78I13 07712	29.879	89.658	Manas	E(o)	53.98	4,135
1203	03 78I13 07716	29.873	89.596	Manas	E(o)	9.95	4,736
1204	03 78I13 07717	29.867	89.596	Manas	E(c)	6.42	4,417
1205	03 78I13 07719	29.855	89.596	Manas	E(o)	18.14	4,568
1206	03 78I13 07720	29.843	89.718	Manas	E(c)	9.69	4,631
1207	03 78I13 07723	29.492	89.724	Manas	E(o)	18.02	4,367
1208	03 78I13 07726	29.228	89.593	Manas	E(c)	14.45	4,613
1209	03 78I13 07729	29.222	89.609	Manas	E(o)	22.79	4,112
1210	03 78I13 07733	29.866	89.761	Manas	E(c)	5.38	4,386

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1211	03 78I13 07736	29.589	89.763	Manas	E(o)	10.15	4,263
1212	03 78I13 07738	29.575	89.878	Manas	E(c)	10.09	4,126
1213	03 78I13 07742	29.509	89.882	Manas	E(o)	6.79	4,456
1214	03 78I13 07749	29.496	89.869	Manas	E(o)	5.62	4,252
1215	03 78I13 07752	29.495	89.831	Manas	E(c)	6.79	4,307
1216	03 78I13 07759	29.492	89.881	Manas	E(c)	18.25	4,181
1217	03 78I14 07764	29.489	89.867	Manas	E(c)	11.59	4,438
1218	03 78I14 07778	29.487	89.776	Manas	E(o)	6.5	4,207
1219	03 78I14 07780	29.483	89.908	Manas	E(o)	11.57	3,952
1220	03 78I15 07795	29.477	89.932	Manas	E(o)	6.46	4,429
1221	03 78I15 07807	29.440	89.945	Manas	E(o)	5.36	4,187
1222	03 77P08 07813	29.421	89.950	Manas	E(o)	5.9	5,107
1223	03 77P08 07817	29.399	89.803	Manas	M(o)	56.24	4,737
1224	03 77P12 07829	29.386	89.778	Manas	M(e)	11.98	5,221
1225	03 77P12 07834	29.932	90.059	Manas	M(e)	19.31	5,139
1226	03 77P12 07838	29.912	90.063	Manas	M(e)	5.56	5,193
1227	03 77P12 07839	29.873	90.008	Manas	E(c)	9.76	5,085
1228	03 77P12 07845	29.872	90.182	Manas	M(e)	36.52	4,804
1229	03 77P12 07846	29.818	90.183	Manas	M(o)	6.55	4,666
1230	03 77P12 07847	29.773	90.151	Manas	E(o)	14.26	4,422
1231	03 77P15 07853	29.744	90.237	Manas	E(o)	20.15	4,774
1232	03 77P16 07877	29.504	90.439	Manas	E(c)	9.89	4,777
1233	03 77P16 07881	29.503	90.445	Manas	M(o)	9.66	5,257
1234	03 77P16 07884	29.486	90.447	Manas	M(o)	6.84	5,401
1235	03 77P16 07886	29.484	90.436	Manas	E(o)	117.73	4,705
1236	03 77P16 07888	29.475	90.414	Manas	E(c)	6.37	5,166
1237	03 77P16 07892	29.474	90.454	Manas	E(o)	240.03	4,631
1238	03 77P16 07895	29.437	90.495	Manas	E(o)	5.29	4,596
1239	03 77P16 07898	29.408	90.445	Manas	E(o)	5.03	4,276
1240	03 78M05 07903	29.511	90.577	Manas	E(c)	13.44	4,422
1241	03 78M05 07908	29.412	90.524	Manas	E(c)	7.74	4,358
1242	03 78M05 07910	30.043	84.939	Manas	E(o)	7.04	4,263
1243	03 78M05 07915	30.043	84.934	Manas	E(c)	10.23	4,229
1244	03 78M05 07923	30.040	84.926	Manas	E(c)	12.59	3,832
1245	03 78M05 07928	30.014	84.935	Manas	E(o)	10.51	3,913
1246	03 78M05 07932	29.914	84.601	Manas	E(c)	6.1	3,849
1247	03 78M05 07934	29.866	84.624	Manas	E(o)	9.38	4,435
1248	03 78M09 07942	29.856	84.632	Manas	M(o)	12.13	5,319
1249	03 78M09 07952	29.845	84.676	Manas	E(o)	5.56	4,730
1250	03 78M09 07953	29.818	84.691	Manas	E(o)	8.72	4,635
1251	03 78M09 07958	29.751	84.672	Manas	E(o)	13.64	4,628
1252	03 78M09 07963	29.679	84.738	Manas	E(o)	5.65	4,988
1253	03 78M09 07965	29.970	84.879	Manas	E(o)	14.82	4,938
1254	03 78M09 07966	29.901	85.080	Manas	E(c)	27.53	4,430
1255	03 78M09 07968	29.853	85.005	Manas	E(o)	6	4,761
1256	03 78M09 07971	29.755	85.134	Manas	E(o)	5.3	4,745
1257	03 78M09 07972	29.737	85.147	Manas	E(c)	24.45	4,819
1258	03 78M09 07975	29.728	85.211	Manas	E(c)	9.79	4,951
1259	03 78M09 07978	29.862	85.364	Manas	E(c)	7.92	4,147
1260	03 78M09 07979	29.740	85.314	Manas	E(c)	9.71	4,824
1261	03 78M09 07981	29.596	85.610	Manas	E(o)	7.15	4,376
1262	03 78M09 07982	29.733	85.783	Manas	E(c)	16.69	4,626
1263	03 78M09 07983	29.603	85.864	Manas	E(o)	8.72	4,766
1264	03 78M09 07990	29.567	85.890	Manas	E(c)	32.71	4,248
1265	03 78M09 07991	29.563	85.887	Manas	E(o)	7.15	4,436
1266	03 78M09 07993	29.558	85.880	Manas	E(o)	18.45	4,533
1267	03 78M09 07994	29.935	86.422	Manas	E(o)	44.48	4,480
1268	03 78M09 07999	29.672	86.380	Manas	E(o)	5.96	4,165
1269	03 78M09 08003	29.698	86.857	Manas	E(c)	5.61	4,366
1270	03 78M09 08005	29.559	86.919	Manas	E(o)	6.45	4,663
1271	03 78M09 08006	29.534	86.943	Manas	E(o)	45.27	4,054
1272	03 78M09 08010	29.556	87.028	Manas	E(o)	10.38	4,581
1273	03 78M09 08014	29.514	87.108	Manas	E(c)	5.7	3,907
1274	03 78M09 08017	29.507	87.483	Manas	E(c)	31.88	4,049
1275	03 78M09 08020	30.251	87.428	Manas	E(c)	31.4	4,509
1276	03 78M09 08021	30.088	87.697	Manas	E(c)	49.42	4,656
1277	03 78M09 08027	29.824	87.016	Manas	E(o)	16.27	4,558
1278	03 78M09 08030	29.905	87.680	Manas	0	66.35	4,125
1279	03 78M09 08032	29.897	87.666	Manas	E(c)	67.23	4,521
1280	03 78M09 08034	29.595	87.742	Manas	E(c)	10.93	4,674
1281	03 78M09 08035	29.608	87.803	Manas	E(c)	14.2	4,678
1282	03 78M09 08040	30.236	88.321	Manas	E(c)	17.12	4,213
1283	03 78M09 08042	29.901	88.351	Manas	E(c)	19.04	4,297
1284	03 78M09 08044	29.823	88.292	Manas	E(o)	13.8	4,406

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1285	03 78M09 08045	29.774	88.259	Manas	E(c)	12.24	4,504
1286	03 78M09 08046	30.168	88.620	Manas	E(o)	19.76	4,617
1287	03 78M09 08047	30.148	88.627	Manas	E(c)	16.43	4,066
1288	03 78M09 08054	30.105	88.618	Manas	E(o)	6.62	4,411
1289	03 78M09 08055	30.007	88.678	Manas	E(o)	16.67	4,152
1290	03 78M09 08056	29.581	88.892	Manas	E(c)	9.43	4,198
1291	03 78M09 08057	29.953	89.528	Manas	E(o)	15.81	3,868
1292	03 78M10 08064	29.946	89.589	Manas	E(o)	8.58	3,871
1293	03 78M10 08065	29.899	89.639	Manas	E(c)	5.87	4,310
1294	03 78M10 08066	29.894	89.620	Manas	E(c)	5.43	4,541
1295	03 78M10 08071	29.892	89.687	Manas	E(o)	6.69	3,982
1296	03 78M10 08072	29.877	89.544	Manas	E(o)	16.42	4,319
1297	03 78M13 08075	29.851	89.518	Manas	0	40.89	4,354
1298	03 78M13 08087	29.850	89.534	Manas	E(o)	7.01	4,493
1299	03 78M13 08095	29.843	89.528	Manas	0	217.48	4,452
1300	03 78M13 08097	29.835	89.547	Manas	E(o)	5.03	4,826
1301	03 78M13 08099	28.518	88.736	Manas	E(o)	6.2	4,827
1302	03 78M13 08106	28.006	88.494	Manas	E(o)	10.26	4,340
1303	03 78M13 08109	28.059	88.631	Manas	E(o)	6.49	4,872
1304	03 78M13 08112	28.026	88.710	Manas	E(o)	6.29	4,559
1305	03 78M13 08113	28.014	88.652	Manas	E(o)	5.96	4,734
1306	03 78M13 08120	28.014	88.561	Manas	E(o)	5.38	4,757
1307	03 78M13 08127	28.008	88.681	Manas	E(o)	19.9	4,630
1308	03 78M13 08130	28.008	88.698	Manas	0	145.65	4,638
1309	03 78M13 08142	28.007	88.571	Manas	E(c)	7.24	4,289
1310	03 78M13 08146	28.006	88.713	Manas	E(o)	6.88	4,652
1311	03 78M13 08149	28.002	88.639	Manas	E(o)	5.27	4,737
1312	03 78M13 08150	28.000	88.548	Manas	E(o)	9.29	4,518
1313	03 78M13 08161	28.011	88.756	Manas	E(o)	22.77	4,499
1314	03 78M13 08162	27.920	88.159	Manas	E(c)	19.81	4,667
1315	03 78M13 08168	27.913	88.196	Manas	E(c)	5.16	4,837
1316	03 78M13 08172	27.893	88.212	Manas	E(o)	13.08	4,484
1317	03 78M13 08180	27.893	88.191	Manas	E(o)	7.48	4,493
1318	03 78M14 08188	27.852	88.240	Manas	E(c)	5.11	4,400
1319	03 78M14 08191	27.843	88.232	Manas	E(o)	44.61	4,345
1320	03 78M14 08193	27.748	88.234	Manas	E(o)	5.32	4,236
1321	03 78M14 08203	27.602	88.185	Manas	E(o)	9.27	4,305
1322	03 78M14 08209	27.563	88.123	Manas	E(o)	12.54	4,456
1323	03 78M14 08212	27.533	88.086	Manas	E(o)	9.9	4,264
1324	03 78M14 08221	27.501	88.055	Manas	0	8.94	3,696
1325	03 78M14 08229	27.488	88.213	Manas	E(o)	7.49	4,536
1326	03 78M14 08231	27.479	88.055	Manas	E(o)	5.11	4,240
1327	03 78M14 08234	27.437	88.083	Manas	E(o)	7.19	4,422
1328	03 78M14 08236	27.976	88.418	Manas	E(o)	9.71	4,491
1329	03 78M14 08244	27.974	88.422	Manas	E(o)	13.14	4,047
1330	03 78M14 08247	27.973	88.439	Manas	E(o)	13.11	4,467
1331	03 78M14 08252	27.969	88.430	Manas	E(o)	6.91	4,168
1332	03 78M14 08256	27.957	88.388	Manas	E(o)	17.65	4,283
1333	03 78M14 08260	27.952	88.296	Manas	E(o)	8.45	4,342
1334	03 78M14 08264	27.951	88.355	Manas	E(c)	7.26	4,406
1335	03 78M14 08272	27.949	88.305	Manas	E(o)	6.2	4,139
1336	03 78M14 08275	27.947	88.332	Manas	E(o)	6.87	4,256
1337	03 78M14 08277	27.943	88.272	Manas	E(c)	7.63	4,368
1338	03 78M14 08287	27.936	88.266	Manas	E(c)	5.99	4,210
1339	03 78M14 08289	27.920	88.313	Manas	E(o)	33.23	4,222
1340	03 78M14 08297	27.892	88.261	Manas	E(c)	8.82	4,068
1341	03 78M14 08312	27.886	88.265	Manas	E(o)	8.72	3,897
1342	03 78M14 08317	27.883	88.260	Manas	E(c)	5.33	3,908
1343	03 78M14 08320	27.881	88.250	Manas	E(c)	10.79	4,329
1344	03 78M14 08322	27.831	88.318	Manas	E(o)	7.43	3,972
1345	03 78M14 08324	27.823	88.453	Manas	E(o)	11.38	3,978
1346	03 78M14 08327	27.822	88.249	Manas	E(o)	6.46	4,032
1347	03 78M15 08334	27.817	88.261	Manas	E(o)	5.21	4,065
1348	03 82D04 08346	27.759	88.484	Manas	E(o)	12.05	5,130
1349	03 82D04 08348	27.723	88.453	Manas	E(o)	15.97	5,107
1350	03 82D04 08349	27.678	88.376	Manas	E(o)	11.52	5,115
1351	03 82D04 08350	27.669	88.497	Manas	E(o)	15.06	5,099
1352	03 82D04 08351	27.992	88.545	Manas	E(o)	6.33	5,091
1353	03 82D04 08354	27.991	88.602	Manas	E(o)	25.64	5,036
1354	03 82D04 08362	27.988	88.736	Manas	E(o)	16.73	4,973
1355	03 82D04 08369	27.982	88.508	Manas	E(o)	6.28	5,046
1356	03 82D04 08371	27.975	88.616	Manas	E(o)	9.23	5,007
1357	03 82D04 08372	27.971	88.593	Manas	E(o)	7.21	5,034
1358	03 83A01 08421	27.962	88.743	Manas	E(o)	16.55	4,824
1359	03 83A01 08424	27.961	88.650	Manas	E(c)	8.05	5,097
1360	03 83A01 08435	27.957	88.714	Manas	M(o)	11.07	4,952
1361	03 83A01 08446	27.924	88.616	Manas	E(o)	8.89	4,295
1362	03 83A01 08449	27.920	88.672	Manas	E(c)	10.23	4,084
1363	03 83A02 08471	27.901	88.627	Manas	E(o)	8.8	4,085
1364	03 83A02 08475	27.900	88.629	Manas	E(o)	5.45	4,491
1365	03 83A02 08476	27.873	88.638	Manas	E(o)	5.74	4,463
1366	03 83A02 08478	27.868	88.741	Manas	E(o)	6.73	4,323
1367	03 83A02 08480	27.864	88.747	Manas	E(o)	6.73	4,524
1368	03 83A02 08485	27.851	88.505	Manas	E(o)	7.26	4,474
1369	03 83A02 08493	27.816	88.657	Manas	E(o)	5.49	4,348
1370	03 83A02 08499	27.756	88.606	Manas	E(c)	8.09	4,390
1371	03 83A02 08504	27.751	88.692	Manas	E(c)	6.03	4,427
1372	03 83A02 08517	27.746	88.681	Manas	E(o)	13.08	4,455
1373	03 83A02 08524	27.723	88.690	Manas	E(o)	5.8	4,505
1374	03 83A02 08537	27.723	88.675	Manas	E(o)	19.59	4,348
1375	03 83A02 08539	27.700	88.514	Manas	E(o)	14.28	4,326
1376	03 83A02 08541	27.695	88.716	Manas	E(o)	5.55	4,400
1377	03 83A02 08554	27.685	88.532	Manas	E(o)	6.05	4,606
1378	03 83A02 08557	27.671	88.513	Manas	E(o)	7.89	4,377
1379	03 83A02 08563	27.668	88.687	Manas	E(o)	5.11	4,519
1380	03 83A02 08565	27.662	88.690	Manas	E(o)	7.45	4,217
1381	03 83A02 08570	27.466	88.751	Manas	E(o)	5.77	4,303
1382	03 83A02 08572	27.993	88.801	Manas	E(o)	60.79	4,274
1383	03 83A02 08576	27.990	88.816	Manas	E(o)	14.07	4,088
1384	03 83A02 08580	27.976	88.793	Manas	0	18.91	4,148
1385	03 83A02 08582	27.969	88.797	Manas	E(o)	7.24	4,159
1386	03 83A02 08583	27.963	88.797	Manas	E(c)	5.19	4,220
1387	03 83A02 08584	27.936	88.784	Manas	E(o)	10.8	4,170
1388	03 83A03 08593	27.901	88.782	Manas	E(o)	7.95	4,202
1389	03 83A05 08626	27.899	88.754	Manas	E(o)	13.13	4,870
1390	03 83A05 08628	27.895	88.761	Manas	M(o)	55.56	5,179
1391	03 83A05 08631	27.873	88.789	Manas	M(o)	19.37	5,094
1392	03 83A05 08637	27.864	88.863	Manas	E(o)	13.46	4,967
1393	03 83A06 08645	27.854	88.806	Manas	E(o)	8.61	4,486
1394	03 83A06 08648	27.848	88.868	Manas	E(o)	8.52	5,100
1395	03 83A06 08652	27.797	88.801	Manas	E(o)	6.33	5,046
1396	03 83A06 08655	27.774	88.850	Manas	E(o)	6.95	5,094
1397	03 83A06 08660	27.730	88.833	Manas	E(o)	6	4,971
1398	03 83A06 08676	27.683	88.809	Manas	E(o)	12.28	5,117
1399	03 83A06 08686	27.477	88.776	Manas	E(o)	5.58	4,906
1400	03 83A06 08688	27.442	88.752	Manas	E(o)	6.93	4,904
1401	03 83A06 08689	27.434	88.770	Manas	E(o)	5.27	4,827
1402	03 83A06 08715	27.430	88.758	Manas	E(o)	6.3	4,737
1403	03 83A06 08716	27.402	88.770	Manas	E(o)	7.39	4,688
1404	03 83A06 08720	27.387	88.801	Manas	E(o)	5.84	4,877
1405	03 83A06 08745	27.379	88.830	Manas	E(o)	5.52	4,453
1406	03 82E04 08784	27.375	88.763	Lower Yarlung Tsangpo	0	13.3	5,195
1407	03 82E04 08788	27.372	88.846	Lower Yarlung Tsangpo	E(o)	7.7	5,169
1408	03 82F02 08813	27.368	88.826	Lower Yarlung Tsangpo	0	8.36	4,564
1409	03 82F02 08814	27.346	88.819	Lower Yarlung Tsangpo	0	689.79	4,499
1410	03 82F02 08824	28.805	89.155	Lower Yarlung Tsangpo	E(o)	86.74	4,817
1411	03 82F05 08840	28.327	89.430	Lower Yarlung Tsangpo	M(o)	7.75	5,197
1412	03 82F06 08849	28.177	89.417	Lower Yarlung Tsangpo	M(o)	31.64	4,758
1413	03 82F06 08851	28.144	89.396	Lower Yarlung Tsangpo	M(o)	114.42	4,780
1414	03 82F06 08852	28.136	89.402	Lower Yarlung Tsangpo	M(o)	9.1	4,828
1415	03 82F07 08854	28.087	89.481	Lower Yarlung Tsangpo	M(e)	22.25	4,702
1416	03 82F07 08860	28.052	89.464	Lower Yarlung Tsangpo	M(e)	12.41	4,788
1417	03 82F07 08862	28.051	89.457	Lower Yarlung Tsangpo	E(o)	32.69	4,496
1418	03 82F07 08864	28.025	89.428	Lower Yarlung Tsangpo	M(o)	6.31	4,818
1419	03 82F07 08868	28.018	89.449	Lower Yarlung Tsangpo	M(e)	6.9	4,798
1420	03 82F09 08875	28.007	89.356	Lower Yarlung Tsangpo	E(o)	6.25	5,131
1421	03 82F09 08880	28.275	89.591	Lower Yarlung Tsangpo	M(o)	8.61	5,162
1422	03 82F09 08882	28.241	89.695	Lower Yarlung Tsangpo	M(o)	9.16	5,268
1423	03 82F09 08884	28.228	89.638	Lower Yarlung Tsangpo	M(l)	11.1	5,130
1424	03 82F09 08885	28.210	89.745	Lower Yarlung Tsangpo	E(o)	8.17	5,146
1425	03 82F10 08891	28.203	89.713	Lower Yarlung Tsangpo	E(c)	5.2	5,444
1426	03 82F10 08893	28.190	89.674	Lower Yarlung Tsangpo	M(o)	5.48	5,243
1427	03 82F10 08895	28.186	89.598	Lower Yarlung Tsangpo	M(e)	36.56	4,778
1428	03 82F11 08900	28.185	89.661	Lower Yarlung Tsangpo	M(o)	24.84	5,015
1429	03 82F11 08905	28.181	89.535	Lower Yarlung Tsangpo	E(o)	12.12	4,785
1430	03 82F11 08913	28.150	89.564	Lower Yarlung Tsangpo	M(o)	12.45	4,685
1431	03 82F11 08921	28.147	89.556	Lower Yarlung Tsangpo	M(e)	54.25	4,442
1432	03 82F11 08922	28.137	89.534	Lower Yarlung Tsangpo	M(e)	11.42	4,750

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1433	03 82F11 08923	28.123	89.514	Lower Yarlung Tsangpo	M(e)	43.13	4,537
1434	03 82F13 08925	28.279	89.994	Lower Yarlung Tsangpo	M(e)	5.11	4,819
1435	03 82F13 08926	28.248	89.851	Lower Yarlung Tsangpo	M(e)	13.43	4,801
1436	03 82F13 08945	28.243	89.846	Lower Yarlung Tsangpo	E(o)	6.76	4,484
1437	03 82F14 08949	28.238	89.963	Lower Yarlung Tsangpo	M(e)	25.13	4,791
1438	03 82F15 08965	28.230	89.887	Lower Yarlung Tsangpo	E(o)	10.41	4,933
1439	03 82F15 08966	28.385	90.089	Lower Yarlung Tsangpo	M(o)	5.33	4,692
1440	03 82F15 08970	28.378	90.095	Lower Yarlung Tsangpo	M(o)	7.91	4,066
1441	03 82J01 08974	28.354	90.098	Lower Yarlung Tsangpo	M(e)	35.39	4,760
1442	03 82J01 08976	28.264	90.068	Lower Yarlung Tsangpo	M(e)	8.44	4,690
1443	03 82J01 08979	28.236	90.104	Lower Yarlung Tsangpo	E(o)	6.31	4,796
1444	03 82J01 08980	27.965	88.895	Lower Yarlung Tsangpo	E(o)	12.4	4,656
1445	03 82J02 08987	27.939	88.907	Lower Yarlung Tsangpo	M(e)	10.54	4,550
1446	03 82J02 08993	27.994	89.397	Lower Yarlung Tsangpo	E(o)	17.53	4,741
1447	03 82J02 08997	27.992	89.424	Lower Yarlung Tsangpo	M(e)	6.63	4,856
1448	03 82J03 09002	27.969	89.379	Lower Yarlung Tsangpo	M(o)	5.25	4,290
1449	03 82J03 09003	27.963	89.413	Lower Yarlung Tsangpo	M(o)	5.36	4,632
1450	03 82J03 09007	27.959	89.397	Lower Yarlung Tsangpo	M(e)	12.6	4,161
1451	03 82J05 09011	27.941	89.389	Lower Yarlung Tsangpo	M(e)	8.72	5,094
1452	03 82J05 09013	27.922	89.388	Lower Yarlung Tsangpo	M(o)	22.22	5,015
1453	03 82J05 09014	27.907	89.380	Lower Yarlung Tsangpo	M(o)	11.7	4,973
1454	03 82J05 09016	27.884	89.351	Lower Yarlung Tsangpo	M(e)	8.66	4,886
1455	03 82J05 09018	27.881	89.325	Lower Yarlung Tsangpo	E(o)	8.61	5,147
1456	03 82J06 09024	27.878	89.296	Lower Yarlung Tsangpo	M(e)	24.02	4,121
1457	03 82J06 09026	27.878	89.312	Lower Yarlung Tsangpo	M(e)	530.64	3,942
1458	03 82J06 09027	27.877	89.326	Lower Yarlung Tsangpo	M(e)	66.04	4,095
1459	03 82J06 09030	27.874	89.297	Lower Yarlung Tsangpo	M(o)	7.67	4,082
1460	03 82J07 09034	27.855	89.267	Lower Yarlung Tsangpo	E(o)	25.3	4,456
1461	03 82J07 09037	27.900	88.930	Lower Yarlung Tsangpo	M(o)	13.03	3,902
1462	03 82J07 09039	27.854	88.945	Lower Yarlung Tsangpo	E(o)	7.47	4,930
1463	03 82J08 09046	27.847	88.922	Lower Yarlung Tsangpo	M(o)	6.61	4,459
1464	03 82J08 09048	27.844	88.940	Lower Yarlung Tsangpo	M(o)	16.21	4,363
1465	03 82J08 09049	27.811	88.904	Lower Yarlung Tsangpo	M(o)	13.91	4,607
1466	03 82J11 09055	27.794	88.894	Lower Yarlung Tsangpo	M(e)	181.75	3,998
1467	03 82J11 09059	27.654	88.858	Lower Yarlung Tsangpo	E(o)	18.96	4,007
1468	03 82J11 09060	27.636	88.817	Lower Yarlung Tsangpo	M(o)	36.07	2,698
1469	03 82J14 09067	27.616	88.881	Lower Yarlung Tsangpo	M(e)	51.12	3,631
1470	03 82N02 09077	27.612	88.904	Lower Yarlung Tsangpo	M(l)	7.11	4,301
1471	03 82N03 09084	27.599	88.858	Lower Yarlung Tsangpo	M(e)	14.85	4,335
1472	03 82N03 09087	27.586	88.850	Lower Yarlung Tsangpo	M(e)	12.22	4,151
1473	03 82B08 09097	27.583	88.843	Lower Yarlung Tsangpo	E(o)	11.49	5,158
1474	03 82B08 09101	27.578	88.805	Lower Yarlung Tsangpo	E(o)	10.98	5,096
1475	03 82B08 09108	27.565	88.799	Lower Yarlung Tsangpo	E(o)	52.8	4,993
1476	03 82B08 09110	27.523	88.816	Lower Yarlung Tsangpo	E(o)	7.01	5,065
1477	03 82B08 09111	27.496	88.791	Lower Yarlung Tsangpo	E(o)	6.81	4,996
1478	03 82B08 09118	27.467	88.792	Lower Yarlung Tsangpo	E(o)	5.85	5,033
1479	03 82B11 09122	27.465	88.818	Lower Yarlung Tsangpo	E(o)	14.1	5,213
1480	03 82B11 09127	27.464	88.829	Lower Yarlung Tsangpo	E(o)	5.25	5,129
1481	03 82B12 09139	27.423	88.819	Lower Yarlung Tsangpo	E(o)	6	5,090
1482	03 82B12 09143	27.420	88.812	Lower Yarlung Tsangpo	E(o)	11.3	5,084
1483	03 82B12 09182	27.411	88.819	Lower Yarlung Tsangpo	E(o)	7.23	5,182
1484	03 82B12 09183	27.367	88.878	Lower Yarlung Tsangpo	E(o)	14.1	5,108
1485	03 82B15 09187	27.335	88.908	Lower Yarlung Tsangpo	E(o)	8.37	5,212
1486	03 82B15 09202	27.320	88.939	Lower Yarlung Tsangpo	E(o)	8.01	5,256
1487	03 82B15 09210	27.277	88.912	Lower Yarlung Tsangpo	E(o)	9.36	5,123
1488	03 82B15 09212	27.274	88.944	Lower Yarlung Tsangpo	E(o)	6.57	5,072
1489	03 82B15 09215	27.809	89.230	Lower Yarlung Tsangpo	E(o)	29.42	4,831
1490	03 82B15 09217	27.760	89.223	Lower Yarlung Tsangpo	E(o)	5.87	5,190
1491	03 82B15 09219	27.709	89.251	Lower Yarlung Tsangpo	E(o)	9.05	5,075
1492	03 82B15 09223	27.639	89.138	Lower Yarlung Tsangpo	E(o)	9.22	5,232
1493	03 82B16 09228	27.634	89.089	Lower Yarlung Tsangpo	E(o)	10.6	4,851
1494	03 82B16 09232	27.597	89.163	Lower Yarlung Tsangpo	E(o)	12.89	5,208
1495	03 82B16 09234	27.580	89.217	Lower Yarlung Tsangpo	E(o)	5.49	5,192
1496	03 82B16 09238	27.548	89.231	Lower Yarlung Tsangpo	E(o)	8.32	5,115
1497	03 82B16 09242	27.536	89.168	Lower Yarlung Tsangpo	E(o)	5.89	5,086
1498	03 82B16 09244	27.510	89.144	Lower Yarlung Tsangpo	E(o)	9.09	4,989
1499	03 82B16 09246	27.508	89.091	Lower Yarlung Tsangpo	E(o)	24.87	4,995
1500	03 82C01 09275	27.506	89.079	Lower Yarlung Tsangpo	E(o)	9.72	5,193
1501	03 82C01 09279	27.499	89.066	Lower Yarlung Tsangpo	0	7.66	5,158
1502	03 82C01 09280	27.498	89.093	Lower Yarlung Tsangpo	E(o)	37.73	5,161
1503	03 82C01 09281	27.494	89.192	Lower Yarlung Tsangpo	E(o)	25.14	4,992
1504	03 82C01 09282	27.492	89.149	Lower Yarlung Tsangpo	E(o)	9.38	5,114
1505	03 82C05 09293	27.492	89.135	Lower Yarlung Tsangpo	E(o)	6.6	5,043
1506	03 82C05 09313	27.484	89.021	Lower Yarlung Tsangpo	E(o)	7.29	5,091

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1507	03 82C05 09315	27.475	89.137	Lower Yarlung Tsangpo	E(o)	8.27	4,789
1508	03 82C05 09326	27.469	89.070	Lower Yarlung Tsangpo	E(o)	13.49	5,068
1509	03 82C05 09334	27.465	89.085	Lower Yarlung Tsangpo	E(o)	5.68	5,052
1510	03 82C05 09337	27.464	89.129	Lower Yarlung Tsangpo	E(o)	5.27	4,993
1511	03 82C06 09339	27.429	89.116	Lower Yarlung Tsangpo	E(o)	15.9	4,951
1512	03 82C10 09363	27.417	89.102	Lower Yarlung Tsangpo	M(o)	5.47	5,324
1513	03 82C10 09372	27.402	89.156	Lower Yarlung Tsangpo	M(o)	6.85	5,184
1514	03 82C10 09386	27.371	89.144	Lower Yarlung Tsangpo	E(o)	13.21	5,381
1515	03 82C10 09401	27.325	89.140	Lower Yarlung Tsangpo	E(o)	7.91	5,274
1516	03 82C10 09403	27.803	89.350	Lower Yarlung Tsangpo	M(o)	5.75	5,343
1517	03 82C10 09413	27.766	89.369	Lower Yarlung Tsangpo	M(e)	14.07	5,179
1518	03 82C13 09424	27.760	89.488	Lower Yarlung Tsangpo	M(e)	5.27	5,263
1519	03 82C13 09431	27.758	89.371	Lower Yarlung Tsangpo	M(e)	8.52	5,131
1520	03 82C13 09433	27.687	89.408	Lower Yarlung Tsangpo	E(o)	10.33	5,093
1521	03 82C13 09438	27.644	89.462	Lower Yarlung Tsangpo	M(e)	7.95	5,203
1522	03 82C14 09443	27.584	89.487	Lower Yarlung Tsangpo	M(e)	14.19	5,210
1523	03 82C14 09450	27.569	89.378	Lower Yarlung Tsangpo	M(o)	8.59	5,155
1524	03 82C14 09458	27.585	89.555	Lower Yarlung Tsangpo	E(o)	7.33	4,977
1525	03 82F03 09469	27.584	89.515	Lower Yarlung Tsangpo	E(o)	5.03	5,053
1526	03 82F03 09484	27.583	89.499	Lower Yarlung Tsangpo	M(o)	8.63	4,795
1527	03 82F03 09503	27.574	89.525	Lower Yarlung Tsangpo	M(o)	12.34	4,942
1528	03 82F04 09519	27.568	89.524	Lower Yarlung Tsangpo	E(o)	7.73	4,872
1529	03 82F04 09524	27.557	89.565	Lower Yarlung Tsangpo	M(o)	6.14	5,008
1530	03 82F04 09525	27.547	89.505	Lower Yarlung Tsangpo	M(o)	5.16	5,090
1531	03 82F04 09538	27.534	89.530	Lower Yarlung Tsangpo	E(c)	9.65	5,157
1532	03 82F04 09548	27.267	89.706	Lower Yarlung Tsangpo	E(o)	32.59	5,014
1533	03 82F07 09557	27.260	89.705	Lower Yarlung Tsangpo	M(e)	8.7	4,802
1534	03 82F07 09574	27.243	89.692	Lower Yarlung Tsangpo	E(o)	23.62	4,549
1535	03 82F07 09576	27.330	88.846	Lower Yarlung Tsangpo	M(e)	47.25	4,613
1536	03 82F07 09584	27.328	88.885	Lower Yarlung Tsangpo	M(o)	7	4,651
1537	03 82F07 09585	28.171	89.684	Lower Yarlung Tsangpo	E(o)	16.83	4,544
1538	03 82F07 09589	28.139	89.742	Lower Yarlung Tsangpo	M(o)	70.57	4,076
1539	03 82F07 09591	28.136	89.641	Lower Yarlung Tsangpo	E(c)	5.52	4,620
1540	03 82F08 09594	28.127	89.648	Lower Yarlung Tsangpo	E(o)	8.95	4,412
1541	03 82F08 09609	28.115	89.648	Lower Yarlung Tsangpo	E(o)	14.34	4,873
1542	03 82F08 09610	28.115	89.602	Lower Yarlung Tsangpo	E(o)	5.28	4,749
1543	03 82F08 09619	28.106	89.614	Lower Yarlung Tsangpo	E(o)	7.96	4,845
1544	03 82F08 09625	28.070	89.516	Lower Yarlung Tsangpo	E(o)	32.7	4,630
1545	03 82F08 09627	28.044	89.554	Lower Yarlung Tsangpo	M(o)	33.54	4,704
1546	03 82F08 09628	28.042	89.627	Lower Yarlung Tsangpo	E(c)	5.26	5,139
1547	03 82F08 09633	28.028	89.600	Lower Yarlung Tsangpo	M(e)	8.12	4,962
1548	03 82F08 09638	28.172	89.848	Lower Yarlung Tsangpo	E(o)	10.08	4,950
1549	03 82F08 09639	28.167	89.852	Lower Yarlung Tsangpo	E(o)	6.06	4,881
1550	03 82F08 09647	28.156	89.868	Lower Yarlung Tsangpo	M(o)	11.84	5,065
1551	03 82F08 09651	28.145	89.841	Lower Yarlung Tsangpo	E(o)	10.38	4,888
1552	03 82F08 09654	28.114	89.909	Lower Yarlung Tsangpo	E(o)	17.78	4,928
1553	03 82F08 09661	28.105	89.898	Lower Yarlung Tsangpo	E(o)	7.83	4,616
1554	03 82F08 09663	28.061	89.770	Lower Yarlung Tsangpo	E(o)	21.26	4,772
1555	03 82F08 09672	28.036	89.894	Lower Yarlung Tsangpo	E(o)	40.99	4,696
1556	03 82F08 09673	28.030	89.855	Lower Yarlung Tsangpo	E(o)	5.18	5,130
1557	03 82F12 09686	28.030	89.893	Lower Yarlung Tsangpo	E(o)	11.57	4,482
1558	03 82F12 09688	28.012	89.868	Lower Yarlung Tsangpo	M(e)	108.96	4,181
1559	03 82F12 09689	28.011	89.884	Lower Yarlung Tsangpo	E(o)	8.47	4,355
1560	03 82F12 09690	28.007	89.863	Lower Yarlung Tsangpo	E(o)	11.77	4,337
1561	03 82F12 09691	28.005	89.956	Lower Yarlung Tsangpo	E(o)	10	4,171
1562	03 82F12 09699	28.001	89.890	Lower Yarlung Tsangpo	M(o)	12.21	4,227
1563	03 82F12 09705	28.112	90.028	Lower Yarlung Tsangpo	E(o)	7.63	4,745
1564	03 82F12 09706	28.107	90.247	Lower Yarlung Tsangpo	M(e)	13.41	4,601
1565	03 82F12 09707	28.102	90.231	Lower Yarlung Tsangpo	E(o)	13.86	4,178
1566	03 82F12 09708	28.095	90.043	Lower Yarlung Tsangpo	E(o)	5.32	4,861
1567	03 82F12 09710	28.091	90.041	Lower Yarlung Tsangpo	M(e)	15.56	4,847
1568	03 82F12 09713	28.083	90.113	Lower Yarlung Tsangpo	E(o)	8.77	4,907
1569	03 82F12 09714	28.076	90.083	Lower Yarlung Tsangpo	E(o)	9.57	4,505
1570	03 82F12 09720	28.069	90.084	Lower Yarlung Tsangpo	E(o)	7.7	4,429
1571	03 82F12 09724	28.066	90.231	Lower Yarlung Tsangpo	E(o)	16.31	4,516
1572	03 82F12 09743	28.060	90.029	Lower Yarlung Tsangpo	E(o)	9.07	4,677
1573	03 82F15 09750	28.057	90.249	Lower Yarlung Tsangpo	M(e)	64.75	4,019
1574	03 82F16 09751	28.033	90.058	Lower Yarlung Tsangpo	E(o)	23.37	4,320
1575	03 82F16 09753	28.023	90.194	Lower Yarlung Tsangpo	M(e)	20.39	4,195
1576	03 82F16 09755	28.022	90.179	Lower Yarlung Tsangpo	E(o)	9.23	4,750
1577	03 82F16 09758	28.016	90.210	Lower Yarlung Tsangpo	M(e)	9.85	4,213
1578	03 82F16 09764	28.011	90.187	Lower Yarlung Tsangpo	M(o)	9.77	4,786
1579	03 82F16 09767	28.009	90.161	Lower Yarlung Tsangpo	E(c)	21.21	4,840
1580	03 82F16 09768	28.008	90.149	Lower Yarlung Tsangpo	E(c)	15.8	4,615

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1581	03 82F16 09770	28.007	90.106	Lower Yarlung Tsangpo	E(c)	7.06	4,446
1582	03 82F16 09771	28.006	90.139	Lower Yarlung Tsangpo	O	20.24	3,751
1583	03 82F16 09776	28.003	90.150	Lower Yarlung Tsangpo	E(v)	2658.49	3,475
1584	03 82G01 09794	28.002	90.139	Lower Yarlung Tsangpo	E(o)	5.88	5,031
1585	03 82G01 09805	28.092	90.301	Lower Yarlung Tsangpo	M(e)	5.84	5,212
1586	03 82G01 09817	28.086	90.326	Lower Yarlung Tsangpo	E(o)	5.91	5,183
1587	03 82G01 09827	28.071	90.310	Lower Yarlung Tsangpo	M(o)	11.17	5,360
1588	03 82G01 09834	28.059	90.313	Lower Yarlung Tsangpo	M(e)	8.46	5,072
1589	03 82G01 09840	28.058	90.263	Lower Yarlung Tsangpo	E(o)	5.09	5,222
1590	03 82G01 09854	28.030	90.295	Lower Yarlung Tsangpo	E(c)	23.92	5,076
1591	03 82G01 09855	28.028	90.271	Lower Yarlung Tsangpo	M(o)	8.63	5,097
1592	03 82G01 09862	28.012	90.280	Lower Yarlung Tsangpo	E(o)	10.51	5,099
1593	03 82G02 09867	28.008	90.276	Lower Yarlung Tsangpo	E(o)	15.14	4,943
1594	03 82G02 09868	27.928	89.456	Lower Yarlung Tsangpo	E(o)	5.5	5,049
1595	03 82G02 09880	27.839	89.389	Lower Yarlung Tsangpo	E(o)	16.51	4,939
1596	03 82G02 09888	27.972	89.642	Lower Yarlung Tsangpo	M(o)	5.22	5,299
1597	03 82G02 09897	27.970	89.612	Lower Yarlung Tsangpo	M(e)	6.95	4,866
1598	03 82G02 09907	27.961	89.655	Lower Yarlung Tsangpo	E(o)	8.71	5,193
1599	03 82G02 09914	27.961	89.663	Lower Yarlung Tsangpo	E(o)	5.44	5,216
1600	03 82G02 09916	27.948	89.649	Lower Yarlung Tsangpo	M(o)	5.63	5,379
1601	03 82G02 09934	27.922	89.636	Lower Yarlung Tsangpo	E(o)	5.19	5,258
1602	03 82G02 09942	27.911	89.651	Lower Yarlung Tsangpo	E(o)	16.98	5,180
1603	03 82G02 09952	27.840	89.600	Lower Yarlung Tsangpo	E(o)	5.79	5,077
1604	03 82G02 09954	27.803	89.628	Lower Yarlung Tsangpo	E(o)	11.28	5,018
1605	03 82G02 09956	27.738	89.611	Lower Yarlung Tsangpo	E(o)	7.37	5,042
1606	03 82G02 09959	27.266	89.726	Lower Yarlung Tsangpo	E(o)	13.09	5,210
1607	03 82G02 09967	27.260	89.730	Lower Yarlung Tsangpo	E(o)	5.21	5,145
1608	03 82G03 09968	27.988	89.892	Lower Yarlung Tsangpo	E(o)	6.2	5,068
1609	03 82G03 09973	27.982	89.896	Lower Yarlung Tsangpo	E(o)	7.65	5,163
1610	03 82G05 09974	27.974	89.896	Lower Yarlung Tsangpo	E(c)	20.57	4,873
1611	03 82G05 09981	27.973	89.930	Lower Yarlung Tsangpo	E(o)	5.6	4,887
1612	03 82G05 10004	27.963	89.846	Lower Yarlung Tsangpo	E(o)	10.39	5,069
1613	03 82G05 10007	27.951	89.881	Lower Yarlung Tsangpo	E(c)	5.18	5,014
1614	03 82G05 10014	27.949	89.933	Lower Yarlung Tsangpo	E(o)	7.4	4,909
1615	03 82G06 10029	27.940	89.930	Lower Yarlung Tsangpo	E(o)	8.77	5,109
1616	03 82G06 10036	27.940	89.906	Lower Yarlung Tsangpo	E(o)	30.64	4,476
1617	03 82G06 10041	27.936	89.884	Lower Yarlung Tsangpo	E(o)	12.7	5,001
1618	03 82G06 10042	27.928	89.900	Lower Yarlung Tsangpo	E(o)	6.13	4,712
1619	03 82G06 10045	27.923	89.933	Lower Yarlung Tsangpo	E(o)	9.7	4,814
1620	03 82G06 10048	27.922	89.886	Lower Yarlung Tsangpo	E(o)	6.61	4,880
1621	03 82G06 10053	27.920	89.810	Lower Yarlung Tsangpo	E(o)	5.91	5,051
1622	03 82G06 10054	27.915	89.861	Lower Yarlung Tsangpo	E(o)	13.27	4,967
1623	03 82G06 10055	27.909	89.897	Lower Yarlung Tsangpo	M(e)	26.37	4,738
1624	03 82G06 10057	27.903	89.898	Lower Yarlung Tsangpo	M(o)	11.73	5,137
1625	03 82G06 10061	27.896	89.885	Lower Yarlung Tsangpo	E(o)	6.12	5,006
1626	03 82G06 10065	27.894	89.944	Lower Yarlung Tsangpo	M(e)	8.5	4,829
1627	03 82G06 10066	27.885	89.949	Lower Yarlung Tsangpo	E(o)	5.36	5,040
1628	03 82G06 10067	27.880	89.846	Lower Yarlung Tsangpo	O	7.01	4,596
1629	03 82G06 10072	27.877	89.845	Lower Yarlung Tsangpo	E(o)	11.69	4,512
1630	03 82G06 10075	27.870	89.843	Lower Yarlung Tsangpo	E(o)	32.35	4,604
1631	03 82G06 10077	27.864	89.926	Lower Yarlung Tsangpo	E(o)	5.91	4,870
1632	03 82G06 10084	27.859	89.969	Lower Yarlung Tsangpo	E(o)	8.15	4,627
1633	03 82G06 10090	27.855	89.798	Lower Yarlung Tsangpo	E(o)	13.97	4,784
1634	03 82G06 10094	27.843	89.910	Lower Yarlung Tsangpo	E(o)	100.03	4,631
1635	03 82G10 10154	27.839	89.945	Lower Yarlung Tsangpo	M(o)	5.38	5,030
1636	03 82G10 10173	27.835	89.912	Lower Yarlung Tsangpo	E(c)	9.34	5,051
1637	03 82G10 10174	27.833	89.960	Lower Yarlung Tsangpo	E(o)	19.85	4,738
1638	03 82G10 10180	27.829	89.944	Lower Yarlung Tsangpo	M(e)	5.35	4,669
1639	03 82G10 10182	27.825	89.957	Lower Yarlung Tsangpo	E(o)	8.61	4,566
1640	03 82G10 10183	27.823	89.869	Lower Yarlung Tsangpo	E(o)	44.35	4,563
1641	03 82G10 10184	27.815	89.939	Lower Yarlung Tsangpo	E(o)	6.4	4,694
1642	03 82G10 10195	27.813	89.849	Lower Yarlung Tsangpo	E(o)	17.97	4,734
1643	03 82G10 10196	27.809	89.923	Lower Yarlung Tsangpo	E(o)	20.77	4,995
1644	03 82G10 10200	27.807	89.846	Lower Yarlung Tsangpo	E(o)	12.48	4,945
1645	03 82G10 10203	27.807	89.861	Lower Yarlung Tsangpo	E(o)	34.03	4,549
1646	03 82G10 10208	27.793	89.843	Lower Yarlung Tsangpo	E(c)	10.59	4,699
1647	03 82G10 10212	27.773	89.843	Lower Yarlung Tsangpo	E(o)	7.6	5,088
1648	03 82G10 10219	27.997	90.233	Lower Yarlung Tsangpo	E(o)	5.85	5,037
1649	03 82G10 10220	27.995	90.222	Lower Yarlung Tsangpo	E(o)	6.96	4,922
1650	03 82G10 10223	27.991	90.216	Lower Yarlung Tsangpo	E(o)	7.35	5,139
1651	03 82G10 10230	27.991	90.142	Lower Yarlung Tsangpo	E(o)	6.8	4,646
1652	03 82G10 10231	27.988	90.131	Lower Yarlung Tsangpo	E(o)	7.74	4,939
1653	03 82G10 10232	27.985	90.149	Lower Yarlung Tsangpo	E(o)	8.42	4,647
1654	03 82G10 10240	27.982	90.245	Lower Yarlung Tsangpo	E(o)	7.45	4,875

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1655	03 82G10 10245	27.977	90.233	Lower Yarlung Tsangpo	E(o)	6.46	4,349
1656	03 82G10 10246	27.970	90.210	Lower Yarlung Tsangpo	E(o)	30.15	4,549
1657	03 82G10 10253	27.968	90.115	Lower Yarlung Tsangpo	O	79.97	4,362
1658	03 82G10 10255	27.964	90.147	Lower Yarlung Tsangpo	E(o)	39.25	4,344
1659	03 82G11 10262	27.956	90.150	Lower Yarlung Tsangpo	E(o)	82.79	4,369
1660	03 82G11 10269	27.956	90.245	Lower Yarlung Tsangpo	E(o)	15.28	4,856
1661	03 82G11 10272	27.954	90.078	Lower Yarlung Tsangpo	E(o)	7.65	4,437
1662	03 82G11 10273	27.942	90.095	Lower Yarlung Tsangpo	E(o)	11.1	4,894
1663	03 82G11 10276	27.941	90.190	Lower Yarlung Tsangpo	E(o)	14.82	4,414
1664	03 82G13 10286	27.939	90.155	Lower Yarlung Tsangpo	E(o)	21.53	4,239
1665	03 82G13 10291	27.931	90.209	Lower Yarlung Tsangpo	E(o)	11.86	4,453
1666	03 82G13 10295	27.931	90.090	Lower Yarlung Tsangpo	E(o)	5.21	4,158
1667	03 82G13 10296	27.922	90.215	Lower Yarlung Tsangpo	E(o)	6.49	4,195
1668	03 82G13 10300	27.920	90.075	Lower Yarlung Tsangpo	E(o)	13.27	4,492
1669	03 82G13 10303	27.916	90.209	Lower Yarlung Tsangpo	E(o)	8.66	4,632
1670	03 82G13 10311	27.916	90.068	Lower Yarlung Tsangpo	E(o)	9.45	4,543
1671	03 82G13 10312	27.916	90.077	Lower Yarlung Tsangpo	E(c)	16.5	4,552
1672	03 82G13 10313	27.915	90.244	Lower Yarlung Tsangpo	E(o)	18.71	4,592
1673	03 82G14 10329	27.912	90.172	Lower Yarlung Tsangpo	E(o)	6.27	4,675
1674	03 82G14 10336	27.901	90.173	Lower Yarlung Tsangpo	E(o)	8	4,704
1675	03 82G14 10343	27.894	90.180	Lower Yarlung Tsangpo	E(o)	5.98	4,852
1676	03 82G14 10346	27.893	90.219	Lower Yarlung Tsangpo	E(c)	15.21	4,490
1677	03 82G14 10360	27.881	90.112	Lower Yarlung Tsangpo	E(o)	9.55	4,595
1678	03 82G14 10368	27.877	90.179	Lower Yarlung Tsangpo	E(o)	6.92	4,890
1679	03 82G14 10370	27.877	90.185	Lower Yarlung Tsangpo	E(o)	15.45	4,409
1680	03 82G14 10373	27.876	90.098	Lower Yarlung Tsangpo	E(o)	11.21	4,622
1681	03 82G14 10374	27.875	90.207	Lower Yarlung Tsangpo	E(o)	5.86	4,955
1682	03 82G14 10375	27.857	90.191	Lower Yarlung Tsangpo	E(o)	9.78	5,004
1683	03 82G14 10377	27.850	90.191	Lower Yarlung Tsangpo	E(o)	5.54	5,037
1684	03 82G14 10390	27.850	90.213	Lower Yarlung Tsangpo	E(o)	6.73	4,480
1685	03 82G14 10392	27.848	90.246	Lower Yarlung Tsangpo	E(o)	18.93	4,669
1686	03 82G14 10393	27.845	90.131	Lower Yarlung Tsangpo	E(o)	33.63	4,786
1687	03 82G14 10397	27.845	90.216	Lower Yarlung Tsangpo	E(o)	5.69	4,474
1688	03 82G14 10404	27.837	90.237	Lower Yarlung Tsangpo	E(o)	6.05	4,830
1689	03 82G14 10405	27.836	90.186	Lower Yarlung Tsangpo	E(o)	11.96	4,610
1690	03 82G14 10415	27.829	90.157	Lower Yarlung Tsangpo	O	11.57	4,479
1691	03 82G14 10423	27.827	90.222	Lower Yarlung Tsangpo	E(c)	21.21	4,840
1692	03 82G14 10426	27.820	90.210	Lower Yarlung Tsangpo	E(o)	6.18	4,519
1693	03 82G14 10427	27.806	90.207	Lower Yarlung Tsangpo	E(o)	56.22	4,419
1694	03 82G14 10428	27.802	90.239	Lower Yarlung Tsangpo	E(o)	6.71	5,009
1695	03 82G14 10431	27.802	90.165	Lower Yarlung Tsangpo	E(o)	9.16	4,499
1696	03 82G14 10437	27.800	90.231	Lower Yarlung Tsangpo	E(o)	7.54	4,410
1697	03 82G14 10443	27.793	90.200	Lower Yarlung Tsangpo	E(o)	11.62	4,276
1698	03 82G14 10444	27.780	90.211	Lower Yarlung Tsangpo	E(o)	7.13	4,785
1699	03 82G14 10448	27.773	90.209	Lower Yarlung Tsangpo	E(o)	40.89	4,555
1700	03 82G14 10449	27.765	90.212	Lower Yarlung Tsangpo	E(c)	7.14	4,705
1701	03 82G14 10450	27.761	90.172	Lower Yarlung Tsangpo	E(o)	21.65	4,504
1702	03 82G14 10452	27.757	90.196	Lower Yarlung Tsangpo	E(o)	5.89	4,577
1703	03 82G14 10453	27.753	90.164	Lower Yarlung Tsangpo	E(o)	17.72	4,619
1704	03 82G14 10454	27.740	90.187	Lower Yarlung Tsangpo	E(c)	6.19	4,784
1705	03 82G14 10455	27.738	90.160	Lower Yarlung Tsangpo	E(o)	56.29	4,444
1706	03 82G15 10459	27.720	90.172	Lower Yarlung Tsangpo	E(c)	13.03	4,704
1707	03 82J04 10481	27.996	90.288	Lower Yarlung Tsangpo	E(o)	12.34	4,318
1708	03 82J04 10482	27.995	90.261	Lower Yarlung Tsangpo	M(o)	6.02	3,974
1709	03 82J04 10483	27.992	90.299	Lower Yarlung Tsangpo	E(o)	276.68	3,802
1710	03 82J04 10484	27.988	90.263	Lower Yarlung Tsangpo	M(e)	94.4	3,905
1711	03 82J04 10486	27.964	90.259	Lower Yarlung Tsangpo	E(o)	35.47	4,616
1712	03 82J04 10489	27.952	90.255	Lower Yarlung Tsangpo	E(o)	107.17	4,294
1713	03 82J04 10493	27.925	90.259	Lower Yarlung Tsangpo	E(o)	11.82	4,356
1714	03 82J08 10499	27.919	90.262	Lower Yarlung Tsangpo	M(e)	68.1	3,924
1715	03 82J08 10500	27.897	90.252	Lower Yarlung Tsangpo	M(o)	7.34	4,565
1716	03 82K01 10506	27.862	90.254	Lower Yarlung Tsangpo	E(o)	9.73	4,411
1717	03 82K01 10511	27.844	90.258	Lower Yarlung Tsangpo	E(o)	8.19	4,544
1718	03 82K01 10514	27.841	90.253	Lower Yarlung Tsangpo	O	19.33	4,052
1719	03 82K01 10520	27.764	90.276	Lower Yarlung Tsangpo	O	16.7	4,059
1720	03 82K01 10534	27.295	90.355	Lower Yarlung Tsangpo	O	5.34	4,328
1721	03 82K01 10543	30.075	90.157	Lower Yarlung Tsangpo	E(o)	6.88	4,521
1722	03 82K01 10544	30.070	90.153	Lower Yarlung Tsangpo	E(o)	28.27	4,444
1723	03 82K01 10546	30.369	90.453	Lower Yarlung Tsangpo	O	5.4	4,392
1724	03 82K01 10547	30.366	90.457	Lower Yarlung Tsangpo	E(o)	9.37	4,393
1725	03 82K01 10553	30.351	90.498	Lower Yarlung Tsangpo	E(o)	5.08	4,421
1726	03 82K01 10555	30.285	90.458	Lower Yarlung Tsangpo	E(o)	5.45	4,379
1727	03 82K01 10558	30.473	90.702	Lower Yarlung Tsangpo	E(o)	13.62	4,448
1728	03 82K01 10565	30.467	90.708	Lower Yarlung Tsangpo	E(o)	8.77	4,470

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1729	03 82K01 10566	30.451	90.651	Lower Yarlung Tsangpo	E(o)	8.89	4,700
1730	03 82K01 10567	30.446	90.649	Lower Yarlung Tsangpo	E(o)	5.54	4,331
1731	03 82K01 10568	30.442	90.626	Lower Yarlung Tsangpo	E(o)	10.11	4,320
1732	03 82K01 10579	30.440	90.687	Lower Yarlung Tsangpo	E(o)	8.04	4,598
1733	03 82K01 10582	30.259	90.558	Lower Yarlung Tsangpo	E(o)	7.25	4,487
1734	03 82K01 10584	30.548	90.912	Lower Yarlung Tsangpo	E(o)	12.74	4,390
1735	03 82K01 10585	30.518	90.828	Lower Yarlung Tsangpo	E(o)	16.2	4,723
1736	03 82K01 10588	30.510	90.939	Lower Yarlung Tsangpo	E(o)	6.2	4,362
1737	03 82K01 10590	30.508	90.832	Lower Yarlung Tsangpo	E(c)	45.22	4,558
1738	03 82K02 10598	30.502	90.912	Lower Yarlung Tsangpo	E(o)	6.11	4,722
1739	03 82K02 10599	30.499	90.947	Lower Yarlung Tsangpo	E(o)	16.43	4,583
1740	03 82K02 10605	30.479	90.966	Lower Yarlung Tsangpo	E(o)	11.91	4,503
1741	03 82K02 10607	30.477	90.910	Lower Yarlung Tsangpo	E(o)	9.74	4,674
1742	03 82K02 10608	29.894	90.236	Lower Yarlung Tsangpo	E(o)	12.66	4,808
1743	03 82K02 10609	29.791	90.246	Lower Yarlung Tsangpo	E(o)	17.46	4,711
1744	03 82K02 10610	29.776	90.205	Lower Yarlung Tsangpo	E(o)	9.49	4,589
1745	03 82K02 10613	29.652	90.612	Lower Yarlung Tsangpo	E(o)	12.48	4,716
1746	03 82K02 10616	29.615	90.605	Lower Yarlung Tsangpo	E(o)	25.65	4,690
1747	03 82K02 10620	29.604	90.612	Lower Yarlung Tsangpo	E(o)	20.8	4,730
1748	03 82K02 10631	29.603	90.657	Lower Yarlung Tsangpo	E(o)	7.68	5,001
1749	03 82K02 10632	29.586	90.545	Lower Yarlung Tsangpo	E(o)	6.73	4,682
1750	03 82K02 10638	30.944	91.488	Lower Yarlung Tsangpo	E(o)	14.46	4,509
1751	03 82K02 10642	30.792	91.456	Lower Yarlung Tsangpo	E(o)	6.07	4,638
1752	03 82K02 10643	30.700	91.712	Lower Yarlung Tsangpo	E(o)	12.26	4,673
1753	03 82K02 10655	30.702	91.815	Lower Yarlung Tsangpo	E(o)	17.57	4,598
1754	03 82K02 10657	30.209	91.966	Lower Yarlung Tsangpo	E(o)	12.53	4,751
1755	03 82K02 10659	30.187	91.988	Lower Yarlung Tsangpo	E(o)	12.32	4,578
1756	03 82K02 10660	30.177	91.995	Lower Yarlung Tsangpo	E(o)	24.97	4,579
1757	03 82K02 10661	29.614	91.564	Lower Yarlung Tsangpo	E(o)	50.77	4,299
1758	03 82K02 10664	29.556	91.638	Lower Yarlung Tsangpo	E(o)	14.75	4,631
1759	03 82K02 10669	29.580	91.964	Lower Yarlung Tsangpo	E(o)	8.15	4,527
1760	03 82K02 10670	31.102	92.699	Lower Yarlung Tsangpo	E(o)	36.72	4,520
1761	03 82K02 10673	31.086	92.724	Lower Yarlung Tsangpo	E(o)	25.24	4,509
1762	03 82K02 10682	31.256	92.984	Lower Yarlung Tsangpo	E(o)	5.01	4,833
1763	03 82K02 10684	31.154	92.817	Lower Yarlung Tsangpo	E(c)	13.47	4,691
1764	03 82K02 10685	31.138	92.998	Lower Yarlung Tsangpo	E(o)	31.13	4,262
1765	03 82K02 10686	31.120	92.833	Lower Yarlung Tsangpo	E(o)	6.29	4,861
1766	03 82K02 10688	31.119	92.816	Lower Yarlung Tsangpo	E(o)	78	4,533
1767	03 82K02 10691	31.115	92.945	Lower Yarlung Tsangpo	E(c)	5.33	4,625
1768	03 82K02 10693	31.112	92.815	Lower Yarlung Tsangpo	E(o)	11.8	4,520
1769	03 82K02 10696	31.109	92.952	Lower Yarlung Tsangpo	E(o)	118.34	4,501
1770	03 82K02 10701	31.105	92.767	Lower Yarlung Tsangpo	E(o)	11.22	4,737
1771	03 82K02 10703	31.070	92.935	Lower Yarlung Tsangpo	E(o)	101.69	4,577
1772	03 82K03 10706	31.063	92.981	Lower Yarlung Tsangpo	E(o)	10.99	4,490
1773	03 82K03 10707	31.062	92.995	Lower Yarlung Tsangpo	E(o)	13.64	4,720
1774	03 82K03 10711	31.056	92.966	Lower Yarlung Tsangpo	E(o)	15.99	4,512
1775	03 82K03 10713	31.053	92.904	Lower Yarlung Tsangpo	E(c)	7.61	4,536
1776	03 82K03 10714	31.052	92.961	Lower Yarlung Tsangpo	E(o)	7.76	4,876
1777	03 82K03 10715	31.051	92.812	Lower Yarlung Tsangpo	E(o)	12.02	4,608
1778	03 82K03 10717	31.036	92.787	Lower Yarlung Tsangpo	E(o)	6.9	4,533
1779	03 82K03 10726	31.033	92.856	Lower Yarlung Tsangpo	E(o)	14.43	4,632
1780	03 82K03 10727	31.010	92.826	Lower Yarlung Tsangpo	E(o)	14.33	4,420
1781	03 82K03 10729	31.010	92.928	Lower Yarlung Tsangpo	E(o)	8.5	4,644
1782	03 82K03 10730	31.004	92.830	Lower Yarlung Tsangpo	E(o)	50.8	4,509
1783	03 82K03 10731	30.766	92.009	Lower Yarlung Tsangpo	E(o)	16.17	4,432
1784	03 82K03 10732	30.658	92.021	Lower Yarlung Tsangpo	E(o)	12.19	4,602
1785	03 82K03 10733	30.340	92.229	Lower Yarlung Tsangpo	E(o)	6.46	4,476
1786	03 82K03 10739	30.192	92.009	Lower Yarlung Tsangpo	E(o)	6.69	4,613
1787	03 82K03 10744	30.170	92.002	Lower Yarlung Tsangpo	E(c)	6.1	4,527
1788	03 82K03 10753	30.060	92.215	Lower Yarlung Tsangpo	E(o)	10.83	4,730
1789	03 82K03 10763	30.217	92.423	Lower Yarlung Tsangpo	E(o)	10.18	4,487
1790	03 82K03 10764	30.199	92.413	Lower Yarlung Tsangpo	E(o)	18.25	4,316
1791	03 82K05 10780	30.081	92.390	Lower Yarlung Tsangpo	E(o)	19.39	4,289
1792	03 82K05 10781	30.078	92.406	Lower Yarlung Tsangpo	E(o)	9.29	4,790
1793	03 82K05 10784	30.048	92.364	Lower Yarlung Tsangpo	E(c)	8.44	4,842
1794	03 82K05 10788	30.754	92.745	Lower Yarlung Tsangpo	E(c)	183.14	4,385
1795	03 82K05 10792	30.523	92.717	Lower Yarlung Tsangpo	E(o)	11.51	4,391
1796	03 82K05 10794	30.507	92.735	Lower Yarlung Tsangpo	E(o)	6.31	4,597
1797	03 82K05 10796	30.494	92.646	Lower Yarlung Tsangpo	E(o)	13.12	4,465
1798	03 82K05 10798	30.438	92.679	Lower Yarlung Tsangpo	E(o)	7.25	4,292
1799	03 82K05 10800	30.390	92.671	Lower Yarlung Tsangpo	E(o)	24.56	4,288
1800	03 82K05 10804	30.381	92.743	Lower Yarlung Tsangpo	E(o)	26.51	4,265
1801	03 82K05 10806	30.350	92.735	Lower Yarlung Tsangpo	0	12.37	4,575
1802	03 82K05 10807	30.323	92.651	Lower Yarlung Tsangpo	E(o)	5.69	4,583

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1803	03 82K05 10810	30.292	92.682	Lower Yarlung Tsangpo	E(o)	6.23	4,767
1804	03 82K05 10832	30.288	92.511	Lower Yarlung Tsangpo	0	9.47	4,677
1805	03 82K05 10837	30.276	92.518	Lower Yarlung Tsangpo	E(o)	6.96	4,728
1806	03 82K05 10839	30.261	92.510	Lower Yarlung Tsangpo	E(o)	7.73	4,551
1807	03 82K05 10841	30.256	92.596	Lower Yarlung Tsangpo	E(o)	6.32	4,376
1808	03 82K05 10842	30.253	92.503	Lower Yarlung Tsangpo	E(o)	15.32	4,612
1809	03 82K05 10843	30.253	92.548	Lower Yarlung Tsangpo	E(o)	14.73	4,403
1810	03 82K05 10845	30.237	92.549	Lower Yarlung Tsangpo	E(o)	57.27	4,133
1811	03 82K05 10848	30.231	92.563	Lower Yarlung Tsangpo	E(o)	24.21	4,439
1812	03 82K05 10849	30.230	92.506	Lower Yarlung Tsangpo	E(o)	7.07	4,650
1813	03 82K05 10852	30.218	92.536	Lower Yarlung Tsangpo	0	228.43	4,083
1814	03 82K05 10857	30.217	92.569	Lower Yarlung Tsangpo	E(o)	8.1	4,589
1815	03 82K05 10859	30.216	92.517	Lower Yarlung Tsangpo	E(o)	6.31	4,681
1816	03 82K05 10861	30.210	92.573	Lower Yarlung Tsangpo	E(o)	7.06	4,572
1817	03 82K05 10862	30.189	92.541	Lower Yarlung Tsangpo	E(o)	23.84	4,412
1818	03 82K05 10872	30.164	92.541	Lower Yarlung Tsangpo	E(o)	13.38	4,463
1819	03 82K05 10873	30.999	92.990	Lower Yarlung Tsangpo	E(o)	18	4,417
1820	03 82K05 10875	30.996	92.832	Lower Yarlung Tsangpo	E(o)	7.2	4,421
1821	03 82K05 10877	30.996	92.818	Lower Yarlung Tsangpo	E(o)	9.06	4,439
1822	03 82K06 10880	30.988	92.889	Lower Yarlung Tsangpo	E(c)	16.75	4,534
1823	03 82K06 10883	30.976	92.941	Lower Yarlung Tsangpo	E(o)	37.2	4,552
1824	03 82K06 10885	30.957	92.825	Lower Yarlung Tsangpo	E(o)	8.09	4,490
1825	03 82K06 10888	30.956	92.867	Lower Yarlung Tsangpo	E(o)	6.08	4,519
1826	03 82K06 10889	30.949	92.890	Lower Yarlung Tsangpo	E(o)	17.55	4,529
1827	03 82K06 10898	30.935	92.828	Lower Yarlung Tsangpo	E(o)	5.72	4,540
1828	03 82K06 10899	30.934	92.775	Lower Yarlung Tsangpo	M(o)	10.49	4,609
1829	03 82K06 10901	30.931	92.761	Lower Yarlung Tsangpo	E(c)	5.07	4,420
1830	03 82K06 10916	30.906	92.817	Lower Yarlung Tsangpo	E(o)	14.61	4,312
1831	03 82K06 10925	30.896	92.910	Lower Yarlung Tsangpo	E(o)	6.18	4,530
1832	03 82K07 10936	30.894	92.951	Lower Yarlung Tsangpo	E(o)	6.75	4,607
1833	03 82K07 10952	30.893	92.860	Lower Yarlung Tsangpo	E(o)	9.24	4,394
1834	03 82K07 10954	30.879	92.881	Lower Yarlung Tsangpo	E(o)	6.36	4,460
1835	03 82K09 10959	30.878	92.860	Lower Yarlung Tsangpo	E(o)	17.7	4,594
1836	03 82K09 10962	30.749	92.851	Lower Yarlung Tsangpo	0	55.81	4,305
1837	03 82K09 10963	30.739	92.775	Lower Yarlung Tsangpo	E(o)	9.63	4,567
1838	03 82K09 10964	30.737	92.889	Lower Yarlung Tsangpo	E(o)	27.91	4,497
1839	03 82K09 10965	30.736	92.875	Lower Yarlung Tsangpo	E(o)	18.97	4,585
1840	03 82K10 10967	30.553	92.871	Lower Yarlung Tsangpo	E(o)	6.9	4,413
1841	03 82K10 10969	30.488	92.757	Lower Yarlung Tsangpo	E(o)	8.68	4,463
1842	03 82K10 10973	30.451	92.776	Lower Yarlung Tsangpo	E(o)	7.12	4,480
1843	03 77O10 10991	30.408	92.777	Lower Yarlung Tsangpo	E(o)	5.64	5,253
1844	03 77O11 10997	29.989	92.191	Lower Yarlung Tsangpo	E(o)	9.33	5,274
1845	03 77O11 10998	29.972	92.223	Lower Yarlung Tsangpo	E(o)	10.39	5,296
1846	03 77O11 11004	29.965	92.194	Lower Yarlung Tsangpo	E(o)	8.52	5,148
1847	03 77O14 11008	29.965	92.201	Lower Yarlung Tsangpo	E(o)	8.78	5,174
1848	03 77O14 11016	29.928	92.068	Lower Yarlung Tsangpo	E(o)	8.82	5,322
1849	03 77O14 11018	29.916	92.045	Lower Yarlung Tsangpo	E(o)	5.67	5,251
1850	03 77O15 11023	29.914	92.036	Lower Yarlung Tsangpo	E(o)	9.78	5,252
1851	03 77O15 11031	29.911	92.073	Lower Yarlung Tsangpo	E(o)	7.42	5,218
1852	03 77O15 11036	29.876	92.172	Lower Yarlung Tsangpo	E(o)	20.31	5,197
1853	03 77P13 11052	29.866	92.208	Lower Yarlung Tsangpo	E(o)	9.14	4,884
1854	03 77P13 11053	29.865	92.192	Lower Yarlung Tsangpo	M(e)	8.5	5,132
1855	03 77P13 11055	29.830	92.242	Lower Yarlung Tsangpo	M(o)	11.76	5,207
1856	03 77P14 11065	29.582	92.001	Lower Yarlung Tsangpo	E(o)	5.67	5,100
1857	03 82C02 11069	29.570	92.043	Lower Yarlung Tsangpo	E(o)	6.27	5,214
1858	03 82C02 11072	29.814	92.374	Lower Yarlung Tsangpo	E(o)	5.21	5,201
1859	03 82C02 11078	29.808	92.395	Lower Yarlung Tsangpo	E(o)	18.57	5,130
1860	03 82C02 11083	29.799	92.491	Lower Yarlung Tsangpo	E(o)	7.42	5,017
1861	03 82C02 11084	29.796	92.413	Lower Yarlung Tsangpo	E(o)	7.62	5,232
1862	03 82C03 11096	29.796	92.352	Lower Yarlung Tsangpo	E(o)	5.86	5,268
1863	03 82C03 11098	29.795	92.389	Lower Yarlung Tsangpo	E(o)	7.32	5,173
1864	03 82C06 11110	29.784	92.439	Lower Yarlung Tsangpo	E(o)	20.94	4,921
1865	03 82C06 11112	29.779	92.388	Lower Yarlung Tsangpo	E(o)	15.93	5,077
1866	03 82C06 11123	29.778	92.457	Lower Yarlung Tsangpo	E(o)	11.23	5,279
1867	03 82C06 11133	29.770	92.442	Lower Yarlung Tsangpo	E(o)	8.21	5,131
1868	03 82C06 11135	29.756	92.397	Lower Yarlung Tsangpo	E(o)	23.75	5,077
1869	03 82C06 11136	29.734	92.387	Lower Yarlung Tsangpo	E(o)	12.37	5,103
1870	03 82C06 11137	29.686	92.480	Lower Yarlung Tsangpo	E(o)	11.62	5,161
1871	03 82C07 11145	29.667	92.394	Lower Yarlung Tsangpo	E(o)	9.98	5,202
1872	03 82C07 11147	29.639	92.253	Lower Yarlung Tsangpo	E(o)	8.58	5,260
1873	03 82C07 11150	29.619	92.327	Lower Yarlung Tsangpo	E(o)	5.51	5,217
1874	03 82C07 11151	31.161	93.190	Lower Yarlung Tsangpo	0	6.92	4,734
1875	03 82C07 11154	31.159	93.092	Lower Yarlung Tsangpo	M(e)	12.87	5,072
1876	03 82C07 11158	31.151	93.114	Lower Yarlung Tsangpo	M(o)	8.6	5,111

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
1877	03 82C07 11161	31.150	93.080	Lower Yarlung Tsangpo	O	12.3	5,065
1878	03 82C07 11165	31.148	93.097	Lower Yarlung Tsangpo	M(o)	20.13	5,217
1879	03 82C07 11171	31.148	93.011	Lower Yarlung Tsangpo	E(o)	5.24	5,142
1880	03 82C07 11177	31.147	93.119	Lower Yarlung Tsangpo	E(o)	5.4	4,954
1881	03 82C07 11179	31.141	93.093	Lower Yarlung Tsangpo	E(o)	5.75	4,926
1882	03 82C07 11180	31.132	93.177	Lower Yarlung Tsangpo	E(o)	5.58	5,041
1883	03 82C07 11184	31.122	93.118	Lower Yarlung Tsangpo	E(o)	12.78	4,911
1884	03 82C07 11192	31.119	93.148	Lower Yarlung Tsangpo	E(c)	23.36	4,890
1885	03 82C08 11201	31.113	93.070	Lower Yarlung Tsangpo	E(o)	6.3	4,920
1886	03 82C08 11206	31.111	93.145	Lower Yarlung Tsangpo	E(o)	22.46	4,984
1887	03 82C10 11216	31.106	93.122	Lower Yarlung Tsangpo	O	6.5	5,126
1888	03 82C10 11217	31.103	93.144	Lower Yarlung Tsangpo	E(o)	15.98	5,120
1889	03 82C10 11220	31.081	93.163	Lower Yarlung Tsangpo	E(o)	22.44	5,249
1890	03 82C10 11226	31.078	93.050	Lower Yarlung Tsangpo	E(o)	15.08	5,266
1891	03 82C10 11229	31.004	93.088	Lower Yarlung Tsangpo	E(o)	5.69	5,162
1892	03 82C10 11232	31.065	93.292	Lower Yarlung Tsangpo	E(o)	24.01	4,930
1893	03 82C10 11233	31.054	93.301	Lower Yarlung Tsangpo	E(o)	11.55	5,276
1894	03 82C11 11247	30.963	93.072	Lower Yarlung Tsangpo	M(e)	12.89	5,225
1895	03 82C11 11258	30.909	93.016	Lower Yarlung Tsangpo	M(e)	5.31	5,174
1896	03 82C11 11267	30.903	93.018	Lower Yarlung Tsangpo	E(o)	33.54	4,947
1897	03 82C11 11280	30.883	93.000	Lower Yarlung Tsangpo	E(o)	5.85	5,091
1898	03 82C11 11299	29.026	90.273	Lower Yarlung Tsangpo	E(o)	6.88	5,144
1899	03 82C11 11304	29.009	90.258	Lower Yarlung Tsangpo	E(o)	5.56	5,032
1900	03 82C11 11306	28.928	90.223	Lower Yarlung Tsangpo	E(o)	7.61	5,094
1901	03 82C11 11311	28.890	90.225	Lower Yarlung Tsangpo	E(c)	22.22	5,149
1902	03 82C11 11314	28.408	90.102	Lower Yarlung Tsangpo	E(o)	8.18	4,936
1903	03 82C11 11319	28.278	90.226	Lower Yarlung Tsangpo	E(o)	15.24	5,050
1904	03 82C11 11328	28.257	90.192	Lower Yarlung Tsangpo	E(o)	9.57	4,934
1905	03 82C12 11329	28.245	90.185	Lower Yarlung Tsangpo	E(o)	5.12	5,159
1906	03 82C12 11336	28.265	90.276	Lower Yarlung Tsangpo	E(o)	7.59	5,021
1907	03 82C12 11338	28.226	90.257	Lower Yarlung Tsangpo	E(o)	16.34	5,115
1908	03 82C12 11349	28.223	90.264	Lower Yarlung Tsangpo	E(o)	6.34	4,983
1909	03 82C14 11365	28.454	90.622	Lower Yarlung Tsangpo	E(o)	36.7	5,126
1910	03 82C14 11366	28.592	91.115	Lower Yarlung Tsangpo	E(o)	7.76	4,997
1911	03 82C14 11367	28.587	91.155	Lower Yarlung Tsangpo	E(o)	14.97	5,123
1912	03 82C14 11368	28.571	91.176	Lower Yarlung Tsangpo	E(o)	20.35	4,997
1913	03 82C14 11373	28.567	91.171	Lower Yarlung Tsangpo	M(o)	6.4	5,289
1914	03 82C14 11375	28.546	91.525	Lower Yarlung Tsangpo	M(o)	5.1	5,342
1915	03 82C14 11378	28.538	91.597	Lower Yarlung Tsangpo	M(o)	5.08	5,306
1916	03 82C14 11382	28.530	91.562	Lower Yarlung Tsangpo	E(o)	15.11	4,884
1917	03 82C14 11383	28.238	90.496	Lower Yarlung Tsangpo	E(o)	6.19	4,958
1918	03 82C15 11419	28.204	90.384	Lower Yarlung Tsangpo	E(o)	8.96	5,047
1919	03 82C15 11423	28.151	90.409	Lower Yarlung Tsangpo	E(o)	7.5	4,966
1920	03 82C15 11437	28.462	90.690	Lower Yarlung Tsangpo	E(o)	5.17	5,221
1921	03 82C15 11438	28.333	90.674	Lower Yarlung Tsangpo	E(o)	5.06	5,129
1922	03 82C15 11441	28.303	90.741	Lower Yarlung Tsangpo	E(o)	15.87	5,207
1923	03 82C15 11449	28.300	90.647	Lower Yarlung Tsangpo	E(o)	6.28	5,199
1924	03 82C15 11451	28.299	90.607	Lower Yarlung Tsangpo	E(o)	9.22	5,022
1925	03 82C15 11453	28.296	90.745	Lower Yarlung Tsangpo	E(o)	5.53	5,175
1926	03 82C16 11454	28.273	90.736	Lower Yarlung Tsangpo	E(o)	27.64	4,810
1927	03 82C16 11468	28.272	90.589	Lower Yarlung Tsangpo	E(o)	9.99	5,023
1928	03 82C16 11471	28.270	90.722	Lower Yarlung Tsangpo	E(o)	6.13	5,058
1929	03 82C16 11473	28.247	90.712	Lower Yarlung Tsangpo	E(o)	6.76	4,958
1930	03 82C16 11476	28.244	90.743	Lower Yarlung Tsangpo	E(o)	12.02	5,013
1931	03 82C16 11482	28.241	90.724	Lower Yarlung Tsangpo	E(o)	9.22	4,959
1932	03 82C16 11502	28.241	90.506	Lower Yarlung Tsangpo	E(o)	6.56	4,755
1933	03 82D01 11535	28.207	90.663	Lower Yarlung Tsangpo	E(o)	5.67	5,248
1934	03 82D02 11538	28.170	90.533	Lower Yarlung Tsangpo	O	38.58	4,780
1935	03 82D02 11550	28.166	90.576	Lower Yarlung Tsangpo	E(o)	19.85	4,976
1936	03 82D05 11555	28.136	90.587	Lower Yarlung Tsangpo	O	14.68	4,824
1937	03 82G02 11613	28.129	90.604	Lower Yarlung Tsangpo	E(o)	7.86	4,994
1938	03 82G03 11616	28.123	90.566	Lower Yarlung Tsangpo	E(o)	8.4	4,971
1939	03 82G03 11641	28.096	90.738	Lower Yarlung Tsangpo	E(o)	16.23	5,034
1940	03 82G03 11661	28.086	90.605	Lower Yarlung Tsangpo	E(c)	6.18	5,065
1941	03 82G03 11683	28.081	90.652	Lower Yarlung Tsangpo	E(o)	14.42	4,819
1942	03 82G03 11692	28.078	90.743	Lower Yarlung Tsangpo	E(o)	6.53	4,929
1943	03 82G03 11700	28.078	90.661	Lower Yarlung Tsangpo	E(o)	5.01	5,018
1944	03 82G03 11704	28.078	90.584	Lower Yarlung Tsangpo	E(o)	9.1	5,029
1945	03 82G03 11705	28.071	90.656	Lower Yarlung Tsangpo	E(o)	13.2	4,765
1946	03 82G03 11714	28.064	90.648	Lower Yarlung Tsangpo	E(o)	5.29	5,014
1947	03 82G03 11717	28.059	90.602	Lower Yarlung Tsangpo	E(o)	8.15	5,033
1948	03 82G04 11725	28.049	90.597	Lower Yarlung Tsangpo	E(o)	12.13	5,086
1949	03 82G04 11728	28.048	90.587	Lower Yarlung Tsangpo	E(o)	6.97	4,994
1950	03 82G04 11732	28.353	90.851	Lower Yarlung Tsangpo	E(o)	13.89	4,976
1951	03 82G04 11734	28.307	90.852	Lower Yarlung Tsangpo	E(o)	6.98	4,734
1952	03 82G04 11737	28.296	90.881	Lower Yarlung Tsangpo	E(o)	7.47	4,975
1953	03 82G04 11744	28.281	90.750	Lower Yarlung Tsangpo	E(o)	5.21	4,909
1954	03 82G04 11748	28.279	90.791	Lower Yarlung Tsangpo	E(o)	7.91	4,801
1955	03 82G04 11751	28.086	90.787	Lower Yarlung Tsangpo	E(o)	7.45	4,773
1956	03 82G04 11752	28.059	90.903	Lower Yarlung Tsangpo	E(o)	7.65	4,780
1957	03 82G04 11753	28.053	90.898	Lower Yarlung Tsangpo	M(e)	6.42	4,622
1958	03 82G04 11755	28.049	90.953	Lower Yarlung Tsangpo	E(o)	5.6	5,050
1959	03 82G04 11757	28.046	90.919	Lower Yarlung Tsangpo	E(o)	6.84	4,988
1960	03 82G04 11768	28.040	90.907	Lower Yarlung Tsangpo	E(o)	15.68	4,461
1961	03 82G06 11780	28.029	90.993	Lower Yarlung Tsangpo	E(o)	13.05	4,911
1962	03 82G06 11787	28.026	90.960	Lower Yarlung Tsangpo	E(o)	26.45	4,799
1963	03 82G06 11788	28.023	90.943	Lower Yarlung Tsangpo	E(o)	46.03	4,686
1964	03 82G06 11790	28.021	90.840	Lower Yarlung Tsangpo	E(o)	5.98	4,926
1965	03 82G06 11793	28.018	90.843	Lower Yarlung Tsangpo	E(o)	19.73	4,869
1966	03 82G06 11797	28.016	90.929	Lower Yarlung Tsangpo	E(o)	6.03	4,868
1967	03 82G06 11798	28.015	90.979	Lower Yarlung Tsangpo	E(o)	5.08	4,737
1968	03 82G06 11799	28.013	90.984	Lower Yarlung Tsangpo	E(o)	6.51	4,817
1969	03 82G06 11801	28.007	90.978	Lower Yarlung Tsangpo	E(o)	7.82	4,676
1970	03 82G06 11802	28.003	90.905	Lower Yarlung Tsangpo	E(o)	10.36	4,822
1971	03 82G07 11803	28.001	90.932	Lower Yarlung Tsangpo	E(o)	11.32	4,971
1972	03 82G07 11807	28.557	91.191	Lower Yarlung Tsangpo	E(o)	8.52	4,927
1973	03 82G07 11808	28.351	91.079	Lower Yarlung Tsangpo	E(o)	24.69	4,947
1974	03 82G07 11810	28.305	91.070	Lower Yarlung Tsangpo	E(o)	20.93	4,846
1975	03 82G07 11818	28.082	91.209	Lower Yarlung Tsangpo	E(o)	6.47	4,889
1976	03 82G07 11825	28.075	91.234	Lower Yarlung Tsangpo	E(o)	10.74	4,797
1977	03 82G07 11830	28.073	91.144	Lower Yarlung Tsangpo	E(o)	14.15	4,755
1978	03 82G07 11835	28.058	91.169	Lower Yarlung Tsangpo	E(o)	44.79	4,644
1979	03 82G07 11839	28.045	91.004	Lower Yarlung Tsangpo	E(o)	24.37	4,757
1980	03 82G07 11843	28.034	91.003	Lower Yarlung Tsangpo	E(o)	6.67	4,686
1981	03 82G07 11844	28.031	91.032	Lower Yarlung Tsangpo	E(o)	6.25	4,621
1982	03 82G07 11847	28.023	91.036	Lower Yarlung Tsangpo	E(o)	6.67	4,640
1983	03 82G07 11848	28.013	91.044	Lower Yarlung Tsangpo	E(o)	7.33	4,725
1984	03 82G07 11856	28.010	91.027	Lower Yarlung Tsangpo	E(o)	26.11	4,951
1985	03 82G07 11860	28.007	91.080	Lower Yarlung Tsangpo	E(o)	5.09	4,883
1986	03 82G07 11862	28.002	91.095	Lower Yarlung Tsangpo	E(o)	5.53	4,843
1987	03 82G07 11865	28.518	91.487	Lower Yarlung Tsangpo	E(o)	6.91	4,859
1988	03 82G07 11874	28.489	91.487	Lower Yarlung Tsangpo	E(o)	5.3	4,838
1989	03 82G07 11875	28.088	91.257	Lower Yarlung Tsangpo	E(o)	15.29	4,648
1990	03 82G07 11877	28.088	91.334	Lower Yarlung Tsangpo	E(o)	9.26	4,776
1991	03 82G07 11890	28.081	91.415	Lower Yarlung Tsangpo	E(o)	9.68	4,946
1992	03 82G07 11893	28.051	91.275	Lower Yarlung Tsangpo	E(o)	6.39	4,931
1993	03 82G07 11896	28.045	91.261	Lower Yarlung Tsangpo	E(o)	10.41	5,066
1994	03 82G08 11905	28.043	91.294	Lower Yarlung Tsangpo	E(o)	5.28	4,797
1995	03 82G08 11906	28.039	91.253	Lower Yarlung Tsangpo	E(o)	6.03	4,949
1996	03 82G08 11909	28.018	91.307	Lower Yarlung Tsangpo	E(o)	8.65	4,800
1997	03 82G08 11911	28.012	91.292	Lower Yarlung Tsangpo	E(o)	58.59	4,914
1998	03 82G08 11920	28.002	91.325	Lower Yarlung Tsangpo	E(o)	5.09	5,034
1999	03 82G08 11922	28.001	91.262	Lower Yarlung Tsangpo	E(o)	35.12	4,887
2000	03 82G08 11927	27.988	90.817	Lower Yarlung Tsangpo	E(o)	9.37	4,767
2001	03 82G08 11928	29.206	93.316	Lower Yarlung Tsangpo	E(o)	6.75	4,650
2002	03 82G08 11935	29.200	93.278	Lower Yarlung Tsangpo	E(o)	5.29	4,870
2003	03 82G08 11939	29.197	93.346	Lower Yarlung Tsangpo	E(o)	10.94	4,841
2004	03 82G08 11940	29.196	93.327	Lower Yarlung Tsangpo	E(c)	17.01	4,728
2005	03 82G08 11942	29.190	93.275	Lower Yarlung Tsangpo	E(o)	11.02	5,021
2006	03 82G08 11944	29.183	93.282	Lower Yarlung Tsangpo	E(o)	5.15	5,035
2007	03 82G08 11946	29.180	93.272	Lower Yarlung Tsangpo	E(o)	17.38	4,932
2008	03 82G08 11949	29.178	93.298	Lower Yarlung Tsangpo	M(o)	11.66	4,915
2009	03 82G08 11950	29.177	93.312	Lower Yarlung Tsangpo	E(o)	6.64	4,986
2010	03 82G08 11951	29.174	93.280	Lower Yarlung Tsangpo	M(o)	9.59	4,921
2011	03 82G08 11952	29.153	93.309	Lower Yarlung Tsangpo	E(o)	9.93	5,015
2012	03 82G08 11960	29.125	93.326	Lower Yarlung Tsangpo	E(o)	10.42	4,886
2013	03 82G08 11968	29.114	93.313	Lower Yarlung Tsangpo	E(o)	5	4,891
2014	03 82G08 11970	29.110	93.282	Lower Yarlung Tsangpo	E(o)	7.31	4,900
2015	03 82G08 11978	29.006	93.493	Lower Yarlung Tsangpo	O	5.47	4,756
2016	03 82G08 11979	29.004	93.475	Lower Yarlung Tsangpo	O	7.48	4,815
2017	03 82G11 11984	29.497	93.502	Lower Yarlung Tsangpo	E(o)	15.32	4,702
2018	03 82G11 11988	29.466	93.590	Lower Yarlung Tsangpo	E(o)	30.38	4,615
2019	03 82G11 11989	29.462	93.556	Lower Yarlung Tsangpo	E(o)	21.52	4,719
2020	03 82G11 11994	29.440	93.540	Lower Yarlung Tsangpo	E(o)	7	4,759
2021	03 82G11 11997	29.427	93.707	Lower Yarlung Tsangpo	E(o)	9.16	4,705
2022	03 82G11 11999	29.422	93.735	Lower Yarlung Tsangpo	E(o)	6.29	4,623
2023	03 82G11 12001	29.420	93.703	Lower Yarlung Tsangpo	E(o)	6.35	4,692
2024	03 82G11 12002	29.419	93.739	Lower Yarlung Tsangpo	E(o)	14.71	4,594

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2025	03 82G11 12003	29.417	93.717	Lower Yarlung Tsangpo	E(o)	6.97	4,689
2026	03 82G11 12004	29.417	93.691	Lower Yarlung Tsangpo	E(o)	38.87	4,557
2027	03 82G11 12006	29.405	93.708	Lower Yarlung Tsangpo	E(o)	74.32	4,505
2028	03 82G11 12007	29.404	93.650	Lower Yarlung Tsangpo	E(o)	31.08	4,624
2029	03 82G11 12015	29.396	93.682	Lower Yarlung Tsangpo	E(o)	15.84	4,888
2030	03 82G11 12019	29.389	93.610	Lower Yarlung Tsangpo	E(o)	15.44	4,772
2031	03 82G11 12023	29.383	93.640	Lower Yarlung Tsangpo	E(o)	39.57	4,717
2032	03 82G11 12028	29.371	93.730	Lower Yarlung Tsangpo	E(o)	6.28	4,623
2033	03 82G11 12030	29.370	93.694	Lower Yarlung Tsangpo	E(o)	48.66	4,725
2034	03 82G11 12034	29.363	93.667	Lower Yarlung Tsangpo	E(o)	5	4,845
2035	03 82G11 12037	29.356	93.623	Lower Yarlung Tsangpo	E(o)	5.59	4,803
2036	03 82G11 12040	29.335	93.732	Lower Yarlung Tsangpo	E(o)	7.24	4,604
2037	03 82G11 12043	29.331	93.721	Lower Yarlung Tsangpo	E(o)	49.58	4,610
2038	03 82G11 12045	29.329	93.749	Lower Yarlung Tsangpo	E(o)	24.59	4,528
2039	03 82G11 12046	29.328	93.677	Lower Yarlung Tsangpo	E(o)	33.31	4,628
2040	03 82G11 12053	29.312	93.627	Lower Yarlung Tsangpo	E(c)	16.09	4,835
2041	03 82G11 12064	29.289	93.610	Lower Yarlung Tsangpo	E(o)	6.72	4,680
2042	03 82G11 12065	29.287	93.736	Lower Yarlung Tsangpo	E(o)	59.16	4,562
2043	03 82G11 12066	29.287	93.701	Lower Yarlung Tsangpo	E(o)	18.25	4,643
2044	03 82G11 12071	29.268	93.714	Lower Yarlung Tsangpo	E(o)	5.77	4,750
2045	03 82G11 12073	29.260	93.720	Lower Yarlung Tsangpo	E(o)	8.93	4,678
2046	03 82G12 12078	29.236	93.717	Lower Yarlung Tsangpo	E(o)	5.24	4,605
2047	03 82G12 12093	29.056	93.694	Lower Yarlung Tsangpo	E(o)	16.82	4,576
2048	03 82G12 12100	29.048	93.703	Lower Yarlung Tsangpo	E(o)	5.9	4,690
2049	03 82G12 12102	29.046	93.741	Lower Yarlung Tsangpo	O	11.84	4,201
2050	03 82G12 12110	29.037	93.735	Lower Yarlung Tsangpo	O	22.43	4,202
2051	03 82G12 12113	29.034	93.602	Lower Yarlung Tsangpo	E(o)	21.73	4,602
2052	03 82G12 12116	29.033	93.749	Lower Yarlung Tsangpo	E(o)	6.68	4,767
2053	03 82G12 12117	29.033	93.670	Lower Yarlung Tsangpo	O	8.51	4,387
2054	03 82G12 12124	29.025	93.567	Lower Yarlung Tsangpo	O	10.65	4,553
2055	03 82G12 12126	29.024	93.731	Lower Yarlung Tsangpo	O	11.04	4,214
2056	03 82G12 12127	29.024	93.663	Lower Yarlung Tsangpo	E(o)	7.32	4,901
2057	03 82G12 12139	29.017	93.713	Lower Yarlung Tsangpo	E(o)	25.14	4,411
2058	03 82G12 12149	29.010	93.674	Lower Yarlung Tsangpo	E(c)	6.08	4,790
2059	03 82G12 12153	29.008	93.644	Lower Yarlung Tsangpo	E(o)	6.67	4,559
2060	03 82G12 12160	29.003	93.566	Lower Yarlung Tsangpo	E(o)	14.37	4,824
2061	03 82G12 12161	29.003	93.668	Lower Yarlung Tsangpo	E(o)	17.11	4,558
2062	03 82G14 12165	29.514	93.867	Lower Yarlung Tsangpo	E(o)	6.79	4,633
2063	03 82G14 12167	29.507	93.840	Lower Yarlung Tsangpo	M(o)	24.29	4,449
2064	03 82G15 12172	29.494	93.915	Lower Yarlung Tsangpo	E(o)	5.23	4,867
2065	03 82G15 12175	29.488	93.826	Lower Yarlung Tsangpo	E(o)	13.43	4,741
2066	03 82G15 12178	29.483	93.857	Lower Yarlung Tsangpo	E(o)	5.53	4,504
2067	03 82G15 12181	29.478	93.839	Lower Yarlung Tsangpo	E(o)	5.86	4,808
2068	03 82G15 12182	29.477	93.912	Lower Yarlung Tsangpo	E(o)	6.81	4,521
2069	03 82G15 12186	29.474	93.864	Lower Yarlung Tsangpo	E(o)	13.98	4,422
2070	03 82G15 12196	29.465	93.996	Lower Yarlung Tsangpo	E(o)	20.29	4,471
2071	03 82G15 12202	29.457	93.873	Lower Yarlung Tsangpo	E(o)	5.8	4,652
2072	03 82G15 12204	29.454	93.978	Lower Yarlung Tsangpo	E(o)	16.1	4,670
2073	03 82G15 12207	29.451	93.795	Lower Yarlung Tsangpo	E(o)	5.18	4,570
2074	03 82G15 12212	29.430	93.854	Lower Yarlung Tsangpo	E(o)	9.35	4,670
2075	03 82G15 12214	29.420	93.864	Lower Yarlung Tsangpo	E(o)	11.53	4,611
2076	03 82G15 12218	29.416	93.787	Lower Yarlung Tsangpo	E(o)	5.61	4,273
2077	03 82G15 12221	29.414	93.783	Lower Yarlung Tsangpo	E(o)	11.71	4,291
2078	03 82G15 12223	29.408	93.891	Lower Yarlung Tsangpo	E(o)	6.41	4,462
2079	03 82G15 12226	29.407	93.768	Lower Yarlung Tsangpo	E(o)	6.97	4,714
2080	03 82G15 12229	29.404	93.775	Lower Yarlung Tsangpo	E(o)	11.71	4,666
2081	03 82G15 12230	29.402	93.992	Lower Yarlung Tsangpo	E(o)	8.5	4,541
2082	03 82G15 12234	29.398	94.000	Lower Yarlung Tsangpo	E(o)	8.45	4,428
2083	03 82G15 12235	29.393	93.795	Lower Yarlung Tsangpo	E(c)	5.43	4,467
2084	03 82G15 12237	29.389	93.981	Lower Yarlung Tsangpo	E(o)	7.1	4,676
2085	03 82G15 12238	29.388	93.897	Lower Yarlung Tsangpo	E(o)	8.65	4,419
2086	03 82G15 12250	29.359	93.823	Lower Yarlung Tsangpo	E(c)	21.53	4,518
2087	03 82G15 12254	29.353	93.837	Lower Yarlung Tsangpo	E(o)	6.33	4,502
2088	03 82G15 12260	29.341	93.788	Lower Yarlung Tsangpo	E(o)	27.07	4,497
2089	03 82G15 12262	29.337	93.758	Lower Yarlung Tsangpo	E(o)	14.33	4,540
2090	03 82G15 12264	29.320	93.805	Lower Yarlung Tsangpo	E(o)	8.22	4,652
2091	03 82G15 12268	29.311	93.806	Lower Yarlung Tsangpo	E(o)	10.51	4,623
2092	03 82G15 12272	29.307	93.815	Lower Yarlung Tsangpo	E(o)	7.72	4,505
2093	03 82G15 12274	29.305	93.835	Lower Yarlung Tsangpo	E(o)	13.9	4,614
2094	03 82G15 12276	29.294	93.751	Lower Yarlung Tsangpo	O	5.23	4,551
2095	03 82G16 12300	29.092	93.954	Lower Yarlung Tsangpo	E(o)	5.89	4,684
2096	03 82G16 12309	29.081	93.957	Lower Yarlung Tsangpo	E(o)	7.55	4,765
2097	03 82G16 12310	29.080	93.979	Lower Yarlung Tsangpo	E(o)	5.1	4,789
2098	03 82G16 12324	29.038	93.762	Lower Yarlung Tsangpo	E(o)	21.96	4,242
2099	03 82G16 12326	29.035	93.836	Lower Yarlung Tsangpo	O	67.89	4,116
2100	03 82G16 12329	29.033	93.814	Lower Yarlung Tsangpo	E(o)	5.8	4,795
2101	03 82G16 12334	29.029	93.982	Lower Yarlung Tsangpo	E(o)	31.69	4,072
2102	03 82G16 12338	29.021	93.815	Lower Yarlung Tsangpo	E(o)	12.3	4,729
2103	03 82G16 12339	29.021	93.756	Lower Yarlung Tsangpo	E(c)	15.06	4,696
2104	03 82G16 12345	29.014	93.953	Lower Yarlung Tsangpo	O	5.29	4,826
2105	03 82G16 12346	29.012	93.979	Lower Yarlung Tsangpo	E(o)	5.51	4,450
2106	03 82G16 12349	29.003	93.983	Lower Yarlung Tsangpo	M(o)	7.79	4,616
2107	03 82H01 12359	28.871	93.224	Lower Yarlung Tsangpo	M(o)	21.82	4,801
2108	03 82H01 12364	28.774	93.068	Lower Yarlung Tsangpo	O	6.9	4,145
2109	03 82H01 12365	28.773	93.172	Lower Yarlung Tsangpo	O	11.23	4,522
2110	03 82H01 12368	28.767	93.073	Lower Yarlung Tsangpo	O	16.39	4,149
2111	03 82H01 12371	28.757	93.079	Lower Yarlung Tsangpo	E(o)	22.39	4,161
2112	03 82H06 12404	28.744	93.437	Lower Yarlung Tsangpo	O	6.56	4,241
2113	03 82H06 12407	28.734	93.363	Lower Yarlung Tsangpo	E(o)	6.32	4,790
2114	03 82H09 12442	28.883	93.502	Lower Yarlung Tsangpo	M(o)	7.64	5,030
2115	03 82H09 12448	28.837	93.680	Lower Yarlung Tsangpo	O	5.18	4,121
2116	03 82H09 12452	28.828	93.549	Lower Yarlung Tsangpo	M(o)	8.03	4,915
2117	03 82H09 12461	28.780	93.654	Lower Yarlung Tsangpo	E(o)	8	4,587
2118	03 82H09 12465	28.771	93.631	Lower Yarlung Tsangpo	E(c)	17.84	4,688
2119	03 82H10 12471	28.736	93.533	Lower Yarlung Tsangpo	E(o)	8.48	4,432
2120	03 82H10 12475	28.722	93.718	Lower Yarlung Tsangpo	E(o)	7.68	4,548
2121	03 82H10 12478	28.713	93.558	Lower Yarlung Tsangpo	E(o)	9.01	4,525
2122	03 82H10 12484	28.695	93.735	Lower Yarlung Tsangpo	E(o)	7.13	4,078
2123	03 82H10 12486	28.687	93.739	Lower Yarlung Tsangpo	E(o)	7.63	4,112
2124	03 82H10 12487	28.672	93.723	Lower Yarlung Tsangpo	E(o)	12.09	4,361
2125	03 82H13 12488	28.999	93.925	Lower Yarlung Tsangpo	E(o)	9.69	4,470
2126	03 82H13 12506	28.856	94.000	Lower Yarlung Tsangpo	E(o)	73.89	3,868
2127	03 82H13 12512	28.847	93.784	Lower Yarlung Tsangpo	E(o)	24.48	4,057
2128	03 82H13 12515	28.841	93.752	Lower Yarlung Tsangpo	E(o)	31.25	4,120
2129	03 82H13 12517	28.823	93.796	Lower Yarlung Tsangpo	E(o)	6.45	4,589
2130	03 82H13 12520	28.790	93.912	Lower Yarlung Tsangpo	E(o)	17.23	4,226
2131	03 82H13 12524	28.785	93.923	Lower Yarlung Tsangpo	E(o)	13.5	4,147
2132	03 82H13 12526	28.767	93.799	Lower Yarlung Tsangpo	O	6.63	3,808
2133	03 82H14 12535	28.747	93.829	Lower Yarlung Tsangpo	E(o)	7.68	4,074
2134	03 82H14 12541	28.740	93.802	Lower Yarlung Tsangpo	E(c)	5.43	4,222
2135	03 82H14 12545	28.716	93.783	Lower Yarlung Tsangpo	E(c)	5.51	4,186
2136	03 82K02 12548	29.514	94.064	Lower Yarlung Tsangpo	E(o)	5.68	4,610
2137	03 82K02 12549	29.510	94.043	Lower Yarlung Tsangpo	E(o)	6.44	4,674
2138	03 82K02 12553	29.502	94.035	Lower Yarlung Tsangpo	E(o)	5.81	4,774
2139	03 82K03 12557	29.492	94.116	Lower Yarlung Tsangpo	E(o)	7.91	4,565
2140	03 82K03 12558	29.488	94.093	Lower Yarlung Tsangpo	E(c)	7.29	4,500
2141	03 82K03 12559	29.487	94.099	Lower Yarlung Tsangpo	E(o)	10.43	4,733
2142	03 82K03 12562	29.485	94.025	Lower Yarlung Tsangpo	E(o)	6.45	4,489
2143	03 82K03 12564	29.484	94.034	Lower Yarlung Tsangpo	E(o)	22.22	4,470
2144	03 82K03 12567	29.481	94.118	Lower Yarlung Tsangpo	E(o)	19.23	4,601
2145	03 82K03 12569	29.480	94.011	Lower Yarlung Tsangpo	E(c)	8.19	4,559
2146	03 82K03 12582	29.467	94.131	Lower Yarlung Tsangpo	E(o)	11.02	4,487
2147	03 82K03 12583	29.465	94.103	Lower Yarlung Tsangpo	E(o)	11.99	4,516
2148	03 82K03 12586	29.464	94.045	Lower Yarlung Tsangpo	E(o)	40.19	4,509
2149	03 82K03 12587	29.463	94.061	Lower Yarlung Tsangpo	E(o)	7.06	4,570
2150	03 82K03 12591	29.457	94.052	Lower Yarlung Tsangpo	E(c)	13.35	4,692
2151	03 82K03 12595	29.454	94.015	Lower Yarlung Tsangpo	E(o)	16.67	4,391
2152	03 82K03 12596	29.454	94.006	Lower Yarlung Tsangpo	E(o)	20.79	4,391
2153	03 82K03 12599	29.450	94.155	Lower Yarlung Tsangpo	E(c)	16.57	4,610
2154	03 82K03 12608	29.432	94.032	Lower Yarlung Tsangpo	E(o)	6.6	4,576
2155	03 82K03 12614	29.423	94.166	Lower Yarlung Tsangpo	E(c)	5.12	4,538
2156	03 82K03 12619	29.417	94.150	Lower Yarlung Tsangpo	E(o)	11.51	4,438
2157	03 82K03 12630	29.402	94.199	Lower Yarlung Tsangpo	E(o)	14.59	4,616
2158	03 82K03 12631	29.401	94.208	Lower Yarlung Tsangpo	E(o)	10.07	4,485
2159	03 82K03 12635	29.399	94.056	Lower Yarlung Tsangpo	E(o)	8.64	4,586
2160	03 82K03 12640	29.396	94.153	Lower Yarlung Tsangpo	E(c)	8.66	4,647
2161	03 82K03 12641	29.396	94.066	Lower Yarlung Tsangpo	E(o)	16.68	4,523
2162	03 82K03 12645	29.390	94.000	Lower Yarlung Tsangpo	E(o)	5.92	4,400
2163	03 82K03 12646	29.390	94.039	Lower Yarlung Tsangpo	E(o)	7.76	4,328
2164	03 82K03 12649	29.388	94.067	Lower Yarlung Tsangpo	E(o)	5.54	4,490
2165	03 82K03 12654	29.377	94.152	Lower Yarlung Tsangpo	E(o)	8.29	4,590
2166	03 82K03 12658	29.375	94.019	Lower Yarlung Tsangpo	E(o)	19.85	4,418
2167	03 82K03 12665	29.364	94.162	Lower Yarlung Tsangpo	E(c)	7.53	4,594
2168	03 82K03 12668	29.361	94.147	Lower Yarlung Tsangpo	E(o)	16.26	4,551
2169	03 82K03 12674	29.355	94.151	Lower Yarlung Tsangpo	E(o)	6.83	4,569
2170	03 82K03 12681	29.348	94.246	Lower Yarlung Tsangpo	E(o)	7.25	4,295
2171	03 82K03 12682	29.348	94.201	Lower Yarlung Tsangpo	E(o)	5.77	4,359
2172	03 82K03 12691	29.343	94.161	Lower Yarlung Tsangpo	E(o)	11.01	4,564

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2173	03 82K03 12692	29.341	94.147	Lower Yarlung Tsangpo	E(c)	7.75	4,688
2174	03 82K03 12693	29.339	94.166	Lower Yarlung Tsangpo	E(o)	6.76	4,525
2175	03 82K03 12698	29.325	94.162	Lower Yarlung Tsangpo	E(o)	7.47	4,519
2176	03 82K03 12699	29.321	94.119	Lower Yarlung Tsangpo	E(c)	12.58	4,553
2177	03 82K03 12709	29.296	94.202	Lower Yarlung Tsangpo	O	42.94	3,931
2178	03 82K03 12710	29.291	94.146	Lower Yarlung Tsangpo	E(o)	15.72	4,468
2179	03 82K03 12712	29.288	94.168	Lower Yarlung Tsangpo	E(o)	9.62	4,221
2180	03 82K03 12714	29.284	94.201	Lower Yarlung Tsangpo	E(o)	5.82	4,449
2181	03 82K03 12718	29.271	94.167	Lower Yarlung Tsangpo	E(o)	10	4,523
2182	03 82K04 12727	29.108	94.106	Lower Yarlung Tsangpo	O	8.73	4,004
2183	03 82K04 12729	29.101	94.124	Lower Yarlung Tsangpo	E(c)	45.28	4,562
2184	03 82K04 12731	29.092	94.106	Lower Yarlung Tsangpo	E(o)	6.5	4,491
2185	03 82K04 12736	29.075	94.147	Lower Yarlung Tsangpo	E(o)	9.54	4,321
2186	03 82K04 12738	29.054	94.002	Lower Yarlung Tsangpo	M(e)	13.14	4,966
2187	03 82K04 12739	29.052	94.097	Lower Yarlung Tsangpo	E(o)	24.12	4,338
2188	03 82K04 12743	29.031	94.055	Lower Yarlung Tsangpo	E(o)	18.78	4,240
2189	03 82K04 12745	29.025	94.011	Lower Yarlung Tsangpo	E(o)	7.81	4,499
2190	03 82K04 12746	29.025	94.066	Lower Yarlung Tsangpo	M(o)	11.7	4,289
2191	03 82K04 12747	29.017	94.039	Lower Yarlung Tsangpo	E(c)	19.69	4,107
2192	03 82K04 12748	29.004	94.007	Lower Yarlung Tsangpo	E(o)	9.5	4,332
2193	03 82K07 12752	29.397	94.304	Lower Yarlung Tsangpo	E(o)	11.24	4,321
2194	03 82K07 12757	29.390	94.317	Lower Yarlung Tsangpo	E(o)	6.62	4,267
2195	03 82K07 12765	29.353	94.254	Lower Yarlung Tsangpo	E(o)	6.9	4,322
2196	03 82K07 12768	29.342	94.264	Lower Yarlung Tsangpo	E(o)	5.46	4,410
2197	03 82K08 12776	29.158	94.338	Lower Yarlung Tsangpo	E(o)	8.81	3,940
2198	03 82K08 12777	29.157	94.327	Lower Yarlung Tsangpo	E(o)	9.59	3,944
2199	03 82K08 12780	29.077	94.271	Lower Yarlung Tsangpo	O	17.08	3,682
2200	03 82K08 12781	29.075	94.296	Lower Yarlung Tsangpo	E(o)	11.64	4,377
2201	03 82K08 12782	29.069	94.300	Lower Yarlung Tsangpo	M(o)	12.91	4,435
2202	03 82K11 12786	29.349	94.548	Lower Yarlung Tsangpo	E(o)	6.56	4,513
2203	03 82K11 12793	29.320	94.631	Lower Yarlung Tsangpo	E(c)	7.65	4,556
2204	03 82K11 12795	29.311	94.611	Lower Yarlung Tsangpo	E(c)	20.77	4,253
2205	03 82K11 12796	29.308	94.637	Lower Yarlung Tsangpo	E(c)	15.03	4,142
2206	03 82K14 12810	29.545	94.965	Lower Yarlung Tsangpo	E(c)	91.95	4,300
2207	03 82K15 12816	29.374	94.892	Lower Yarlung Tsangpo	M(e)	27.56	4,455
2208	03 82L01 12817	28.997	94.052	Lower Yarlung Tsangpo	E(o)	8.03	3,516
2209	03 82L01 12818	28.995	94.006	Lower Yarlung Tsangpo	M(o)	13.4	4,578
2210	03 82L01 12823	28.971	94.137	Lower Yarlung Tsangpo	E(c)	5.34	3,788
2211	03 82L01 12824	28.913	94.026	Lower Yarlung Tsangpo	E(o)	5.08	4,703
2212	03 82L01 12825	28.906	94.004	Lower Yarlung Tsangpo	E(o)	12.97	4,423
2213	03 82L01 12826	28.888	94.030	Lower Yarlung Tsangpo	E(o)	16.96	4,104
2214	03 82L01 12827	28.880	94.040	Lower Yarlung Tsangpo	E(o)	14.86	4,130
2215	03 82L01 12829	28.870	94.018	Lower Yarlung Tsangpo	E(o)	11.77	4,303
2216	03 82L01 12830	28.861	94.026	Lower Yarlung Tsangpo	E(o)	6.94	4,577
2217	03 82L05 12837	28.986	94.270	Lower Yarlung Tsangpo	E(o)	50.66	3,478
2218	03 82O02 12839	29.568	95.022	Lower Yarlung Tsangpo	M(o)	6.58	4,741
2219	03 77P13 12844	28.776	91.981	Subansiri	M(e)	16.44	5,013
2220	03 82D03 12856	28.270	92.063	Subansiri	E(o)	5.51	5,038
2221	03 82D04 12864	28.046	92.133	Subansiri	E(o)	12.58	5,113
2222	03 82D05 12871	28.907	92.312	Subansiri	E(o)	5.4	5,167
2223	03 82D09 12899	28.756	92.657	Subansiri	E(o)	8.62	5,078
2224	03 82D12 12911	28.211	92.749	Subansiri	M(e)	8.62	5,168
2225	03 82D12 12912	28.206	92.742	Subansiri	M(e)	10.79	5,176
2226	03 82D12 12913	28.203	92.668	Subansiri	M(e)	9.82	5,020
2227	03 82D12 12914	28.188	92.710	Subansiri	M(e)	9.84	4,904
2228	03 82D12 12915	28.185	92.696	Subansiri	M(e)	27.82	5,162
2229	03 82D12 12919	28.158	92.663	Subansiri	M(e)	6.42	5,376
2230	03 82D12 12920	28.156	92.599	Subansiri	M(o)	6.23	5,220
2231	03 82D12 12921	28.156	92.653	Subansiri	M(e)	6.23	5,262
2232	03 82D12 12937	28.104	92.599	Subansiri	M(e)	6.14	5,423
2233	03 82D12 12943	28.083	92.609	Subansiri	M(e)	9.57	5,207
2234	03 82D12 12952	28.066	92.509	Subansiri	M(o)	5.49	5,346
2235	03 82D12 12956	28.051	92.557	Subansiri	M(e)	8.81	5,407
2236	03 82D12 12968	28.001	92.641	Subansiri	M(e)	10.94	5,269
2237	03 82D14 12977	28.743	92.927	Subansiri	E(o)	7.15	5,083
2238	03 82D16 13004	28.221	92.821	Subansiri	M(e)	8.64	4,827
2239	03 82D16 13005	28.217	92.930	Subansiri	E(o)	7.04	4,584
2240	03 82D16 13006	28.216	92.768	Subansiri	M(e)	13.27	5,164
2241	03 82H02 13010	28.732	93.211	Subansiri	E(o)	8.08	4,868
2242	03 82H02 13015	28.721	93.217	Subansiri	E(o)	17.01	4,474
2243	03 82H02 13033	28.658	93.164	Subansiri	E(o)	5.52	4,666
2244	03 82H02 13034	28.658	93.144	Subansiri	E(o)	11.84	4,518
2245	03 82H02 13035	28.656	93.147	Subansiri	E(o)	5.13	4,536
2246	03 82H02 13043	28.633	93.207	Subansiri	E(c)	8.53	4,758

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2247	03 82H03 13085	28.367	93.103	Subansiri	E(o)	5.12	4,469
2248	03 82H03 13090	28.348	93.194	Subansiri	E(o)	6.83	4,369
2249	03 82H03 13095	28.342	93.092	Subansiri	E(o)	62.44	4,251
2250	03 82H03 13096	28.332	93.044	Subansiri	E(o)	7.07	4,188
2251	03 82H03 13097	28.320	93.047	Subansiri	E(o)	72.68	4,255
2252	03 82H06 13101	28.730	93.257	Subansiri	E(o)	6.82	4,335
2253	03 82H06 13109	28.653	93.470	Subansiri	M(e)	9.17	4,094
2254	03 82H06 13111	28.650	93.462	Subansiri	E(o)	16.59	4,046
2255	03 82H06 13124	28.541	93.380	Subansiri	E(o)	16.25	4,307
2256	03 82H06 13128	28.537	93.373	Subansiri	E(o)	7.83	4,382
2257	03 82H06 13132	28.526	93.398	Subansiri	E(o)	5.04	4,276
2258	03 82H06 13135	28.524	93.394	Subansiri	E(o)	12.17	4,249
2259	03 82H06 13138	28.520	93.377	Subansiri	E(o)	13.61	4,247
2260	03 82H06 13139	28.518	93.397	Subansiri	E(o)	6.23	4,000
2261	03 82H06 13141	28.513	93.397	Subansiri	E(o)	9.46	3,951
2262	03 82H07 13150	28.351	93.309	Subansiri	E(c)	5.5	4,102
2263	03 82H07 13154	28.313	93.391	Subansiri	E(o)	20.03	4,066
2264	03 82H07 13155	28.305	93.446	Subansiri	E(o)	5.24	4,261
2265	03 82H07 13156	28.305	93.437	Subansiri	O	35.07	3,952
2266	03 82H07 13157	28.297	93.419	Subansiri	E(o)	20.77	3,841
2267	03 82H07 13159	28.290	93.442	Subansiri	E(o)	8.04	4,280
2268	03 82H10 13161	28.668	93.734	Subansiri	E(c)	19.78	4,016
2269	03 82H10 13168	28.594	93.726	Subansiri	E(c)	25.13	4,208
2270	03 82H10 13171	28.585	93.743	Subansiri	E(o)	11.14	3,758
2271	03 82H10 13172	28.585	93.712	Subansiri	E(o)	14.16	3,873
2272	03 82H10 13173	28.582	93.699	Subansiri	E(o)	8.57	3,887
2273	03 82H10 13177	28.577	93.713	Subansiri	O	7.12	3,811
2274	03 82H10 13180	28.576	93.578	Subansiri	E(o)	36.88	3,842
2275	03 82H10 13181	28.574	93.709	Subansiri	O	5.39	3,802
2276	03 82H10 13182	28.572	93.546	Subansiri	E(o)	9.15	4,328
2277	03 82H10 13183	28.568	93.563	Subansiri	E(o)	16.13	4,074
2278	03 82H10 13185	28.565	93.545	Subansiri	E(o)	6.79	4,526
2279	03 82H11 13195	28.489	93.555	Subansiri	E(o)	13.67	4,647
2280	03 82H11 13196	28.485	93.553	Subansiri	E(o)	6.86	4,587
2281	03 82H11 13197	28.483	93.603	Subansiri	E(o)	12.34	3,987
2282	03 82H11 13199	28.470	93.581	Subansiri	E(o)	5.45	4,445
2283	03 82H11 13202	28.459	93.543	Subansiri	E(o)	5.58	4,030
2284	03 82H11 13203	28.459	93.605	Subansiri	E(o)	11.86	3,957
2285	03 82H11 13204	28.458	93.579	Subansiri	E(o)	47.52	3,922
2286	03 82H14 13208	28.676	93.757	Subansiri	E(o)	6.35	4,186
2287	03 82H14 13211	28.616	93.820	Subansiri	E(o)	46.32	3,590
2288	03 82H14 13212	28.597	93.805	Subansiri	E(o)	12.29	4,163
2289	03 82H14 13213	28.595	93.827	Subansiri	E(o)	6.06	3,930
2290	03 82H14 13216	28.587	93.839	Subansiri	E(o)	11.27	4,296
2291	03 82H14 13217	28.585	93.846	Subansiri	E(o)	7.44	4,237
2292	03 82H14 13218	28.583	93.812	Subansiri	E(o)	11.42	3,799
2293	03 82H14 13219	28.580	93.826	Subansiri	E(c)	9.13	4,220
2294	03 82H14 13220	28.579	93.845	Subansiri	E(o)	7.01	4,073
2295	03 82H14 13221	28.566	93.871	Subansiri	E(o)	5.28	3,863
2296	03 82H14 13225	28.553	93.871	Subansiri	E(o)	5.04	3,761
2297	03 82H14 13226	28.549	93.884	Subansiri	E(o)	15.78	4,070
2298	03 82H14 13228	28.542	93.810	Subansiri	E(o)	7.71	3,603
2299	03 82H14 13231	28.528	93.892	Subansiri	E(o)	6.68	3,958
2300	03 82H14 13234	28.514	93.867	Subansiri	E(o)	8.93	3,596
2301	03 82H15 13236	28.270	93.781	Subansiri	E(o)	12.78	3,537
2302	03 83A05 13273	27.892	92.304	Subansiri	M(e)	8.62	5,141
2303	03 83A05 13281	27.831	92.345	Subansiri	M(e)	22.14	5,032
2304	03 83A05 13282	27.822	92.335	Subansiri	M(o)	6.13	5,270
2305	03 83A09 13285	27.980	92.651	Subansiri	M(e)	52.21	4,988
2306	03 83A09 13290	27.929	92.535	Subansiri	M(e)	6.7	5,336
2307	03 82D15 13296	28.280	93.002	Subansiri	E(c)	7.09	4,694
2308	03 82D16 13312	28.129	92.923	Subansiri	M(e)	9.7	4,736
2309	03 82D16 13317	28.117	92.969	Subansiri	M(o)	18.06	4,214
2310	03 82D16 13318	28.116	92.951	Subansiri	E(c)	55.58	4,648
2311	03 82D16 13323	28.106	92.970	Subansiri	M(o)	12.93	4,340
2312	03 82D16 13325	28.105	92.951	Subansiri	E(c)	8.54	4,682
2313	03 82D16 13329	28.096	92.913	Subansiri	E(o)	5.46	4,783
2314	03 82D16 13331	28.087	92.937	Subansiri	E(o)	21.48	4,328
2315	03 82D16 13335	28.069	92.900	Subansiri	E(c)	9.77	4,288
2316	03 82D16 13337	28.062	92.884	Subansiri	E(o)	23.64	4,365
2317	03 82H03 13344	28.339	93.122	Subansiri	E(c)	14.38	4,086
2318	03 82H03 13353	28.254	93.085	Subansiri	E(o)	5.08	3,934
2319	03 82H04 13354	28.154	93.009	Subansiri	E(o)	7.06	4,303
2320	03 82H07 13364	28.294	93.355	Subansiri	E(c)	10.09	3,597

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2321	03 82H07 13366	28.268	93.466	Subansiri	E(c)	7.2	4,021
2322	03 82H11 13369	28.264	93.520	Subansiri	E(c)	10	3,764
2323	03 83A02 13393	27.585	92.239	Jia Bharali	E(c)	7.89	4,429
2324	03 83A02 13398	27.562	92.219	Jia Bharali	E(o)	7.99	4,359
2325	03 83A03 13432	27.385	92.023	Jia Bharali	O	7.55	4,007
2326	03 83A05 13448	27.753	92.445	Jia Bharali	M(o)	5.14	5,123
2327	03 83A06 13453	27.743	92.433	Jia Bharali	M(o)	7.83	5,137
2328	03 83A06 13456	27.741	92.437	Jia Bharali	M(o)	5.68	5,092
2329	03 83A06 13460	27.738	92.499	Jia Bharali	E(o)	5.86	4,005
2330	03 83A06 13468	27.728	92.436	Jia Bharali	M(l)	13.8	4,995
2331	03 83A06 13469	27.726	92.494	Jia Bharali	E(o)	8.68	4,387
2332	03 83A06 13492	27.652	92.372	Jia Bharali	E(o)	6.77	4,643
2333	03 83A06 13506	27.637	92.407	Jia Bharali	E(o)	21.73	4,325
2334	03 83A06 13507	27.636	92.429	Jia Bharali	E(o)	5.16	4,541
2335	03 83A06 13512	27.633	92.436	Jia Bharali	E(o)	8.63	4,423
2336	03 83A06 13514	27.632	92.430	Jia Bharali	E(o)	5.01	4,477
2337	03 83A06 13534	27.602	92.385	Jia Bharali	E(o)	10.47	4,227
2338	03 83A09 13545	27.835	92.674	Jia Bharali	E(o)	7.47	4,042
2339	03 83A09 13546	27.835	92.685	Jia Bharali	E(o)	18.24	3,951
2340	03 83A09 13550	27.826	92.683	Jia Bharali	E(c)	6.58	4,086
2341	03 83A09 13551	27.825	92.647	Jia Bharali	E(o)	49.71	4,609
2342	03 83A09 13552	27.823	92.659	Jia Bharali	E(o)	7.24	4,394
2343	03 83A09 13553	27.820	92.633	Jia Bharali	E(o)	5.93	4,829
2344	03 83A10 13559	27.742	92.515	Jia Bharali	E(o)	13.05	3,863
2345	03 83A13 13569	27.944	92.854	Jia Bharali	E(o)	5.71	4,040
2346	03 83A13 13572	27.937	92.866	Jia Bharali	E(o)	6.73	4,120
2347	03 83A13 13573	27.934	92.864	Jia Bharali	E(o)	8.91	4,095
2348	03 83A13 13578	27.926	92.769	Jia Bharali	E(o)	6.83	4,520
2349	03 83A13 13581	27.920	92.793	Jia Bharali	E(o)	10.67	4,291
2350	03 83A13 13585	27.914	92.769	Jia Bharali	E(o)	5.46	4,537
2351	03 83A13 13587	27.912	92.811	Jia Bharali	E(o)	6.82	4,252
2352	03 83A13 13589	27.904	92.810	Jia Bharali	E(c)	12.25	4,306
2353	03 83A13 13593	27.901	92.786	Jia Bharali	E(o)	10.15	4,248
2354	03 83A13 13596	27.894	92.792	Jia Bharali	E(o)	9.13	4,187
2355	03 83A13 13601	27.881	92.809	Jia Bharali	E(o)	9.49	4,048
2356	03 83A13 13602	27.877	92.800	Jia Bharali	E(o)	35.96	3,943
2357	03 82J08 13613	30.248	94.356	Lower Yarlung Tsangpo	E(c)	14.76	4,853
2358	03 82J08 13614	30.219	94.336	Lower Yarlung Tsangpo	M(o)	11.64	4,565
2359	03 82J08 13615	30.214	94.383	Lower Yarlung Tsangpo	E(o)	26.99	4,715
2360	03 82J08 13616	30.199	94.326	Lower Yarlung Tsangpo	E(o)	5.33	4,600
2361	03 82J08 13620	30.175	94.408	Lower Yarlung Tsangpo	E(o)	28	3,566
2362	03 82J08 13621	30.174	94.346	Lower Yarlung Tsangpo	E(v)	180.8	3,654
2363	03 82J08 13625	30.142	94.301	Lower Yarlung Tsangpo	M(o)	11.45	4,405
2364	03 82J08 13630	30.136	94.351	Lower Yarlung Tsangpo	E(c)	6.17	4,537
2365	03 82J08 13633	30.098	94.483	Lower Yarlung Tsangpo	O	15.5	3,289
2366	03 82J08 13634	30.073	94.464	Lower Yarlung Tsangpo	E(o)	90.19	4,110
2367	03 82J08 13636	30.059	94.354	Lower Yarlung Tsangpo	E(c)	6.91	4,841
2368	03 82J08 13639	30.053	94.358	Lower Yarlung Tsangpo	E(o)	25.92	4,730
2369	03 82J08 13643	30.029	94.447	Lower Yarlung Tsangpo	E(c)	7.2	4,650
2370	03 82J08 13644	30.028	94.396	Lower Yarlung Tsangpo	E(o)	11.01	4,664
2371	03 82J08 13653	30.017	94.444	Lower Yarlung Tsangpo	E(c)	11.69	4,609
2372	03 82J08 13655	30.013	94.472	Lower Yarlung Tsangpo	E(c)	66.38	4,327
2373	03 82J08 13657	30.005	94.384	Lower Yarlung Tsangpo	E(o)	59.09	4,020
2374	03 82J12 13659	30.189	94.523	Lower Yarlung Tsangpo	E(o)	6.1	4,425
2375	03 82K05 13668	29.985	94.342	Lower Yarlung Tsangpo	E(o)	10.51	4,407
2376	03 82K05 13670	29.984	94.328	Lower Yarlung Tsangpo	E(o)	11.45	4,515
2377	03 82K05 13679	29.959	94.292	Lower Yarlung Tsangpo	E(v)	134.02	4,282
2378	03 82K05 13680	29.956	94.326	Lower Yarlung Tsangpo	O	6.06	4,232
2379	03 82K05 13681	29.954	94.320	Lower Yarlung Tsangpo	O	10.03	4,232
2380	03 82K05 13682	29.954	94.486	Lower Yarlung Tsangpo	E(o)	10.3	4,550
2381	03 82K05 13683	29.952	94.461	Lower Yarlung Tsangpo	E(o)	6.36	4,554
2382	03 82K05 13686	29.947	94.358	Lower Yarlung Tsangpo	E(o)	109.97	4,148
2383	03 82K05 13689	29.943	94.333	Lower Yarlung Tsangpo	O	8.9	4,295
2384	03 82K05 13690	29.942	94.287	Lower Yarlung Tsangpo	E(o)	27.11	4,296
2385	03 82K05 13696	29.932	94.388	Lower Yarlung Tsangpo	E(o)	13.3	4,238
2386	03 82K05 13707	29.913	94.499	Lower Yarlung Tsangpo	E(o)	34.4	4,443
2387	03 82K05 13708	29.910	94.400	Lower Yarlung Tsangpo	E(o)	6.71	4,578
2388	03 82K05 13709	29.907	94.412	Lower Yarlung Tsangpo	E(o)	8.65	4,404
2389	03 82K05 13712	29.901	94.437	Lower Yarlung Tsangpo	E(o)	9.96	4,331
2390	03 82K05 13714	29.896	94.461	Lower Yarlung Tsangpo	E(o)	85.25	4,346
2391	03 82K05 13716	29.884	94.446	Lower Yarlung Tsangpo	E(o)	16.18	4,632
2392	03 82K05 13717	29.883	94.498	Lower Yarlung Tsangpo	E(o)	9.95	4,415
2393	03 82K09 13723	29.957	94.599	Lower Yarlung Tsangpo	E(o)	9.26	4,601
2394	03 82K09 13726	29.953	94.623	Lower Yarlung Tsangpo	E(o)	5.91	4,298

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2395	03 82K09 13737	29.943	94.717	Lower Yarlung Tsangpo	E(o)	10.75	4,554
2396	03 82K09 13740	29.941	94.613	Lower Yarlung Tsangpo	E(o)	10.19	4,546
2397	03 82K09 13741	29.941	94.589	Lower Yarlung Tsangpo	E(o)	48.08	4,509
2398	03 82K09 13747	29.933	94.720	Lower Yarlung Tsangpo	E(c)	23.31	4,372
2399	03 82K09 13755	29.927	94.719	Lower Yarlung Tsangpo	E(o)	9.5	4,524
2400	03 82K09 13757	29.926	94.564	Lower Yarlung Tsangpo	E(o)	8.04	4,583
2401	03 82K09 13764	29.918	94.695	Lower Yarlung Tsangpo	E(o)	6.32	4,311
2402	03 82K09 13765	29.917	94.623	Lower Yarlung Tsangpo	O	5.79	3,987
2403	03 82K09 13769	29.912	94.536	Lower Yarlung Tsangpo	E(o)	6.74	4,612
2404	03 82K09 13772	29.910	94.711	Lower Yarlung Tsangpo	E(o)	10.29	4,411
2405	03 82K09 13777	29.902	94.561	Lower Yarlung Tsangpo	E(o)	16.26	4,495
2406	03 82K09 13778	29.902	94.528	Lower Yarlung Tsangpo	E(o)	10.55	4,591
2407	03 82K09 13779	29.900	94.533	Lower Yarlung Tsangpo	E(o)	15.42	4,615
2408	03 82K09 13781	29.899	94.701	Lower Yarlung Tsangpo	E(c)	21.07	4,500
2409	03 82K09 13783	29.898	94.651	Lower Yarlung Tsangpo	E(o)	8.05	4,147
2410	03 82K09 13784	29.897	94.694	Lower Yarlung Tsangpo	E(o)	5.11	4,611
2411	03 82K09 13785	29.897	94.512	Lower Yarlung Tsangpo	E(o)	8.46	4,659
2412	03 82K09 13789	29.892	94.727	Lower Yarlung Tsangpo	E(o)	13.6	4,288
2413	03 82K09 13791	29.890	94.569	Lower Yarlung Tsangpo	E(v)	158.02	4,149
2414	03 82K09 13793	29.888	94.685	Lower Yarlung Tsangpo	E(o)	5.32	4,527
2415	03 82K09 13795	29.885	94.646	Lower Yarlung Tsangpo	E(o)	27.76	4,308
2416	03 82K09 13797	29.882	94.582	Lower Yarlung Tsangpo	E(o)	18.69	4,418
2417	03 82K09 13798	29.879	94.541	Lower Yarlung Tsangpo	E(o)	37.67	4,266
2418	03 82K09 13800	29.877	94.630	Lower Yarlung Tsangpo	E(o)	22.63	4,490
2419	03 82K09 13801	29.877	94.672	Lower Yarlung Tsangpo	E(o)	5.99	4,510
2420	03 82K09 13802	29.875	94.616	Lower Yarlung Tsangpo	E(o)	15.79	4,588
2421	03 82K09 13806	29.869	94.687	Lower Yarlung Tsangpo	E(o)	24.37	4,378
2422	03 82K09 13814	29.863	94.588	Lower Yarlung Tsangpo	E(o)	7.25	4,698
2423	03 82K09 13815	29.863	94.666	Lower Yarlung Tsangpo	E(o)	9.53	4,426
2424	03 82K09 13824	29.861	94.531	Lower Yarlung Tsangpo	E(o)	17.89	4,592
2425	03 82K09 13837	29.854	94.613	Lower Yarlung Tsangpo	E(c)	5.35	4,611
2426	03 82K09 13842	29.852	94.583	Lower Yarlung Tsangpo	E(o)	13.48	4,688
2427	03 82K09 13843	29.851	94.566	Lower Yarlung Tsangpo	E(o)	5.18	4,390
2428	03 82K09 13847	29.848	94.609	Lower Yarlung Tsangpo	E(c)	6.84	4,602
2429	03 82K09 13849	29.846	94.584	Lower Yarlung Tsangpo	E(c)	6.74	4,715
2430	03 82K09 13855	29.829	94.633	Lower Yarlung Tsangpo	E(v)	60.2	4,231
2431	03 82K09 13861	29.825	94.550	Lower Yarlung Tsangpo	O	12.85	4,275
2432	03 82K09 13863	29.824	94.599	Lower Yarlung Tsangpo	E(o)	11.98	4,564
2433	03 82K09 13864	29.823	94.590	Lower Yarlung Tsangpo	E(o)	6.8	4,423
2434	03 82K09 13869	29.815	94.572	Lower Yarlung Tsangpo	E(o)	13.32	4,400
2435	03 82K09 13874	29.805	94.529	Lower Yarlung Tsangpo	E(o)	6.87	4,593
2436	03 82K09 13880	29.796	94.577	Lower Yarlung Tsangpo	E(o)	29.63	4,351
2437	03 82K09 13886	29.779	94.601	Lower Yarlung Tsangpo	E(v)	184.22	4,146
2438	03 82K09 13887	29.779	94.642	Lower Yarlung Tsangpo	E(o)	7.82	4,502
2439	03 82K09 13888	29.777	94.560	Lower Yarlung Tsangpo	E(o)	32.49	4,161
2440	03 82K09 13889	29.776	94.573	Lower Yarlung Tsangpo	E(o)	47.72	4,161
2441	03 82K09 13890	29.774	94.669	Lower Yarlung Tsangpo	E(o)	7.82	4,442
2442	03 82K14 13906	29.739	94.804	Lower Yarlung Tsangpo	E(o)	7.79	4,378
2443	03 82H13 13920	28.771	93.989	Dihang	E(c)	7.54	4,180
2444	03 82H13 13922	28.763	93.987	Dihang	E(c)	20.22	3,957
2445	03 82H13 13923	28.758	93.983	Dihang	E(o)	8.92	3,929
2446	03 82H14 13924	28.748	93.913	Dihang	E(o)	8.77	4,146
2447	03 82H14 13926	28.742	93.915	Dihang	E(o)	10.1	4,150
2448	03 82H14 13936	28.732	93.807	Dihang	E(c)	7.01	4,203
2449	03 82H14 13937	28.728	93.795	Dihang	E(c)	10.98	4,205
2450	03 82H14 13940	28.718	93.904	Dihang	E(o)	6.35	3,203
2451	03 82H14 13941	28.707	93.792	Dihang	E(o)	17.92	3,793
2452	03 82H14 13944	28.702	93.901	Dihang	E(o)	5.75	2,910
2453	03 82H14 13957	28.647	93.803	Dihang	E(c)	5.76	4,002
2454	03 82H14 13961	28.636	93.880	Dihang	E(c)	5.21	3,897
2455	03 82H14 13964	28.606	93.845	Dihang	E(c)	12.39	4,022
2456	03 82H14 13966	28.595	93.850	Dihang	E(c)	5.92	3,945
2457	03 82H14 13967	28.592	93.857	Dihang	E(c)	7.54	3,813
2458	03 82H14 13971	28.570	93.892	Dihang	E(o)	5.73	3,910
2459	03 82H14 13972	28.567	93.930	Dihang	E(c)	5.97	4,043
2460	03 82H14 13973	28.566	93.891	Dihang	E(o)	5.69	3,915
2461	03 82H14 13975	28.562	93.887	Dihang	E(c)	13.03	3,938
2462	03 82L01 13983	28.777	94.108	Dihang	E(o)	5.48	3,816
2463	03 82L01 13986	28.767	94.138	Dihang	E(c)	5.81	4,062
2464	03 82L01 13989	28.757	94.153	Dihang	E(o)	13.33	3,875
2465	03 82L01 13993	28.754	94.134	Dihang	E(o)	10.91	4,057
2466	03 82L01 13994	28.753	94.001	Dihang	E(c)	22.89	4,019
2467	03 82L05 14004	28.963	94.372	Dihang	E(c)	18.95	4,145
2468	03 82L05 14005	28.953	94.383	Dihang	E(o)	19.27	3,858

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2469	03 82L05 14006	28.953	94.391	Dihang	E(o)	8.57	3,751
2470	03 82L05 14007	28.951	94.363	Dihang	E(c)	9.48	3,897
2471	03 82L05 14010	28.946	94.382	Dihang	E(c)	6.03	4,098
2472	03 82L05 14013	28.942	94.395	Dihang	E(o)	5.05	3,667
2473	03 82L05 14016	28.937	94.386	Dihang	E(c)	8.04	3,924
2474	03 82L05 14019	28.837	94.451	Dihang	E(o)	18.47	4,136
2475	03 82N02 14031	30.603	95.182	Lower Yarlung Tsangpo	M(e)	110.12	4,278
2476	03 82N03 14046	30.269	95.217	Lower Yarlung Tsangpo	E(o)	12.18	3,938
2477	03 82N06 14050	30.616	95.434	Lower Yarlung Tsangpo	E(o)	5.28	5,090
2478	03 82N06 14053	30.603	95.439	Lower Yarlung Tsangpo	E(o)	6.21	4,922
2479	03 82N06 14055	30.598	95.487	Lower Yarlung Tsangpo	E(o)	5.31	5,058
2480	03 82N06 14063	30.571	95.252	Lower Yarlung Tsangpo	M(e)	34.62	4,520
2481	03 82N06 14067	30.546	95.344	Lower Yarlung Tsangpo	M(o)	7.3	5,068
2482	03 82N06 14069	30.540	95.375	Lower Yarlung Tsangpo	E(o)	7.76	4,995
2483	03 82N06 14076	30.531	95.487	Lower Yarlung Tsangpo	E(o)	10.31	4,783
2484	03 82N07 14096	30.420	95.296	Lower Yarlung Tsangpo	E(o)	22.11	4,404
2485	03 82N07 14098	30.392	95.419	Lower Yarlung Tsangpo	E(o)	10.82	4,317
2486	03 82N08 14112	30.027	95.420	Lower Yarlung Tsangpo	M(o)	6.53	3,982
2487	03 82N10 14116	30.591	95.551	Lower Yarlung Tsangpo	E(o)	36.7	5,043
2488	03 82N10 14118	30.586	95.528	Lower Yarlung Tsangpo	E(o)	5.47	5,007
2489	03 82N10 14121	30.576	95.576	Lower Yarlung Tsangpo	E(o)	15.48	4,924
2490	03 82N10 14125	30.564	95.644	Lower Yarlung Tsangpo	E(o)	18.17	5,073
2491	03 82N10 14137	30.550	95.590	Lower Yarlung Tsangpo	E(o)	5.18	4,875
2492	03 82N10 14138	30.550	95.683	Lower Yarlung Tsangpo	E(o)	9.66	5,094
2493	03 82N10 14139	30.550	95.578	Lower Yarlung Tsangpo	E(o)	5.73	4,812
2494	03 82N10 14140	30.550	95.697	Lower Yarlung Tsangpo	E(o)	9.17	5,076
2495	03 82N10 14145	30.545	95.523	Lower Yarlung Tsangpo	E(o)	6.81	4,873
2496	03 82N10 14150	30.541	95.703	Lower Yarlung Tsangpo	E(o)	15.73	5,053
2497	03 82N10 14152	30.540	95.504	Lower Yarlung Tsangpo	E(o)	7.16	5,093
2498	03 82N10 14154	30.537	95.548	Lower Yarlung Tsangpo	E(o)	13.31	4,811
2499	03 82N10 14159	30.533	95.565	Lower Yarlung Tsangpo	E(o)	10.34	4,918
2500	03 82N10 14161	30.527	95.693	Lower Yarlung Tsangpo	E(o)	12.41	4,988
2501	03 82N10 14166	30.525	95.699	Lower Yarlung Tsangpo	E(o)	5.78	4,992
2502	03 82N10 14167	30.525	95.531	Lower Yarlung Tsangpo	E(o)	6.25	4,952
2503	03 82N10 14171	30.522	95.701	Lower Yarlung Tsangpo	M(o)	13.86	4,991
2504	03 82N10 14176	30.514	95.669	Lower Yarlung Tsangpo	E(o)	16.25	4,761
2505	03 82N10 14179	30.511	95.557	Lower Yarlung Tsangpo	E(o)	7.51	4,993
2506	03 82N10 14180	30.511	95.516	Lower Yarlung Tsangpo	E(o)	5.16	5,024
2507	03 82N10 14183	30.500	95.525	Lower Yarlung Tsangpo	E(o)	7.95	4,844
2508	03 82N10 14193	30.473	95.575	Lower Yarlung Tsangpo	E(o)	56.47	4,866
2509	03 82N11 14200	30.496	95.650	Lower Yarlung Tsangpo	E(o)	11.52	4,954
2510	03 82N11 14204	30.483	95.682	Lower Yarlung Tsangpo	E(o)	7.3	4,962
2511	03 82N11 14210	30.470	95.588	Lower Yarlung Tsangpo	E(o)	13.82	4,876
2512	03 82N11 14216	30.454	95.681	Lower Yarlung Tsangpo	E(o)	6.55	4,984
2513	03 82N11 14235	30.436	95.602	Lower Yarlung Tsangpo	E(o)	33.96	5,002
2514	03 82N11 14236	30.435	95.702	Lower Yarlung Tsangpo	E(o)	5.95	5,036
2515	03 82N11 14239	30.431	95.612	Lower Yarlung Tsangpo	M(e)	6.31	4,937
2516	03 82N11 14256	30.411	95.719	Lower Yarlung Tsangpo	E(o)	6.57	4,841
2517	03 82N11 14266	30.391	95.657	Lower Yarlung Tsangpo	E(o)	18.3	4,734
2518	03 82N11 14269	30.387	95.673	Lower Yarlung Tsangpo	E(o)	6.75	4,772
2519	03 82N11 14270	30.386	95.745	Lower Yarlung Tsangpo	0	10.71	4,257
2520	03 82N11 14272	30.381	95.654	Lower Yarlung Tsangpo	M(o)	25.1	4,751
2521	03 82N11 14287	30.326	95.611	Lower Yarlung Tsangpo	M(o)	17.32	4,916
2522	03 82N11 14296	30.300	95.548	Lower Yarlung Tsangpo	M(o)	13.14	4,419
2523	03 82N11 14297	30.293	95.684	Lower Yarlung Tsangpo	E(o)	6.95	4,587
2524	03 82N11 14300	30.269	95.606	Lower Yarlung Tsangpo	M(e)	38.89	4,459
2525	03 82N11 14301	30.251	95.604	Lower Yarlung Tsangpo	M(o)	134.45	4,442
2526	03 82N12 14303	30.238	95.603	Lower Yarlung Tsangpo	M(o)	15.95	4,394
2527	03 82N12 14304	30.229	95.592	Lower Yarlung Tsangpo	M(o)	25.71	4,354
2528	03 82N12 14305	30.223	95.543	Lower Yarlung Tsangpo	M(e)	12.71	4,173
2529	03 82N12 14308	30.221	95.584	Lower Yarlung Tsangpo	M(e)	85.49	4,342
2530	03 82N15 14326	30.361	95.752	Lower Yarlung Tsangpo	0	6.01	4,120
2531	03 82N15 14331	30.353	95.829	Lower Yarlung Tsangpo	M(o)	7.15	4,947
2532	03 82N15 14332	30.352	95.850	Lower Yarlung Tsangpo	M(o)	8.42	5,051
2533	03 82N15 14337	30.341	95.856	Lower Yarlung Tsangpo	M(o)	18.58	4,851
2534	03 82N15 14358	30.288	95.871	Lower Yarlung Tsangpo	E(o)	11.6	4,724
2535	03 82N16 14373	30.214	95.847	Lower Yarlung Tsangpo	M(o)	7.89	4,408
2536	03 82N16 14379	30.180	95.857	Lower Yarlung Tsangpo	E(o)	21.83	4,442
2537	03 82N16 14388	30.108	95.862	Lower Yarlung Tsangpo	E(o)	5.41	4,825
2538	03 82N16 14390	30.008	95.917	Lower Yarlung Tsangpo	M(o)	12.77	4,670
2539	03 82O09 14396	29.805	95.642	Lower Yarlung Tsangpo	M(e)	24.48	4,131
2540	03 82O09 14401	29.796	95.512	Lower Yarlung Tsangpo	E(o)	29.47	4,133
2541	03 82O09 14403	29.785	95.511	Lower Yarlung Tsangpo	E(o)	6.17	4,351
2542	03 82O13 14404	29.992	95.866	Lower Yarlung Tsangpo	M(e)	46.26	4,312

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2543	03 82O13 14406	29.985	95.798	Lower Yarlung Tsangpo	M(o)	5.01	4,149
2544	03 82O13 14407	29.982	95.905	Lower Yarlung Tsangpo	E(o)	19.77	4,189
2545	03 82O13 14420	29.905	95.909	Lower Yarlung Tsangpo	E(o)	13.26	4,168
2546	03 82O13 14422	29.895	95.948	Lower Yarlung Tsangpo	M(o)	9.18	4,736
2547	03 82O13 14426	29.870	95.982	Lower Yarlung Tsangpo	M(o)	11.87	4,707
2548	03 91B04 14430	30.245	96.032	Lower Yarlung Tsangpo	M(o)	6.22	4,940
2549	03 91B04 14437	30.234	96.043	Lower Yarlung Tsangpo	E(o)	6.71	4,791
2550	03 91B04 14442	30.229	96.057	Lower Yarlung Tsangpo	E(o)	8.82	4,897
2551	03 91B04 14469	30.171	96.194	Lower Yarlung Tsangpo	E(o)	6.58	5,012
2552	03 91B04 14476	30.138	96.120	Lower Yarlung Tsangpo	E(o)	5.04	4,896
2553	03 91B04 14479	30.130	96.127	Lower Yarlung Tsangpo	M(o)	6.55	4,788
2554	03 91C02 14515	29.748	96.229	Lower Yarlung Tsangpo	E(o)	8.73	4,704
2555	03 91C02 14516	29.741	96.225	Lower Yarlung Tsangpo	M(o)	8.52	4,870
2556	03 91C02 14519	29.693	96.038	Lower Yarlung Tsangpo	E(o)	9.64	3,678
2557	03 91C02 14526	29.598	96.141	Lower Yarlung Tsangpo	M(o)	65.09	4,025
2558	03 91C02 14527	29.580	96.080	Lower Yarlung Tsangpo	M(o)	8.84	4,875
2559	03 91C02 14528	29.579	96.161	Lower Yarlung Tsangpo	M(o)	13	3,874
2560	03 91C02 14532	29.541	96.225	Lower Yarlung Tsangpo	M(o)	8.51	4,087
2561	03 91C05 14535	29.907	96.257	Lower Yarlung Tsangpo	E(o)	19.83	4,578
2562	03 91C05 14536	29.904	96.399	Lower Yarlung Tsangpo	E(o)	10.21	4,892
2563	03 91C05 14537	29.893	96.380	Lower Yarlung Tsangpo	E(o)	22.74	4,681
2564	03 91C05 14541	29.883	96.391	Lower Yarlung Tsangpo	M(o)	27.39	4,691
2565	03 91C05 14543	29.879	96.372	Lower Yarlung Tsangpo	E(o)	5.12	4,966
2566	03 91C05 14547	29.874	96.325	Lower Yarlung Tsangpo	M(e)	19.41	4,117
2567	03 91C05 14548	29.867	96.370	Lower Yarlung Tsangpo	M(o)	15.47	4,775
2568	03 91C05 14550	29.823	96.351	Lower Yarlung Tsangpo	M(o)	101.06	4,870
2569	03 91C05 14551	29.813	96.383	Lower Yarlung Tsangpo	E(o)	8.5	4,543
2570	03 91C05 14563	29.785	96.318	Lower Yarlung Tsangpo	M(o)	5.83	5,039
2571	03 91C05 14568	29.762	96.375	Lower Yarlung Tsangpo	E(o)	12.04	4,810
2572	03 91C05 14570	29.757	96.356	Lower Yarlung Tsangpo	E(o)	5.52	4,834
2573	03 91C06 14585	29.721	96.484	Lower Yarlung Tsangpo	M(o)	6.41	4,997
2574	03 91C06 14586	29.721	96.496	Lower Yarlung Tsangpo	M(o)	7.19	5,146
2575	03 91C06 14589	29.714	96.468	Lower Yarlung Tsangpo	M(o)	6.62	5,006
2576	03 91C06 14590	29.712	96.494	Lower Yarlung Tsangpo	M(o)	5.11	5,000
2577	03 91C06 14591	29.709	96.467	Lower Yarlung Tsangpo	M(o)	8.7	5,089
2578	03 91C06 14592	29.706	96.308	Lower Yarlung Tsangpo	E(c)	23.92	4,845
2579	03 91C06 14594	29.697	96.436	Lower Yarlung Tsangpo	E(o)	8.61	4,738
2580	03 91C06 14597	29.694	96.499	Lower Yarlung Tsangpo	M(o)	6.45	4,989
2581	03 91C06 14599	29.691	96.443	Lower Yarlung Tsangpo	E(o)	8.26	4,813
2582	03 91C06 14601	29.672	96.318	Lower Yarlung Tsangpo	E(o)	8.33	4,707
2583	03 91C06 14611	29.636	96.443	Lower Yarlung Tsangpo	M(o)	6.92	4,625
2584	03 91C06 14612	29.626	96.470	Lower Yarlung Tsangpo	E(o)	12.62	4,364
2585	03 91C06 14616	29.571	96.375	Lower Yarlung Tsangpo	E(c)	27.01	4,279
2586	03 91C07 14620	29.465	96.500	Lower Yarlung Tsangpo	M(e)	32.33	3,818
2587	03 91C10 14628	29.664	96.553	Lower Yarlung Tsangpo	M(e)	21.41	4,696
2588	03 82K08 14637	29.026	94.388	Dihang	E(c)	8.13	4,023
2589	03 82K12 14639	29.235	94.737	Dihang	E(c)	8.04	3,944
2590	03 82K12 14643	29.177	94.526	Dihang	E(o)	14.84	4,258
2591	03 82K14 14646	29.504	94.969	Dihang	E(c)	15.54	4,451
2592	03 82K15 14652	29.330	94.816	Dihang	E(c)	27.4	4,151
2593	03 82K15 14654	29.316	94.922	Dihang	E(o)	31.3	3,657
2594	03 82K15 14655	29.311	94.927	Dihang	E(o)	9	3,638
2595	03 82K15 14657	29.305	94.782	Dihang	M(o)	6.9	3,734
2596	03 82K15 14659	29.256	94.770	Dihang	0	12.67	3,294
2597	03 82K16 14663	29.226	94.783	Dihang	E(c)	13.12	3,683
2598	03 82K16 14664	29.222	94.780	Dihang	E(c)	19.59	3,754
2599	03 82L05 14665	28.978	94.398	Dihang	E(o)	24.66	3,111
2600	03 82L05 14666	28.967	94.402	Dihang	E(o)	5.03	3,107
2601	03 82O03 14676	29.483	95.038	Dihang	E(o)	40.06	3,897
2602	03 82O03 14679	29.478	95.074	Dihang	E(o)	40.76	3,474
2603	03 82O03 14682	29.254	95.227	Dihang	E(o)	20.72	1,441
2604	03 82O04 14684	29.079	95.249	Dihang	E(c)	9.57	3,910
2605	03 82O04 14685	29.074	95.241	Dihang	E(o)	5.31	3,720
2606	03 82O04 14686	29.069	95.225	Dihang	E(o)	8.8	3,731
2607	03 82O04 14687	29.069	95.242	Dihang	E(o)	18.51	3,823
2608	03 82O04 14688	29.067	95.230	Dihang	E(c)	6.07	3,763
2609	03 82O04 14690	29.063	95.205	Dihang	E(o)	6.42	3,578
2610	03 82O04 14692	29.058	95.237	Dihang	E(c)	10.02	3,743
2611	03 82O08 14698	29.221	95.473	Dihang	E(o)	5.04	3,818
2612	03 82O08 14700	29.210	95.457	Dihang	E(o)	5.45	3,929
2613	03 82O08 14707	29.188	95.453	Dihang	E(c)	15.04	3,866
2614	03 82O08 14708	29.183	95.451	Dihang	E(c)	10.73	3,922
2615	03 82O08 14709	29.180	95.486	Dihang	E(o)	93.81	3,533
2616	03 82O08 14710	29.174	95.415	Dihang	E(o)	6.45	3,777

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2617	03 82008 14712	29.163	95.491	Dihang	E(o)	34.65	3,544
2618	03 82008 14714	29.161	95.456	Dihang	E(o)	6.67	3,911
2619	03 82008 14715	29.161	95.464	Dihang	E(o)	19.76	3,826
2620	03 82008 14718	29.154	95.485	Dihang	E(o)	8.88	3,556
2621	03 82008 14721	29.149	95.458	Dihang	E(c)	6.53	3,902
2622	03 82008 14723	29.148	95.369	Dihang	E(c)	7.14	3,759
2623	03 82008 14725	29.144	95.300	Dihang	E(c)	6.37	3,637
2624	03 82008 14726	29.144	95.391	Dihang	E(o)	6.15	3,811
2625	03 82008 14728	29.144	95.493	Dihang	E(o)	17.69	3,673
2626	03 82008 14729	29.141	95.501	Dihang	E(o)	5.82	3,686
2627	03 82008 14730	29.140	95.405	Dihang	E(o)	20.64	3,765
2628	03 82008 14732	29.133	95.293	Dihang	E(o)	6.01	3,698
2629	03 82008 14733	29.131	95.411	Dihang	E(c)	6.71	3,941
2630	03 82008 14737	29.068	95.256	Dihang	E(o)	7.56	3,872
2631	03 82008 14738	29.062	95.263	Dihang	E(o)	48.24	3,668
2632	03 82009 14741	29.763	95.546	Dihang	E(c)	47.44	3,474
2633	03 82010 14747	29.723	95.528	Dihang	E(o)	13.44	3,065
2634	03 82010 14763	29.645	95.626	Dihang	E(o)	9.35	4,115
2635	03 82010 14765	29.633	95.613	Dihang	E(c)	39.4	4,320
2636	03 82010 14773	29.599	95.740	Dihang	E(o)	14.79	4,010
2637	03 82010 14774	29.596	95.691	Dihang	E(c)	11.35	4,314
2638	03 82010 14777	29.571	95.716	Dihang	E(o)	8.81	3,866
2639	03 82010 14778	29.557	95.679	Dihang	E(o)	10.64	4,199
2640	03 82010 14780	29.532	95.694	Dihang	E(c)	9.55	4,262
2641	03 82010 14781	29.513	95.693	Dihang	E(c)	37.79	3,922
2642	03 82011 14786	29.387	95.558	Dihang	E(o)	6.02	3,853
2643	03 82011 14793	29.377	95.630	Dihang	E(o)	33.66	3,750
2644	03 82011 14795	29.376	95.576	Dihang	E(o)	7.43	4,089
2645	03 82011 14797	29.374	95.558	Dihang	E(o)	12.79	4,049
2646	03 82011 14798	29.374	95.718	Dihang	E(o)	12.83	4,046
2647	03 82011 14799	29.372	95.712	Dihang	E(o)	13.6	4,042
2648	03 82011 14801	29.369	95.703	Dihang	E(o)	5.54	4,102
2649	03 82011 14803	29.367	95.696	Dihang	E(c)	12.43	4,282
2650	03 82011 14805	29.364	95.593	Dihang	E(o)	6.05	4,020
2651	03 82011 14806	29.363	95.598	Dihang	E(o)	15.57	4,150
2652	03 82011 14807	29.359	95.583	Dihang	E(o)	33.71	4,193
2653	03 82011 14808	29.359	95.656	Dihang	E(o)	13.11	3,951
2654	03 82011 14811	29.356	95.664	Dihang	E(c)	16.4	4,091
2655	03 82011 14813	29.356	95.700	Dihang	E(o)	5.85	4,366
2656	03 82011 14815	29.352	95.707	Dihang	E(o)	7.68	4,042
2657	03 82011 14817	29.348	95.589	Dihang	E(c)	5.77	4,232
2658	03 82011 14818	29.347	95.732	Dihang	E(c)	11.27	4,140
2659	03 82011 14819	29.347	95.695	Dihang	E(c)	11.54	4,101
2660	03 82011 14823	29.336	95.741	Dihang	E(c)	11.33	4,111
2661	03 82011 14825	29.332	95.721	Dihang	E(c)	9.91	3,979
2662	03 82011 14831	29.324	95.590	Dihang	E(o)	25.1	4,016
2663	03 82011 14832	29.320	95.612	Dihang	E(c)	5.81	4,150
2664	03 82011 14834	29.304	95.640	Dihang	E(v)	70.17	3,322
2665	03 82011 14835	29.304	95.725	Dihang	E(o)	12.17	3,952
2666	03 82011 14839	29.300	95.580	Dihang	E(c)	7.19	4,106
2667	03 82011 14841	29.296	95.654	Dihang	E(o)	6.89	3,981
2668	03 82011 14845	29.283	95.740	Dihang	E(o)	20.05	4,168
2669	03 82011 14846	29.273	95.739	Dihang	E(c)	11.19	4,023
2670	03 82011 14847	29.255	95.622	Dihang	E(c)	6.3	3,911
2671	03 82011 14848	29.252	95.674	Dihang	E(c)	8.94	3,756
2672	03 82012 14850	29.250	95.730	Dihang	E(c)	7.83	4,212
2673	03 82012 14853	29.246	95.588	Dihang	E(o)	6.52	4,056
2674	03 82012 14855	29.242	95.725	Dihang	E(c)	5.98	4,030
2675	03 82012 14856	29.237	95.659	Dihang	E(o)	12.7	4,016
2676	03 82012 14857	29.234	95.596	Dihang	E(o)	14.68	3,750
2677	03 82012 14858	29.233	95.654	Dihang	E(c)	17.08	3,915
2678	03 82012 14866	29.214	95.592	Dihang	E(c)	5.65	3,866
2679	03 82012 14869	29.202	95.545	Dihang	E(c)	21.83	3,838
2680	03 82012 14870	29.200	95.505	Dihang	E(o)	24.28	4,104
2681	03 82012 14873	29.195	95.592	Dihang	E(c)	43.26	3,708
2682	03 82012 14877	29.133	95.507	Dihang	E(o)	5.78	3,796
2683	03 82014 14878	29.646	95.778	Dihang	E(o)	6.16	4,029
2684	03 82014 14884	29.539	95.795	Dihang	E(c)	22.16	3,895
2685	03 82014 14885	29.535	95.804	Dihang	E(c)	20.81	4,065
2686	03 82015 14893	29.410	95.976	Dihang	E(c)	9.99	4,173
2687	03 82015 14894	29.404	95.776	Dihang	E(o)	6.26	4,648
2688	03 82015 14899	29.387	95.987	Dihang	M(o)	42.62	4,251
2689	03 82015 14901	29.375	95.951	Dihang	M(o)	17.15	4,296
2690	03 82015 14903	29.371	95.873	Dihang	E(o)	103.75	4,344

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2691	03 82015 14906	29.354	95.927	Dihang	M(o)	37.97	4,357
2692	03 82015 14907	29.352	95.902	Dihang	M(o)	20.65	4,212
2693	03 82015 14908	29.352	95.915	Dihang	M(o)	46.14	4,357
2694	03 82015 14909	29.335	95.871	Dihang	E(o)	27.26	4,025
2695	03 82015 14911	29.327	95.847	Dihang	E(o)	27.9	4,290
2696	03 82015 14913	29.323	95.857	Dihang	E(o)	15.01	4,169
2697	03 82P01 14914	28.994	95.244	Dihang	E(o)	8.38	4,012
2698	03 82P01 14917	28.980	95.227	Dihang	E(c)	7.43	3,732
2699	03 82P01 14921	28.950	95.244	Dihang	E(c)	5.33	3,843
2700	03 82P01 14922	28.935	95.242	Dihang	E(o)	7.94	3,474
2701	03 82P02 14923	28.720	95.160	Dihang	E(c)	21.86	3,640
2702	03 82P05 14924	28.964	95.252	Dihang	E(o)	19.91	3,717
2703	03 82P05 14925	28.957	95.253	Dihang	E(o)	7.92	3,803
2704	03 82P05 14928	28.943	95.298	Dihang	E(o)	11.19	3,780
2705	03 82P05 14929	28.922	95.323	Dihang	E(o)	16.42	3,841
2706	03 82P05 14931	28.912	95.309	Dihang	E(c)	5.13	3,922
2707	03 82P05 14934	28.899	95.313	Dihang	E(o)	20.34	3,788
2708	03 82P05 14936	28.895	95.319	Dihang	E(o)	5.23	3,836
2709	03 82P05 14937	28.876	95.316	Dihang	E(o)	14.98	3,847
2710	03 91C03 14944	29.445	96.018	Dihang	M(o)	8.5	4,497
2711	03 91C03 14946	29.400	96.028	Dihang	M(e)	6.82	4,438
2712	03 91C03 14950	29.392	96.032	Dihang	M(o)	9.62	4,509
2713	03 82P02 14953	28.715	95.176	Dihang	E(c)	7.59	3,668
2714	03 82O08 14954	29.176	95.447	Dibang	E(o)	14.14	3,906
2715	03 82O08 14955	29.167	95.450	Dibang	E(o)	21.38	3,945
2716	03 82O08 14963	29.141	95.437	Dibang	0	21.42	3,322
2717	03 82O08 14969	29.135	95.419	Dibang	E(o)	5.05	3,877
2718	03 82O08 14972	29.131	95.462	Dibang	E(o)	7.59	3,813
2719	03 82O08 14974	29.129	95.439	Dibang	E(o)	53.88	3,284
2720	03 82O08 14976	29.123	95.408	Dibang	E(c)	5.85	3,993
2721	03 82O08 14977	29.120	95.397	Dibang	E(o)	11.15	3,914
2722	03 82O08 14979	29.117	95.480	Dibang	E(c)	12.98	3,706
2723	03 82O08 14988	29.102	95.420	Dibang	E(o)	5.96	3,825
2724	03 82O08 14991	29.085	95.438	Dibang	E(o)	20.76	3,706
2725	03 82O08 14993	29.085	95.411	Dibang	E(o)	5.19	3,761
2726	03 82O08 14996	29.078	95.278	Dibang	E(o)	5.36	3,759
2727	03 82O08 14997	29.074	95.391	Dibang	E(o)	9.88	3,927
2728	03 82O08 14998	29.074	95.427	Dibang	E(c)	11.42	3,670
2729	03 82O08 15000	29.072	95.405	Dibang	E(o)	19.08	3,864
2730	03 82O08 15004	29.056	95.367	Dibang	E(o)	6.3	3,646
2731	03 82O08 15005	29.034	95.395	Dibang	E(c)	9.56	3,678
2732	03 82O11 15006	29.252	95.747	Dibang	E(o)	6.76	3,983
2733	03 82O12 15007	29.232	95.739	Dibang	E(o)	8.14	4,045
2734	03 82O12 15011	29.210	95.642	Dibang	E(o)	8.74	3,904
2735	03 82O12 15012	29.208	95.742	Dibang	E(o)	10.44	3,913
2736	03 82O12 15014	29.188	95.539	Dibang	E(c)	7.46	3,885
2737	03 82O12 15015	29.183	95.730	Dibang	E(c)	5.04	3,586
2738	03 82O12 15018	29.176	95.617	Dibang	0	41.23	3,063
2739	03 82O12 15020	29.172	95.736	Dibang	E(o)	10.14	3,652
2740	03 82O12 15023	29.169	95.519	Dibang	E(c)	8.48	3,733
2741	03 82O12 15024	29.166	95.674	Dibang	E(o)	18.91	3,771
2742	03 82O12 15026	29.161	95.669	Dibang	E(o)	9.01	3,629
2743	03 82O12 15033	29.146	95.593	Dibang	E(o)	6.76	3,770
2744	03 82O12 15049	29.092	95.566	Dibang	E(o)	29.05	3,247
2745	03 82O12 15051	29.086	95.701	Dibang	E(o)	5.69	3,665
2746	03 82O12 15052	29.084	95.501	Dibang	E(o)	26.85	3,480
2747	03 82O12 15057	29.065	95.521	Dibang	E(c)	8.92	3,834
2748	03 82O12 15059	29.044	95.522	Dibang	E(c)	5.84	3,846
2749	03 82O15 15064	29.321	95.953	Dibang	E(o)	9.58	3,999
2750	03 82O15 15067	29.311	95.920	Dibang	E(o)	5.82	3,945
2751	03 82O15 15068	29.309	95.864	Dibang	E(o)	5.59	4,194
2752	03 82O15 15070	29.299	95.876	Dibang	E(o)	5.45	3,950
2753	03 82O15 15072	29.294	95.887	Dibang	E(c)	28.29	3,517
2754	03 82O15 15078	29.270	95.925	Dibang	0	16.04	2,605
2755	03 82O15 15081	29.259	95.974	Dibang	E(c)	6.44	4,133
2756	03 82O16 15082	29.251	95.957	Dibang	E(o)	10.41	3,738
2757	03 82O16 15084	29.250	95.993	Dibang	E(o)	29.1	4,204
2758	03 82O16 15087	29.239	95.980	Dibang	E(o)	16.96	4,155
2759	03 82O16 15092	29.237	95.880	Dibang	E(o)	8.16	3,805
2760	03 82O16 15093	29.236	95.875	Dibang	E(o)	6.6	3,784
2761	03 82O16 15096	29.232	95.981	Dibang	E(o)	30.93	4,167
2762	03 82O16 15098	29.229	95.962	Dibang	E(o)	14.29	4,328
2763	03 82O16 15102	29.222	95.987	Dibang	E(o)	6.24	4,382
2764	03 82O16 15103	29.219	95.749	Dibang	E(o)	17.46	3,951

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2765	03 82O16 15104	29.207	95.803	Dibang	E(o)	8.3	4,042
2766	03 82O16 15105	29.202	95.797	Dibang	E(o)	15.02	4,054
2767	03 82O16 15107	29.176	95.784	Dibang	E(o)	6.28	3,616
2768	03 82O16 15108	29.173	95.826	Dibang	E(o)	14.92	3,790
2769	03 82O16 15109	29.172	95.775	Dibang	E(o)	9.57	3,831
2770	03 82O16 15110	29.166	95.841	Dibang	E(c)	8.59	3,738
2771	03 82O16 15113	29.153	95.772	Dibang	E(o)	10.39	3,864
2772	03 82O16 15117	29.129	95.777	Dibang	E(o)	9.9	3,537
2773	03 82O16 15118	29.116	95.783	Dibang	E(o)	5.52	3,529
2774	03 82O16 15121	29.097	95.946	Dibang	E(o)	5.4	3,498
2775	03 82O16 15123	29.086	95.970	Dibang	E(o)	7.29	3,717
2776	03 82O16 15124	29.074	95.946	Dibang	E(o)	12.93	4,165
2777	03 82O16 15126	29.019	95.910	Dibang	E(c)	17.62	3,671
2778	03 82O16 15127	29.018	95.918	Dibang	E(o)	5.77	3,589
2779	03 82O16 15128	29.011	95.925	Dibang	E(o)	7.19	3,970
2780	03 82O16 15129	29.011	95.885	Dibang	E(o)	55.15	3,778
2781	03 82P05 15132	28.982	95.268	Dibang	E(o)	9.3	3,746
2782	03 82P05 15133	28.977	95.263	Dibang	E(c)	10.42	3,769
2783	03 82P05 15138	28.954	95.286	Dibang	E(o)	5.12	3,815
2784	03 82P05 15140	28.950	95.279	Dibang	E(o)	5.18	3,887
2785	03 82P05 15141	28.948	95.312	Dibang	E(o)	6.04	3,914
2786	03 82P05 15143	28.917	95.340	Dibang	E(o)	10.79	3,901
2787	03 82P05 15145	28.911	95.334	Dibang	E(o)	12.17	3,789
2788	03 82P05 15147	28.902	95.331	Dibang	E(o)	9.39	3,887
2789	03 82P05 15150	28.886	95.330	Dibang	E(o)	9.7	3,782
2790	03 82P05 15151	28.875	95.377	Dibang	E(c)	11.85	3,504
2791	03 82P05 15152	28.875	95.334	Dibang	E(o)	20.54	3,756
2792	03 82P05 15153	28.873	95.350	Dibang	E(o)	22.84	3,647
2793	03 82P05 15157	28.863	95.340	Dibang	E(o)	10.28	3,789
2794	03 82P05 15158	28.861	95.392	Dibang	E(o)	5.51	4,103
2795	03 82P05 15160	28.857	95.367	Dibang	E(o)	5.16	3,330
2796	03 82P05 15161	28.856	95.401	Dibang	E(o)	7.63	3,815
2797	03 82P05 15162	28.854	95.405	Dibang	E(o)	7.29	3,806
2798	03 82P05 15163	28.852	95.369	Dibang	E(o)	10	3,192
2799	03 82P05 15164	28.848	95.320	Dibang	E(o)	21.89	3,913
2800	03 82P05 15166	28.831	95.350	Dibang	E(c)	17.9	4,046
2801	03 82P06 15169	28.746	95.398	Dibang	E(o)	11.06	3,787
2802	03 82P09 15191	28.947	95.577	Dibang	E(o)	5.46	3,708
2803	03 82P13 15195	29.005	95.905	Dibang	E(o)	54.45	3,598
2804	03 82P13 15196	29.001	95.884	Dibang	E(o)	7.31	3,684
2805	03 82P13 15198	28.979	95.861	Dibang	E(c)	19.07	3,622
2806	03 91C03 15203	29.338	96.082	Dibang	M(o)	27.72	4,290
2807	03 91C03 15204	29.335	96.008	Dibang	E(c)	28.3	3,985
2808	03 91C03 15206	29.325	96.114	Dibang	E(o)	11.06	3,962
2809	03 91C03 15208	29.321	96.117	Dibang	E(o)	10.94	3,975
2810	03 91C03 15211	29.315	96.125	Dibang	E(o)	11.69	3,996
2811	03 91C03 15212	29.314	96.134	Dibang	E(c)	5.69	4,225
2812	03 91C03 15213	29.313	96.060	Dibang	E(c)	5.09	4,434
2813	03 91C03 15218	29.309	96.136	Dibang	E(o)	26.81	4,204
2814	03 91C03 15221	29.304	96.142	Dibang	E(o)	27.95	4,221
2815	03 91C03 15223	29.302	96.082	Dibang	E(o)	119.59	4,274
2816	03 91C03 15226	29.300	96.062	Dibang	E(o)	9.19	4,399
2817	03 91C03 15228	29.298	96.004	Dibang	E(o)	6.67	4,067
2818	03 91C03 15235	29.292	96.001	Dibang	E(o)	14.8	4,079
2819	03 91C03 15239	29.289	96.140	Dibang	E(o)	8.28	4,145
2820	03 91C03 15240	29.288	96.134	Dibang	E(o)	10.04	4,045
2821	03 91C03 15243	29.283	96.091	Dibang	E(o)	12.82	4,204
2822	03 91C03 15248	29.278	96.102	Dibang	E(c)	8.93	4,258
2823	03 91C03 15249	29.275	96.169	Dibang	E(o)	5.63	4,112
2824	03 91C03 15250	29.269	96.157	Dibang	E(o)	102.66	3,991
2825	03 91C03 15256	29.259	96.160	Dibang	E(o)	5.41	4,035
2826	03 91C03 15257	29.257	96.138	Dibang	E(o)	23.81	3,766
2827	03 91C03 15259	29.256	96.209	Dibang	E(c)	43.26	4,623
2828	03 91C03 15260	29.253	96.020	Dibang	E(o)	5.2	4,082
2829	03 91C04 15262	29.249	96.028	Dibang	E(o)	11.97	4,133
2830	03 91C04 15267	29.242	96.012	Dibang	E(c)	5.94	4,295
2831	03 91C04 15268	29.241	96.074	Dibang	E(o)	12.88	4,199
2832	03 91C04 15278	29.229	96.192	Dibang	E(o)	106.39	3,473
2833	03 91C04 15280	29.227	96.063	Dibang	E(o)	5.53	3,805
2834	03 91C04 15281	29.226	96.091	Dibang	E(o)	8.06	4,016
2835	03 91C04 15282	29.226	96.072	Dibang	E(c)	30.15	3,992
2836	03 91C04 15283	29.226	96.160	Dibang	E(o)	57.36	3,313
2837	03 91C04 15284	29.226	96.217	Dibang	E(c)	5.2	4,069
2838	03 91C04 15289	29.211	96.069	Dibang	E(o)	31.43	3,816

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2839	03 91C04 15292	29.204	96.063	Dibang	E(o)	6.21	4,132
2840	03 91C04 15295	29.197	96.192	Dibang	E(c)	15.74	4,321
2841	03 91C04 15296	29.196	96.203	Dibang	E(o)	64.06	4,246
2842	03 91C04 15301	29.191	96.112	Dibang	E(c)	26.85	3,775
2843	03 91C04 15303	29.185	96.216	Dibang	E(o)	12.55	3,965
2844	03 91C04 15304	29.183	96.087	Dibang	E(c)	23.74	4,263
2845	03 91C04 15305	29.176	96.175	Dibang	E(o)	19.66	3,523
2846	03 91C04 15306	29.168	96.042	Dibang	E(o)	5	4,137
2847	03 91C04 15307	29.166	96.120	Dibang	E(o)	8.35	3,431
2848	03 91C04 15311	29.160	96.069	Dibang	E(o)	6.57	3,595
2849	03 91C04 15313	29.155	96.069	Dibang	E(o)	26.03	3,588
2850	03 91C04 15314	29.154	96.048	Dibang	E(o)	7	4,036
2851	03 91C04 15315	29.147	96.017	Dibang	E(c)	18.77	3,758
2852	03 91C04 15316	29.145	96.066	Dibang	E(c)	30.82	3,949
2853	03 91C04 15318	29.141	96.036	Dibang	E(c)	29.5	4,139
2854	03 91C04 15321	29.133	96.228	Dibang	E(o)	9.03	3,884
2855	03 91C04 15328	29.107	96.230	Dibang	E(o)	11.56	4,333
2856	03 91C04 15330	29.100	96.173	Dibang	E(o)	21.89	3,949
2857	03 91C04 15332	29.096	96.223	Dibang	E(c)	15.85	4,355
2858	03 91C04 15333	29.096	95.997	Dibang	E(c)	22.23	3,346
2859	03 91C04 15335	29.092	96.243	Dibang	E(c)	26.44	4,117
2860	03 91C04 15336	29.091	96.211	Dibang	E(o)	100.77	4,188
2861	03 91C04 15337	29.091	96.162	Dibang	E(o)	10.98	3,822
2862	03 91C04 15340	29.086	96.136	Dibang	E(o)	9.85	4,065
2863	03 91C04 15341	29.083	96.201	Dibang	E(o)	10.69	4,049
2864	03 91C04 15344	29.079	96.145	Dibang	E(c)	86.02	3,945
2865	03 91C04 15345	29.077	96.230	Dibang	E(o)	24.43	4,217
2866	03 91C04 15351	29.071	96.229	Dibang	E(o)	8.6	4,189
2867	03 91C04 15353	29.069	96.147	Dibang	E(c)	12.17	4,031
2868	03 91C04 15358	29.061	96.220	Dibang	E(o)	16.61	4,451
2869	03 91C04 15359	29.054	96.102	Dibang	E(o)	10	4,103
2870	03 91C04 15360	29.051	96.144	Dibang	O	79.93	3,602
2871	03 91C04 15362	29.044	96.193	Dibang	E(c)	44.26	4,164
2872	03 91C04 15363	29.042	96.220	Dibang	E(o)	39.66	4,317
2873	03 91C04 15364	29.041	96.138	Dibang	O	5.32	3,641
2874	03 91C04 15365	29.036	96.178	Dibang	E(o)	19.74	3,944
2875	03 91C04 15366	29.036	96.234	Dibang	E(o)	6.09	4,172
2876	03 91C04 15367	29.030	96.223	Dibang	E(c)	44.32	4,199
2877	03 91C04 15368	29.030	96.193	Dibang	E(o)	24.55	4,235
2878	03 91C04 15369	29.027	96.184	Dibang	E(o)	9.96	4,124
2879	03 91C04 15370	29.026	96.062	Dibang	E(o)	5.3	3,694
2880	03 91C04 15371	29.026	96.044	Dibang	E(o)	11.17	3,564
2881	03 91C04 15372	29.025	96.106	Dibang	E(o)	5.12	4,154
2882	03 91C04 15374	29.024	96.178	Dibang	E(o)	24.34	4,067
2883	03 91C04 15377	29.019	96.207	Dibang	E(c)	5.14	4,111
2884	03 91C04 15378	29.018	96.062	Dibang	E(o)	15.99	3,757
2885	03 91C04 15382	29.012	96.097	Dibang	E(c)	6.24	4,232
2886	03 91C04 15384	29.009	96.084	Dibang	E(c)	14.55	4,018
2887	03 91C04 15386	29.008	96.218	Dibang	E(o)	47.18	3,664
2888	03 91C04 15388	29.008	96.182	Dibang	E(o)	10.34	3,914
2889	03 91C08 15390	29.244	96.245	Dibang	E(o)	50.88	4,360
2890	03 91C08 15393	29.094	96.260	Dibang	E(c)	39.01	4,001
2891	03 91C08 15396	29.060	96.303	Dibang	E(c)	11.53	4,152
2892	03 91C08 15397	29.050	96.331	Dibang	E(c)	23	4,385
2893	03 91C08 15401	29.042	96.250	Dibang	E(o)	6.76	3,944
2894	03 91C08 15402	29.040	96.304	Dibang	E(o)	10.97	3,986
2895	03 91C08 15403	29.031	96.318	Dibang	E(c)	16.99	4,139
2896	03 91C08 15405	29.023	96.311	Dibang	E(c)	14.87	4,253
2897	03 91C08 15406	29.022	96.297	Dibang	E(c)	14.98	4,165
2898	03 91C08 15408	29.009	96.418	Dibang	E(c)	9.25	4,288
2899	03 91D01 15410	29.001	96.184	Dibang	E(c)	11.95	4,009
2900	03 91D01 15418	28.989	96.188	Dibang	E(o)	11.3	4,316
2901	03 91D01 15419	28.987	96.069	Dibang	E(c)	37.26	3,627
2902	03 91D01 15421	28.985	96.197	Dibang	E(o)	16.06	4,033
2903	03 91D01 15425	28.980	96.204	Dibang	E(o)	9.59	3,971
2904	03 91D01 15427	28.952	96.038	Dibang	E(c)	20.31	3,634
2905	03 91D01 15428	28.948	96.177	Dibang	E(o)	5.5	3,711
2906	03 91D01 15429	28.948	96.168	Dibang	E(c)	17.21	3,886
2907	03 91D01 15430	28.948	96.028	Dibang	E(o)	9.01	3,845
2908	03 91D01 15431	28.941	96.020	Dibang	E(o)	11.66	3,449
2909	03 91D01 15433	28.931	96.027	Dibang	E(o)	9.14	3,572
2910	03 91D01 15434	28.928	96.117	Dibang	E(c)	7.71	3,929
2911	03 91D01 15435	28.924	96.167	Dibang	E(o)	8.53	3,987
2912	03 91D01 15437	28.923	96.190	Dibang	E(c)	18.07	4,001

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2913	03 91D01 15438	28.913	96.178	Dibang	E(o)	27.91	3,802
2914	03 91D01 15439	28.905	96.204	Dibang	E(c)	6.04	4,034
2915	03 91D01 15440	28.889	96.151	Dibang	E(c)	22.47	4,079
2916	03 91D01 15441	28.887	96.197	Dibang	E(o)	43.53	3,255
2917	03 91D01 15442	28.886	96.137	Dibang	E(o)	12.38	3,720
2918	03 91D01 15444	28.884	96.168	Dibang	E(c)	7.51	4,099
2919	03 91D01 15447	28.852	96.171	Dibang	E(o)	17.47	3,976
2920	03 91D01 15448	28.852	96.162	Dibang	E(o)	5.79	4,050
2921	03 91D01 15450	28.846	96.127	Dibang	E(o)	11.19	3,697
2922	03 91D01 15452	28.842	96.074	Dibang	E(c)	6.75	3,631
2923	03 91D01 15456	28.835	96.125	Dibang	E(c)	9.69	3,807
2924	03 91D01 15460	28.830	96.099	Dibang	E(o)	7.6	3,637
2925	03 91D01 15463	28.828	96.244	Dibang	E(o)	12.78	3,740
2926	03 91D01 15465	28.821	96.121	Dibang	E(o)	39.49	4,060
2927	03 91D01 15466	28.820	96.145	Dibang	E(c)	14.12	3,723
2928	03 91D01 15467	28.814	96.122	Dibang	E(c)	13.42	4,115
2929	03 91D01 15468	28.812	96.077	Dibang	E(c)	7.4	4,163
2930	03 91D01 15470	28.808	96.132	Dibang	E(o)	8.67	3,728
2931	03 91D01 15472	28.805	96.161	Dibang	E(o)	8.2	3,805
2932	03 91D01 15473	28.803	96.155	Dibang	E(c)	17.21	3,866
2933	03 91D01 15477	28.796	96.107	Dibang	E(c)	5.89	3,743
2934	03 91D01 15478	28.793	96.055	Dibang	E(c)	10.25	3,948
2935	03 91D01 15479	28.792	96.148	Dibang	E(o)	32.99	3,676
2936	03 91D01 15481	28.786	96.136	Dibang	E(o)	5.18	4,024
2937	03 91D01 15484	28.781	96.132	Dibang	E(c)	7.2	3,870
2938	03 91D02 15486	28.542	96.125	Dibang	E(o)	10.62	4,031
2939	03 91D02 15487	28.523	96.194	Dibang	E(o)	8.24	3,808
2940	03 91D05 15491	28.999	96.253	Dibang	E(o)	6.49	4,226
2941	03 91D05 15494	28.992	96.257	Dibang	E(c)	15.12	4,077
2942	03 91D05 15501	28.978	96.305	Dibang	E(c)	7.34	3,923
2943	03 91D05 15507	28.948	96.355	Dibang	E(o)	6.8	4,161
2944	03 91D05 15511	28.944	96.371	Dibang	E(o)	12.61	4,236
2945	03 91D05 15515	28.936	96.360	Dibang	E(o)	6.42	4,156
2946	03 91D05 15516	28.935	96.309	Dibang	E(c)	8.24	4,276
2947	03 91D05 15517	28.935	96.369	Dibang	E(o)	18.54	4,001
2948	03 91D05 15520	28.931	96.422	Dibang	E(o)	5.68	4,242
2949	03 91D05 15522	28.928	96.339	Dibang	E(o)	48.39	4,011
2950	03 91D05 15526	28.924	96.311	Dibang	E(o)	15.64	3,851
2951	03 91D05 15527	28.924	96.368	Dibang	E(c)	10.38	4,109
2952	03 91D05 15529	28.919	96.383	Dibang	0	48.87	3,302
2953	03 91D05 15530	28.918	96.367	Dibang	E(c)	5.28	4,101
2954	03 91D05 15532	28.907	96.348	Dibang	E(o)	7.69	3,866
2955	03 91D05 15534	28.890	96.494	Dibang	E(o)	17.29	3,366
2956	03 91D05 15539	28.879	96.372	Dibang	E(o)	27.5	4,090
2957	03 91D05 15540	28.877	96.477	Dibang	E(o)	34.69	3,166
2958	03 91D05 15542	28.875	96.394	Dibang	0	41.33	3,119
2959	03 91D05 15543	28.874	96.436	Dibang	0	16.76	3,220
2960	03 91D05 15544	28.870	96.378	Dibang	E(o)	9.43	3,928
2961	03 91D05 15546	28.863	96.463	Dibang	0	6.8	3,035
2962	03 91D05 15547	28.862	96.440	Dibang	0	11.42	2,979
2963	03 91D05 15548	28.861	96.249	Dibang	E(c)	11.21	3,847
2964	03 91D05 15552	28.854	96.284	Dibang	E(o)	5.35	3,774
2965	03 91D05 15553	28.849	96.351	Dibang	E(o)	6.07	3,765
2966	03 91D05 15554	28.847	96.355	Dibang	E(o)	14.96	3,760
2967	03 91D05 15561	28.832	96.250	Dibang	E(o)	15.75	3,835
2968	03 91D05 15562	28.831	96.290	Dibang	E(o)	8	3,556
2969	03 91D05 15563	28.830	96.372	Dibang	E(o)	9.7	3,930
2970	03 91D05 15566	28.823	96.359	Dibang	E(c)	19.15	3,941
2971	03 91D05 15570	28.809	96.459	Dibang	E(c)	35.25	4,078
2972	03 91D05 15572	28.802	96.440	Dibang	E(o)	30.97	4,114
2973	03 91D05 15573	28.801	96.484	Dibang	E(o)	34.81	3,819
2974	03 91D05 15575	28.788	96.480	Dibang	E(o)	6.92	3,442
2975	03 91D05 15576	28.765	96.386	Dibang	E(o)	13.52	3,855
2976	03 91D05 15577	28.753	96.328	Dibang	E(o)	5.81	4,272
2977	03 91D06 15578	28.749	96.375	Dibang	E(o)	25.74	3,784
2978	03 91D06 15579	28.748	96.353	Dibang	E(o)	34	3,618
2979	03 91D06 15582	28.740	96.413	Dibang	E(c)	12.04	4,105
2980	03 91D06 15583	28.739	96.425	Dibang	E(o)	9.26	3,772
2981	03 91D06 15584	28.733	96.455	Dibang	E(c)	8.62	3,883
2982	03 91D06 15586	28.729	96.446	Dibang	E(o)	21.19	4,086
2983	03 91D06 15588	28.727	96.485	Dibang	E(c)	28.63	4,084
2984	03 91D06 15589	28.727	96.392	Dibang	E(c)	19.81	4,176
2985	03 91D06 15590	28.725	96.422	Dibang	E(o)	16.86	4,218
2986	03 91D06 15592	28.723	96.452	Dibang	E(o)	9.42	4,193

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
2987	03 91D06 15596	28.721	96.405	Dibang	E(o)	17.45	4,097
2988	03 91D06 15603	28.673	96.473	Dibang	E(o)	8.53	4,323
2989	03 91D06 15604	28.672	96.442	Dibang	E(c)	9.82	4,040
2990	03 91D06 15605	28.666	96.426	Dibang	E(c)	20.84	4,238
2991	03 91D06 15612	28.660	96.486	Dibang	E(c)	30.67	4,125
2992	03 91D06 15617	28.617	96.439	Dibang	E(c)	10.66	3,914
2993	03 91D06 15618	28.614	96.312	Dibang	E(o)	11.33	3,968
2994	03 91D06 15620	28.608	96.320	Dibang	E(c)	23.55	4,239
2995	03 91D06 15624	28.578	96.344	Dibang	E(o)	9.87	3,999
2996	03 91D06 15627	28.571	96.490	Dibang	E(o)	8.27	4,277
2997	03 91D06 15628	28.567	96.485	Dibang	E(o)	5.59	4,222
2998	03 91D06 15629	28.565	96.408	Dibang	E(o)	14.11	4,124
2999	03 91D06 15630	28.564	96.342	Dibang	E(o)	6.53	4,008
3000	03 91D06 15631	28.563	96.355	Dibang	E(o)	10.39	4,152
3001	03 91D06 15632	28.563	96.366	Dibang	E(c)	10.25	3,897
3002	03 91D06 15633	28.562	96.437	Dibang	E(o)	5.42	4,226
3003	03 91D06 15636	28.558	96.485	Dibang	E(o)	7.49	4,080
3004	03 91D06 15638	28.555	96.431	Dibang	E(o)	6.12	4,431
3005	03 91D06 15645	28.545	96.443	Dibang	E(o)	12.55	4,297
3006	03 91D06 15649	28.539	96.394	Dibang	E(o)	11.72	4,010
3007	03 91D06 15654	28.524	96.424	Dibang	E(c)	14.09	4,096
3008	03 91D06 15655	28.524	96.474	Dibang	E(c)	6.33	4,421
3009	03 91D06 15657	28.522	96.444	Dibang	E(c)	10.03	4,157
3010	03 91D06 15658	28.521	96.250	Dibang	E(o)	16.14	3,636
3011	03 91D06 15659	28.521	96.454	Dibang	E(o)	8.54	4,194
3012	03 91D06 15660	28.519	96.398	Dibang	E(c)	15.49	4,247
3013	03 91D06 15662	28.517	96.440	Dibang	E(c)	6.66	4,224
3014	03 91D06 15663	28.514	96.261	Dibang	E(c)	6.28	3,931
3015	03 91D06 15664	28.513	96.398	Dibang	E(c)	26.12	4,345
3016	03 91D06 15665	28.512	96.452	Dibang	E(c)	5.83	4,337
3017	03 91D06 15666	28.506	96.397	Dibang	E(o)	5.49	4,504
3018	03 91D06 15667	28.505	96.391	Dibang	E(o)	21.9	4,566
3019	03 91D06 15668	28.501	96.280	Dibang	E(c)	6.01	3,921
3020	03 91D07 15670	28.421	96.377	Dibang	E(c)	12.36	3,763
3021	03 91D09 15671	28.935	96.513	Dibang	E(c)	6.01	4,338
3022	03 91D09 15673	28.923	96.515	Dibang	E(o)	13.69	4,091
3023	03 91D09 15674	28.872	96.510	Dibang	E(o)	18.7	3,926
3024	03 91D09 15677	28.853	96.528	Dibang	E(o)	8.64	4,372
3025	03 91D09 15680	28.838	96.497	Dibang	E(o)	21	3,388
3026	03 91D09 15682	28.829	96.532	Dibang	E(o)	37.63	3,584
3027	03 91D09 15683	28.820	96.520	Dibang	E(c)	6.28	4,003
3028	03 91D09 15684	28.813	96.509	Dibang	E(o)	8.24	4,492
3029	03 91D09 15687	28.807	96.538	Dibang	E(c)	17.48	4,187
3030	03 91D09 15688	28.801	96.512	Dibang	E(o)	26.17	4,344
3031	03 91D09 15690	28.776	96.531	Dibang	0	101.67	3,510
3032	03 91D09 15695	28.764	96.517	Dibang	0	14.33	3,502
3033	03 91D10 15700	28.745	96.511	Dibang	0	24.68	3,219
3034	03 91D10 15702	28.707	96.505	Dibang	E(o)	26.84	4,018
3035	03 91D10 15704	28.699	96.579	Dibang	E(o)	6.43	3,995
3036	03 91D10 15705	28.697	96.572	Dibang	E(c)	20.56	4,133
3037	03 91D10 15706	28.696	96.525	Dibang	E(c)	8.14	4,350
3038	03 91D10 15707	28.694	96.551	Dibang	E(c)	33.52	4,220
3039	03 91D10 15710	28.687	96.584	Dibang	E(c)	21.37	4,132
3040	03 91D10 15712	28.685	96.633	Dibang	E(o)	12.1	4,299
3041	03 91D10 15715	28.676	96.510	Dibang	E(o)	20.27	4,310
3042	03 91D10 15716	28.668	96.611	Dibang	E(o)	22.91	4,492
3043	03 91D10 15718	28.666	96.632	Dibang	E(o)	17.58	4,217
3044	03 91D10 15720	28.652	96.538	Dibang	E(c)	8.25	4,367
3045	03 91D10 15721	28.639	96.522	Dibang	E(o)	5.7	4,459
3046	03 91C03 15731	29.433	96.047	Lohit	M(o)	5.23	4,429
3047	03 91C03 15738	29.365	96.124	Lohit	M(e)	25.07	3,995
3048	03 91C03 15741	29.329	96.195	Lohit	E(o)	25.27	4,286
3049	03 91C03 15744	29.324	96.209	Lohit	E(o)	25.02	4,333
3050	03 91C03 15747	29.313	96.159	Lohit	E(o)	6.57	4,161
3051	03 91C03 15752	29.305	96.156	Lohit	E(c)	21	4,233
3052	03 91C03 15757	29.278	96.239	Lohit	M(o)	8.54	4,386
3053	03 91C03 15759	29.264	96.245	Lohit	M(o)	17.37	4,408
3054	03 91C03 15760	29.257	96.246	Lohit	M(o)	89.3	4,432
3055	03 91C07 15761	29.387	96.375	Lohit	M(e)	29.13	4,997
3056	03 91C07 15765	29.329	96.378	Lohit	M(e)	5.4	4,528
3057	03 91C08 15774	29.224	96.279	Lohit	M(o)	66.27	4,207
3058	03 91C08 15778	29.203	96.296	Lohit	M(o)	6.46	4,364
3059	03 91C08 15779	29.186	96.315	Lohit	M(o)	8.92	4,274
3060	03 91C08 15782	29.175	96.346	Lohit	E(c)	27.74	4,298

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
3061	03 91C08 15783	29.175	96.327	Lohit	M(e)	46.2	4,379
3062	03 91C08 15786	29.130	96.324	Lohit	M(o)	26.67	4,392
3063	03 91C08 15787	29.127	96.399	Lohit	M(o)	10.09	4,066
3064	03 91C10 15796	29.687	96.618	Lohit	M(e)	6.36	4,751
3065	03 91C10 15816	29.597	96.617	Lohit	M(e)	10.44	5,104
3066	03 91C10 15818	29.589	96.674	Lohit	M(e)	19.1	4,631
3067	03 91C10 15819	29.582	96.606	Lohit	M(o)	5.93	4,891
3068	03 91C10 15826	29.561	96.630	Lohit	M(e)	12.4	4,919
3069	03 91C10 15827	29.560	96.641	Lohit	M(o)	9.1	5,158
3070	03 91C10 15831	29.544	96.619	Lohit	M(o)	9.78	4,791
3071	03 91C11 15833	29.491	96.701	Lohit	0	610.17	3,916
3072	03 91C11 15840	29.421	96.627	Lohit	M(e)	31.33	4,079
3073	03 91C11 15843	29.406	96.681	Lohit	M(o)	11.75	4,834
3074	03 91C11 15845	29.391	96.710	Lohit	M(o)	6.16	4,926
3075	03 91C11 15850	29.342	96.746	Lohit	M(o)	6.25	4,320
3076	03 91C12 15863	29.124	96.660	Lohit	E(c)	17.71	4,329
3077	03 91C12 15868	29.100	96.680	Lohit	E(o)	6.55	4,303
3078	03 91C12 15871	29.095	96.732	Lohit	E(c)	8.92	4,662
3079	03 91C12 15880	29.067	96.579	Lohit	E(o)	8.03	4,046
3080	03 91C12 15882	29.066	96.653	Lohit	E(c)	5.85	4,418
3081	03 91C14 15901	29.609	96.882	Lohit	M(o)	6.14	5,174
3082	03 91C14 15903	29.609	96.923	Lohit	M(o)	5.2	5,140
3083	03 91C14 15909	29.592	96.867	Lohit	M(o)	5.9	5,214
3084	03 91C14 15923	29.557	96.906	Lohit	M(o)	5.55	5,207
3085	03 91C14 15929	29.540	96.914	Lohit	M(o)	5.36	5,032
3086	03 91C14 15951	29.506	96.989	Lohit	M(o)	6.62	5,320
3087	03 91C14 15953	29.502	96.977	Lohit	M(e)	12.44	5,145
3088	03 91C15 15967	29.462	96.787	Lohit	0	518	3,916
3089	03 91C15 15972	29.449	96.963	Lohit	M(o)	7.5	5,160
3090	03 91C15 15973	29.436	96.994	Lohit	M(o)	6.89	5,229
3091	03 91C15 15982	29.397	96.828	Lohit	E(o)	401.62	3,917
3092	03 91C15 15986	29.366	96.982	Lohit	M(e)	9.03	5,045
3093	03 91C15 15998	29.298	96.816	Lohit	M(e)	292.36	3,954
3094	03 91C15 16000	29.295	96.835	Lohit	M(l)	95.04	4,013
3095	03 91C15 16004	29.268	96.837	Lohit	E(o)	108.04	4,119
3096	03 91C15 16008	29.263	96.938	Lohit	M(e)	12.3	4,676
3097	03 91C15 16011	29.254	96.965	Lohit	M(o)	10.15	4,631
3098	03 91C16 16015	29.248	96.966	Lohit	M(e)	25.6	4,673
3099	03 91C16 16019	29.238	96.826	Lohit	M(o)	209.76	4,219
3100	03 91C16 16020	29.230	96.805	Lohit	M(o)	144	4,266
3101	03 91C16 16024	29.221	96.814	Lohit	M(e)	52.51	4,279
3102	03 91C16 16028	29.189	96.852	Lohit	M(o)	7.05	4,373
3103	03 91C16 16029	29.179	96.857	Lohit	M(e)	13.26	4,412
3104	03 91C16 16030	29.174	96.863	Lohit	M(e)	6.53	4,448
3105	03 91C16 16031	29.171	96.867	Lohit	M(o)	12.68	4,458
3106	03 91C16 16047	29.078	96.984	Lohit	0	9.74	3,332
3107	03 91C16 16048	29.071	96.799	Lohit	M(o)	38.92	2,466
3108	03 91D05 16054	28.960	96.497	Lohit	M(o)	7.1	4,425
3109	03 91D05 16058	28.952	96.493	Lohit	M(o)	15.31	4,493
3110	03 91D06 16060	28.518	96.421	Lohit	M(e)	16.11	4,086
3111	03 91D07 16069	28.345	96.334	Lohit	0	12.55	2,990
3112	03 91D07 16071	28.306	96.392	Lohit	E(o)	5.68	3,958
3113	03 91D07 16072	28.298	96.380	Lohit	E(c)	8.14	4,222
3114	03 91D07 16075	28.263	96.376	Lohit	E(o)	5.49	3,910
3115	03 91D09 16076	28.996	96.512	Lohit	E(o)	9.94	4,081
3116	03 91D09 16078	28.965	96.728	Lohit	E(o)	5.39	4,456
3117	03 91D09 16085	28.954	96.561	Lohit	E(o)	15.69	4,277
3118	03 91D09 16088	28.949	96.564	Lohit	E(o)	5.99	4,320
3119	03 91D09 16094	28.939	96.740	Lohit	E(o)	10.73	4,352
3120	03 91D09 16097	28.931	96.535	Lohit	E(o)	5.26	4,264
3121	03 91D09 16102	28.924	96.564	Lohit	E(o)	12.74	4,447
3122	03 91D09 16104	28.922	96.539	Lohit	E(o)	8.2	4,452
3123	03 91D09 16105	28.921	96.553	Lohit	E(o)	25.07	4,463
3124	03 91D09 16109	28.914	96.710	Lohit	E(c)	6.56	4,167
3125	03 91D09 16114	28.908	96.525	Lohit	E(c)	14.85	4,295
3126	03 91D09 16115	28.908	96.720	Lohit	E(c)	8.17	4,178
3127	03 91D09 16120	28.898	96.550	Lohit	0	10.31	3,712
3128	03 91D09 16124	28.883	96.567	Lohit	E(o)	9.73	4,423
3129	03 91D09 16129	28.810	96.606	Lohit	E(c)	10.76	4,362
3130	03 91D09 16130	28.808	96.586	Lohit	E(o)	7.47	4,331
3131	03 91D09 16135	28.777	96.606	Lohit	E(o)	15.99	4,601
3132	03 91D09 16137	28.770	96.617	Lohit	E(c)	21.18	4,255
3133	03 91D10 16150	28.698	96.675	Lohit	E(o)	8.76	4,238
3134	03 91D10 16151	28.680	96.545	Lohit	E(c)	5.27	4,281

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
3135	03 91D10 16153	28.678	96.651	Lohit	E(o)	9.16	4,280
3136	03 91D10 16154	28.668	96.552	Lohit	E(o)	5.03	4,225
3137	03 91D10 16159	28.655	96.548	Lohit	E(c)	5.84	4,359
3138	03 91D10 16160	28.655	96.623	Lohit	E(o)	7.53	3,955
3139	03 91D10 16161	28.647	96.645	Lohit	E(c)	18.36	4,068
3140	03 91D10 16163	28.644	96.589	Lohit	E(c)	24.51	4,368
3141	03 91D10 16166	28.637	96.685	Lohit	E(c)	14.5	4,418
3142	03 91D10 16167	28.632	96.633	Lohit	E(o)	5.63	3,968
3143	03 91D10 16168	28.631	96.596	Lohit	E(o)	5.57	4,320
3144	03 91D10 16171	28.628	96.533	Lohit	E(c)	10.94	4,260
3145	03 91D10 16174	28.627	96.565	Lohit	0	16.84	3,282
3146	03 91D10 16176	28.624	96.543	Lohit	E(o)	5.2	3,822
3147	03 91D10 16179	28.613	96.522	Lohit	E(c)	10.32	4,213
3148	03 91D10 16180	28.611	96.723	Lohit	E(o)	14.21	4,107
3149	03 91D10 16186	28.586	96.652	Lohit	E(o)	30.13	4,068
3150	03 91D10 16187	28.583	96.742	Lohit	E(o)	9.75	3,659
3151	03 91D10 16189	28.580	96.681	Lohit	E(o)	32.17	3,999
3152	03 91D10 16194	28.565	96.636	Lohit	E(o)	30.27	3,368
3153	03 91D10 16196	28.562	96.715	Lohit	E(o)	16.48	4,019
3154	03 91D10 16197	28.559	96.692	Lohit	0	11.58	3,483
3155	03 91D10 16199	28.553	96.702	Lohit	E(o)	8.49	3,967
3156	03 91D10 16200	28.551	96.526	Lohit	E(c)	6.47	3,903
3157	03 91D10 16201	28.544	96.716	Lohit	E(o)	9.69	3,791
3158	03 91D10 16202	28.541	96.618	Lohit	E(c)	42.11	4,268
3159	03 91D10 16203	28.541	96.602	Lohit	E(c)	25.61	4,487
3160	03 91D10 16204	28.534	96.644	Lohit	E(o)	29.38	4,311
3161	03 91D10 16206	28.530	96.622	Lohit	E(o)	23.4	3,907
3162	03 91D10 16207	28.527	96.650	Lohit	E(o)	14.17	4,125
3163	03 91D10 16210	28.516	96.699	Lohit	E(o)	299.2	3,330
3164	03 91D10 16211	28.512	96.502	Lohit	E(o)	27.13	4,027
3165	03 91D11 16215	28.492	96.692	Lohit	E(c)	20.67	4,046
3166	03 91D11 16216	28.488	96.628	Lohit	E(o)	6.75	3,865
3167	03 91D11 16220	28.457	96.506	Lohit	E(o)	6.3	4,011
3168	03 91D13 16232	28.969	96.839	Lohit	E(o)	5.79	4,352
3169	03 91D13 16261	28.933	96.763	Lohit	E(o)	8.6	4,246
3170	03 91D13 16263	28.928	96.827	Lohit	E(o)	5.7	4,572
3171	03 91D13 16264	28.927	96.844	Lohit	E(o)	5.29	4,520
3172	03 91D13 16271	28.908	96.805	Lohit	0	9.17	4,380
3173	03 91D13 16276	28.895	96.844	Lohit	E(o)	5.3	4,072
3174	03 91D13 16288	28.864	96.830	Lohit	E(o)	10.83	4,306
3175	03 91D13 16293	28.850	96.928	Lohit	E(c)	14.85	4,299
3176	03 91D13 16298	28.843	96.818	Lohit	E(o)	24.08	4,625
3177	03 91D13 16303	28.832	96.820	Lohit	E(o)	20.11	4,305
3178	03 91D13 16304	28.829	96.789	Lohit	0	31.87	3,683
3179	03 91D13 16313	28.807	96.837	Lohit	E(o)	9.47	4,262
3180	03 91D14 16333	28.737	96.971	Lohit	E(o)	6.49	4,392
3181	03 91D14 16348	28.665	96.994	Lohit	E(o)	7.13	4,326
3182	03 91D14 16349	28.601	96.767	Lohit	E(c)	5.85	4,234
3183	03 91D14 16350	28.576	96.756	Lohit	E(o)	17.36	3,646
3184	03 91D14 16352	28.536	96.766	Lohit	E(o)	25.91	3,918
3185	03 91D14 16354	28.529	96.833	Lohit	E(o)	7.81	4,098
3186	03 91D14 16355	28.510	96.800	Lohit	E(c)	14.77	4,075
3187	03 91D14 16356	28.504	96.833	Lohit	E(c)	15.18	4,058
3188	03 91D14 16357	28.503	96.843	Lohit	E(o)	12.74	3,945
3189	03 91D14 16358	28.503	96.860	Lohit	E(o)	17.34	3,522
3190	03 91D15 16359	28.497	96.902	Lohit	E(c)	5.4	4,318
3191	03 91D15 16361	28.496	96.868	Lohit	E(o)	5.36	3,842
3192	03 91D15 16362	28.474	96.872	Lohit	E(o)	7.87	4,000
3193	03 91D15 16363	28.470	96.882	Lohit	E(o)	23.66	3,849
3194	03 91D15 16364	28.457	96.835	Lohit	E(o)	5.69	3,856
3195	03 91D15 16366	28.447	96.885	Lohit	E(o)	18.22	4,113
3196	03 91D15 16367	28.442	96.883	Lohit	E(o)	6.73	4,245
3197	03 91D15 16370	28.432	96.924	Lohit	E(c)	36.83	4,384
3198	03 91D15 16372	28.425	96.872	Lohit	E(o)	36.05	3,980
3199	03 91D15 16375	28.412	96.882	Lohit	M(o)	7.31	4,590
3200	03 91D15 16378	28.403	96.837	Lohit	E(o)	16.14	4,171
3201	03 91D15 16380	28.402	96.871	Lohit	E(o)	8.77	4,088
3202	03 91D15 16387	28.394	96.869	Lohit	E(o)	11.69	4,215
3203	03 91D15 16388	28.392	96.858	Lohit	E(c)	30.18	4,390
3204	03 91D15 16389	28.381	96.859	Lohit	E(o)	19.1	4,049
3205	03 91D15 16390	28.373	96.824	Lohit	E(o)	6.49	3,902
3206	03 91D15 16397	28.346	96.858	Lohit	E(c)	9	4,235
3207	03 91D15 16399	28.315	96.817	Lohit	E(o)	19.89	3,879
3208	03 91D15 16405	28.277	96.784	Lohit	E(o)	9.5	3,670

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
3209	03 91D15 16406	28.258	96.825	Lohit	M(o)	5.89	4,009
3210	03 91D15 16407	28.253	96.819	Lohit	M(o)	16.22	4,030
3211	03 91D16 16408	28.250	96.874	Lohit	E(c)	6.68	4,115
3212	03 91D16 16409	28.245	96.832	Lohit	E(o)	42.5	3,900
3213	03 91D16 16415	28.214	96.885	Lohit	E(c)	21.24	3,960
3214	03 91D16 16419	28.202	96.898	Lohit	E(o)	67.3	3,731
3215	03 91D16 16421	28.193	96.842	Lohit	E(o)	5.7	3,757
3216	03 91D16 16423	28.165	96.830	Lohit	E(c)	20.69	3,890
3217	03 91D16 16425	28.159	96.848	Lohit	E(c)	16.81	3,926
3218	03 91D16 16427	28.148	96.854	Lohit	E(o)	6.81	3,672
3219	03 91D16 16431	28.144	96.915	Lohit	E(o)	8.65	3,663
3220	03 91D16 16437	28.120	96.886	Lohit	E(o)	6.24	3,504
3221	03 91D16 16439	28.108	96.758	Lohit	E(o)	5.8	3,648
3222	03 91D16 16440	28.103	96.879	Lohit	E(o)	7.57	3,562
3223	03 91G02 16450	29.701	97.002	Lohit	M(o)	12.26	5,122
3224	03 91G02 16454	29.670	97.021	Lohit	M(e)	5.83	5,206
3225	03 91G02 16461	29.609	97.075	Lohit	M(o)	13.92	5,279
3226	03 91G02 16469	29.552	97.067	Lohit	M(o)	5.8	5,309
3227	03 91G02 16472	29.509	97.068	Lohit	M(e)	8.34	5,279
3228	03 91G02 16474	29.507	97.061	Lohit	M(o)	13.6	5,275
3229	03 91G03 16480	29.496	97.104	Lohit	M(e)	25.92	5,219
3230	03 91G03 16486	29.483	97.066	Lohit	M(o)	7	5,406
3231	03 91G03 16495	29.472	97.035	Lohit	M(e)	14.95	5,238
3232	03 91G03 16497	29.461	97.164	Lohit	M(e)	6.7	5,065
3233	03 91G03 16498	29.460	97.085	Lohit	M(e)	15.56	4,994
3234	03 91G03 16507	29.426	97.074	Lohit	M(o)	5.2	5,272
3235	03 91G03 16519	29.403	97.012	Lohit	M(o)	10.4	5,156
3236	03 91G03 16524	29.392	97.022	Lohit	M(e)	20.49	5,007
3237	03 91G04 16550	29.228	97.029	Lohit	M(e)	22.63	3,952
3238	03 91G04 16559	29.094	97.158	Lohit	M(e)	7.64	4,312
3239	03 91G04 16561	29.087	97.155	Lohit	M(o)	25.64	4,222
3240	03 91G04 16572	29.064	97.182	Lohit	E(o)	6.39	4,415
3241	03 91G04 16575	29.053	97.244	Lohit	E(o)	6.31	4,419
3242	03 91G04 16585	29.039	97.095	Lohit	M(o)	10.02	4,430
3243	03 91G04 16586	29.036	97.181	Lohit	M(o)	8.45	4,673
3244	03 91G04 16608	29.015	97.249	Lohit	E(o)	15.19	4,409
3245	03 91G04 16609	29.015	97.173	Lohit	M(o)	7.36	4,662
3246	03 91G04 16613	29.011	97.014	Lohit	E(o)	8.17	3,865
3247	03 91G04 16614	29.009	97.246	Lohit	E(o)	5.93	4,508
3248	03 91G04 16617	29.005	97.224	Lohit	E(o)	9.26	4,525
3249	03 91G04 16619	29.004	97.134	Lohit	E(o)	12.94	4,401
3250	03 91G07 16628	29.470	97.267	Lohit	M(e)	7.79	5,137
3251	03 91G07 16631	29.466	97.376	Lohit	M(o)	18.87	5,011
3252	03 91G07 16671	29.274	97.279	Lohit	M(o)	7.4	4,884
3253	03 91G07 16675	29.265	97.281	Lohit	M(o)	6.91	5,061
3254	03 91G08 16678	29.233	97.302	Lohit	M(o)	7.56	4,900
3255	03 91G08 16680	29.229	97.333	Lohit	M(o)	13.94	4,761
3256	03 91G08 16685	29.216	97.378	Lohit	E(o)	14.43	4,303
3257	03 91G08 16692	29.200	97.370	Lohit	M(o)	16.42	4,623
3258	03 91G08 16702	29.152	97.467	Lohit	E(o)	6.1	4,440
3259	03 91G08 16705	29.138	97.311	Lohit	M(o)	5.2	4,474
3260	03 91G12 16726	29.066	97.536	Lohit	E(o)	12.18	4,795
3261	03 91G12 16731	29.032	97.512	Lohit	E(o)	14.82	4,141
3262	03 91G12 16734	29.000	97.555	Lohit	M(o)	6.05	4,634
3263	03 91H01 16738	28.995	97.231	Lohit	E(o)	14.62	4,597
3264	03 91H01 16748	28.989	97.118	Lohit	E(o)	6.53	4,508
3265	03 91H01 16752	28.983	97.073	Lohit	E(o)	9.34	4,080
3266	03 91H01 16757	28.977	97.215	Lohit	E(o)	63.42	4,092
3267	03 91H01 16758	28.977	97.183	Lohit	E(o)	9.8	4,619
3268	03 91H01 16768	28.967	97.115	Lohit	M(o)	7.76	4,447
3269	03 91H01 16769	28.967	97.091	Lohit	M(o)	5.01	4,358
3270	03 91H01 16770	28.965	97.068	Lohit	E(o)	5.95	4,379
3271	03 91H01 16771	28.964	97.196	Lohit	E(o)	9.82	4,345
3272	03 91H01 16775	28.957	97.096	Lohit	E(o)	5.1	4,527
3273	03 91H01 16776	28.956	97.195	Lohit	E(o)	13.06	4,271
3274	03 91H01 16777	28.954	97.132	Lohit	E(o)	5.41	4,738
3275	03 91H01 16782	28.949	97.090	Lohit	E(o)	6.03	4,400
3276	03 91H01 16783	28.947	97.100	Lohit	E(o)	47.64	4,412
3277	03 91H01 16797	28.930	97.047	Lohit	E(o)	5.59	4,233
3278	03 91H01 16802	28.916	97.153	Lohit	E(o)	15.22	4,513
3279	03 91H01 16808	28.904	97.149	Lohit	E(o)	33.69	4,319
3280	03 91H01 16812	28.898	97.165	Lohit	E(o)	15.17	4,713
3281	03 91H01 16837	28.848	97.092	Lohit	M(o)	14.66	4,448
3282	03 91H01 16838	28.846	97.130	Lohit	E(o)	42.05	4,446
3283	03 91H01 16841	28.839	97.160	Lohit	E(o)	8.57	4,482
3284	03 91H01 16843	28.835	97.148	Lohit	E(o)	18.1	4,392
3285	03 91H01 16844	28.833	97.143	Lohit	E(o)	6.01	4,285
3286	03 91H01 16849	28.828	97.155	Lohit	E(o)	5.66	4,371
3287	03 91H01 16856	28.821	97.152	Lohit	E(o)	12.28	4,288
3288	03 91H01 16862	28.813	97.170	Lohit	E(o)	19.35	4,401
3289	03 91H01 16865	28.810	97.076	Lohit	E(o)	7.91	4,433
3290	03 91H01 16868	28.808	97.126	Lohit	E(o)	17.39	4,189
3291	03 91H01 16888	28.796	97.183	Lohit	E(o)	16.32	4,457
3292	03 91H01 16889	28.792	97.108	Lohit	E(o)	5.74	4,355
3293	03 91H01 16896	28.786	97.219	Lohit	M(o)	22.91	4,270
3294	03 91H01 16898	28.783	97.153	Lohit	E(o)	83.11	3,712
3295	03 91H01 16907	28.767	97.101	Lohit	E(o)	12.38	4,326
3296	03 91H01 16908	28.763	97.058	Lohit	0	39.04	3,285
3297	03 91H01 16913	28.757	97.131	Lohit	E(o)	6.36	4,256
3298	03 91H01 16914	28.756	97.240	Lohit	E(o)	9.88	4,228
3299	03 91H01 16916	28.753	97.137	Lohit	E(o)	20.19	4,176
3300	03 91H01 16917	28.752	97.089	Lohit	E(o)	6.08	4,429
3301	03 91H01 16918	28.752	97.100	Lohit	E(o)	9.23	4,553
3302	03 91H02 16919	28.749	97.179	Lohit	E(o)	7.17	4,147
3303	03 91H02 16921	28.747	97.097	Lohit	E(o)	10.9	4,438
3304	03 91H02 16922	28.744	97.217	Lohit	E(o)	21.99	4,318
3305	03 91H02 16925	28.737	97.114	Lohit	E(o)	6.09	4,386
3306	03 91H02 16935	28.702	97.142	Lohit	E(o)	16.78	4,378
3307	03 91H03 16956	28.487	97.194	Lohit	E(o)	5.43	4,243
3308	03 91H03 16959	28.481	97.204	Lohit	E(o)	7.04	4,302
3309	03 91H03 16963	28.474	97.226	Lohit	E(o)	7.23	4,319
3310	03 91H03 16964	28.469	97.222	Lohit	E(o)	6.65	4,368
3311	03 91H03 16970	28.457	97.234	Lohit	E(o)	9.82	4,435
3312	03 91H03 16983	28.436	97.174	Lohit	E(o)	8.21	4,112
3313	03 91H03 16992	28.351	97.157	Lohit	E(o)	15.17	4,079
3314	03 91H03 16995	28.343	97.196	Lohit	E(o)	5.22	4,312
3315	03 91H03 17002	28.303	97.234	Lohit	E(o)	23.39	4,279
3316	03 91H03 17005	28.291	97.218	Lohit	E(o)	15.73	4,071
3317	03 91H03 17013	28.264	97.225	Lohit	E(o)	12.77	4,167
3318	03 91H03 17014	28.262	97.232	Lohit	E(c)	26.62	4,183
3319	03 91H04 17015	28.247	97.241	Lohit	E(o)	9.78	4,151
3320	03 91H04 17026	28.226	97.175	Lohit	E(o)	11.64	3,898
3321	03 91H04 17029	28.220	97.120	Lohit	E(o)	11.79	3,986
3322	03 91H04 17041	28.200	97.236	Lohit	E(o)	29.04	3,900
3323	03 91H04 17042	28.196	97.179	Lohit	E(c)	9.02	3,746
3324	03 91H04 17046	28.187	97.240	Lohit	E(o)	6.92	3,977
3325	03 91H04 17053	28.165	97.225	Lohit	E(o)	9.64	3,973
3326	03 91H04 17059	28.120	97.239	Lohit	E(o)	6.78	3,810
3327	03 91H04 17060	28.117	97.173	Lohit	E(o)	5.26	4,283
3328	03 91H04 17061	28.117	97.245	Lohit	E(o)	6.13	3,924
3329	03 91H04 17065	28.102	97.183	Lohit	E(o)	7.93	4,098
3330	03 91H04 17073	28.087	97.240	Lohit	E(o)	21.98	4,507
3331	03 91H04 17079	28.084	97.215	Lohit	E(o)	18.46	4,023
3332	03 91H04 17080	28.082	97.201	Lohit	0	6.37	3,715
3333	03 91H04 17081	28.077	97.157	Lohit	E(o)	5.98	4,137
3334	03 91H04 17082	28.075	97.176	Lohit	E(o)	6.41	3,951
3335	03 91H04 17094	28.058	97.226	Lohit	E(o)	18.41	4,113
3336	03 91H04 17095	28.054	97.166	Lohit	E(o)	13.67	4,131
3337	03 91H04 17101	28.043	97.185	Lohit	E(o)	7.02	4,252
3338	03 91H04 17104	28.042	97.201	Lohit	E(o)	6.26	4,198
3339	03 91H04 17105	28.041	97.193	Lohit	E(o)	11.33	4,217
3340	03 91H04 17106	28.041	97.218	Lohit	E(o)	38.26	3,936
3341	03 91H04 17107	28.040	97.126	Lohit	E(o)	35.71	3,969
3342	03 91H04 17108	28.040	97.196	Lohit	E(o)	5.99	4,210
3343	03 91H04 17110	28.035	97.132	Lohit	E(o)	13.21	3,977
3344	03 91H04 17111	28.034	97.241	Lohit	E(o)	18.18	4,299
3345	03 91H04 17112	28.032	97.193	Lohit	E(o)	6.25	4,379
3346	03 91H04 17119	28.025	97.186	Lohit	E(o)	14.89	4,227
3347	03 91H04 17123	28.024	97.175	Lohit	E(o)	13.28	4,037
3348	03 91H04 17124	28.020	97.194	Lohit	E(o)	11	4,040
3349	03 91H04 17126	28.017	97.138	Lohit	E(o)	6.85	3,910
3350	03 91H04 17127	28.016	97.215	Lohit	E(o)	10.8	4,303
3351	03 91H04 17128	28.014	97.178	Lohit	E(o)	5.23	4,304
3352	03 91H04 17133	28.008	97.176	Lohit	E(o)	15.42	4,240
3353	03 91H05 17138	28.993	97.261	Lohit	E(o)	5.24	4,547
3354	03 91H05 17139	28.989	97.268	Lohit	E(o)	14.17	4,416
3355	03 91H05 17147	28.973	97.327	Lohit	E(o)	16.29	4,541
3356	03 91H05 17149	28.970	97.312	Lohit	M(o)	8.09	4,702

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
3357	03 91H05 17152	28.959	97.330	Lohit	E(o)	5.54	4,605
3358	03 91H05 17154	28.958	97.335	Lohit	E(o)	14.08	4,595
3359	03 91H05 17161	28.947	97.320	Lohit	E(o)	29.34	4,607
3360	03 91H05 17162	28.946	97.350	Lohit	E(o)	6.48	4,622
3361	03 91H05 17163	28.944	97.304	Lohit	M(o)	43.16	4,732
3362	03 91H05 17165	28.941	97.329	Lohit	E(o)	7.18	4,533
3363	03 91H05 17166	28.940	97.309	Lohit	M(o)	8.69	4,744
3364	03 91H05 17167	28.940	97.262	Lohit	E(o)	93.63	4,412
3365	03 91H05 17179	28.918	97.286	Lohit	M(e)	6.74	4,532
3366	03 91H05 17181	28.915	97.350	Lohit	E(o)	43.77	4,016
3367	03 91H05 17182	28.914	97.295	Lohit	M(o)	6.83	4,823
3368	03 91H05 17188	28.892	97.336	Lohit	E(o)	13.58	4,429
3369	03 91H05 17192	28.877	97.355	Lohit	M(o)	44.22	4,569
3370	03 91H05 17194	28.870	97.284	Lohit	E(o)	8.05	4,565
3371	03 91H05 17199	28.848	97.381	Lohit	E(o)	6.52	4,339
3372	03 91H06 17213	28.744	97.310	Lohit	E(o)	6.18	4,431
3373	03 91H06 17215	28.721	97.308	Lohit	E(o)	5.87	4,060
3374	03 91H06 17221	28.703	97.273	Lohit	E(o)	6.91	4,427
3375	03 91H06 17224	28.693	97.326	Lohit	E(o)	5.31	4,352
3376	03 91H06 17226	28.691	97.337	Lohit	E(c)	12	4,422
3377	03 91H06 17229	28.686	97.307	Lohit	E(o)	5.39	3,982
3378	03 91H06 17231	28.680	97.326	Lohit	E(o)	9.17	4,424
3379	03 91H06 17234	28.669	97.297	Lohit	E(o)	7.86	4,301
3380	03 91H06 17241	28.595	97.439	Lohit	E(o)	14.46	4,271
3381	03 91H06 17276	28.551	97.447	Lohit	E(o)	8.64	4,523
3382	03 91H06 17280	28.548	97.366	Lohit	E(o)	14.71	4,306
3383	03 91H06 17282	28.548	97.393	Lohit	E(o)	12.59	4,331
3384	03 91H06 17285	28.547	97.438	Lohit	E(o)	7.79	4,527
3385	03 91H06 17306	28.539	97.484	Lohit	E(o)	5.47	4,494
3386	03 91H06 17332	28.514	97.493	Lohit	O	20.47	4,469
3387	03 91H06 17343	28.507	97.493	Lohit	O	5.65	4,476
3388	03 91H07 17369	28.488	97.477	Lohit	E(o)	9.34	4,524
3389	03 91H07 17370	28.488	97.389	Lohit	E(o)	8.1	4,463
3390	03 91H07 17371	28.486	97.353	Lohit	E(o)	5.76	4,309
3391	03 91H07 17380	28.482	97.322	Lohit	E(o)	13.1	4,348
3392	03 91H07 17399	28.472	97.380	Lohit	E(o)	12.22	4,388
3393	03 91H07 17413	28.464	97.409	Lohit	E(o)	10.72	4,420
3394	03 91H07 17422	28.459	97.432	Lohit	E(o)	5.99	4,342
3395	03 91H07 17428	28.432	97.253	Lohit	E(o)	12.87	4,315
3396	03 91H07 17433	28.426	97.401	Lohit	E(o)	14.03	4,289
3397	03 91H07 17452	28.412	97.465	Lohit	E(o)	56.61	4,300
3398	03 91H07 17453	28.412	97.377	Lohit	E(o)	7.37	4,303
3399	03 91H07 17456	28.411	97.406	Lohit	E(o)	11.28	4,443
3400	03 91H07 17459	28.410	97.429	Lohit	E(o)	8.11	4,388
3401	03 91H07 17460	28.410	97.384	Lohit	E(o)	9.74	4,340
3402	03 91H07 17464	28.406	97.267	Lohit	E(o)	9.09	4,290
3403	03 91H07 17468	28.403	97.330	Lohit	E(o)	9.72	4,320
3404	03 91H07 17478	28.400	97.393	Lohit	E(o)	10.29	4,472
3405	03 91H07 17508	28.384	97.425	Lohit	E(o)	5.04	4,261
3406	03 91H07 17524	28.369	97.446	Lohit	M(o)	15.15	4,054
3407	03 91H07 17527	28.342	97.356	Lohit	E(o)	7.4	4,337
3408	03 91H07 17528	28.340	97.369	Lohit	E(o)	14.89	4,230
3409	03 91H07 17541	28.313	97.343	Lohit	E(o)	16.19	4,146
3410	03 91H07 17548	28.274	97.253	Lohit	E(c)	20.87	4,290
3411	03 91H07 17560	28.243	97.331	Lohit	E(o)	11.86	4,333
3412	03 91H08 17563	28.240	97.250	Lohit	E(o)	11.79	3,980
3413	03 91H08 17567	28.227	97.269	Lohit	E(o)	16.83	4,145
3414	03 91H08 17570	28.223	97.285	Lohit	E(o)	32.29	4,189
3415	03 91H08 17576	28.214	97.318	Lohit	E(c)	12.12	4,373
3416	03 91H08 17577	28.211	97.334	Lohit	E(c)	9.61	4,478
3417	03 91H08 17587	28.174	97.329	Lohit	E(o)	14.32	4,307
3418	03 91H08 17589	28.174	97.254	Lohit	E(o)	7.33	4,292
3419	03 91H08 17592	28.170	97.285	Lohit	E(o)	9.16	4,167
3420	03 91H08 17595	28.165	97.260	Lohit	E(o)	6.66	4,185
3421	03 91H08 17599	28.162	97.320	Lohit	E(o)	10.73	4,038
3422	03 91H08 17610	28.158	97.271	Lohit	E(o)	8.67	4,046
3423	03 91H08 17612	28.157	97.333	Lohit	E(o)	8.9	4,192
3424	03 91H08 17618	28.149	97.274	Lohit	E(o)	14.13	3,953
3425	03 91H08 17619	28.143	97.303	Lohit	E(c)	6.45	4,273
3426	03 91H08 17620	28.140	97.290	Lohit	E(o)	26.03	4,055
3427	03 91H08 17621	28.136	97.306	Lohit	E(o)	21.99	4,225
3428	03 91H08 17622	28.136	97.321	Lohit	E(o)	17.77	4,276
3429	03 91H08 17623	28.134	97.298	Lohit	E(o)	9.8	4,097
3430	03 91H08 17624	28.116	97.300	Lohit	E(o)	17.74	4,029

S.No.	Glacial Lake ID No	Lat	Long	Subbasin	GL Type	Area (ha)	Elev (m)
3431	03 91H08 17626	28.107	97.311	Lohit	E(o)	21.72	4,343
3432	03 91H08 17627	28.106	97.320	Lohit	E(o)	12.4	4,358
3433	03 91H08 17629	28.101	97.270	Lohit	E(c)	14.99	4,169
3434	03 91H08 17635	28.096	97.289	Lohit	E(o)	53.06	3,762
3435	03 91H08 17637	28.093	97.323	Lohit	E(o)	5.83	4,390
3436	03 91H08 17639	28.080	97.304	Lohit	E(o)	23.71	4,304
3437	03 91H08 17649	28.061	97.357	Lohit	E(c)	15.82	4,344
3438	03 91H08 17651	28.054	97.330	Lohit	E(o)	25.72	4,424
3439	03 91H08 17652	28.053	97.281	Lohit	M(o)	10.51	4,499
3440	03 91H08 17656	28.045	97.293	Lohit	E(o)	10.43	4,472
3441	03 91H08 17657	28.033	97.305	Lohit	E(c)	8.69	4,470
3442	03 91H08 17667	28.012	97.388	Lohit	E(c)	6.21	4,374
3443	03 91H09 17669	28.991	97.549	Lohit	M(e)	17.75	4,390
3444	03 91H09 17672	28.938	97.522	Lohit	E(c)	21.47	4,392
3445	03 91H09 17690	28.867	97.568	Lohit	E(o)	5.48	4,300
3446	03 91H09 17694	28.864	97.652	Lohit	E(o)	5.19	4,532
3447	03 91H09 17695	28.863	97.612	Lohit	E(o)	11.56	4,558
3448	03 91H09 17701	28.856	97.652	Lohit	E(o)	5.65	4,598
3449	03 91H09 17706	28.852	97.631	Lohit	E(o)	12.69	4,523
3450	03 91H10 17747	28.726	97.685	Lohit	E(o)	5.84	4,605
3451	03 91H10 17755	28.716	97.564	Lohit	E(o)	5.22	4,465
3452	03 91H10 17809	28.556	97.548	Lohit	E(o)	12.3	4,363
3453	03 91H10 17824	28.536	97.621	Lohit	E(o)	15.42	4,616
3454	03 91H10 17828	28.529	97.541	Lohit	E(o)	5.88	4,544
3455	03 91H10 17838	28.518	97.527	Lohit	E(o)	24.32	4,449
3456	03 91H11 17842	28.491	97.501	Lohit	E(o)	5.33	4,541
3457	03 92A09 17844	27.816	96.707	Lohit	E(o)	10.89	3,488
3458	03 92A13 17852	27.759	96.878	Lohit	E(c)	10.4	3,857
3459	03 92A14 17856	27.742	96.845	Lohit	E(o)	18.26	3,778
3460	03 92A14 17859	27.732	96.871	Lohit	E(o)	12.07	4,012
3461	03 92A14 17860	27.726	96.848	Lohit	E(o)	18.83	3,669
3462	03 92A14 17861	27.719	96.877	Lohit	E(o)	20.25	3,664
3463	03 92A14 17863	27.717	96.865	Lohit	E(o)	6.13	4,017
3464	03 92A14 17865	27.713	96.805	Lohit	E(o)	6.85	3,451
3465	03 92A14 17866	27.712	96.938	Lohit	E(o)	12.92	3,751
3466	03 92A14 17874	27.705	96.958	Lohit	E(o)	9.12	3,862
3467	03 92A14 17876	27.703	96.880	Lohit	E(o)	9.52	3,943
3468	03 92A14 17882	27.690	96.860	Lohit	E(o)	49.45	3,373
3469	03 92A14 17883	27.689	96.824	Lohit	E(o)	9.52	3,770
3470	03 92A14 17885	27.682	96.866	Lohit	E(o)	9.16	3,380
3471	03 92A14 17886	27.681	96.932	Lohit	E(c)	9.03	3,983
3472	03 92A14 17887	27.681	96.939	Lohit	E(o)	5.68	3,881
3473	03 92A14 17896	27.646	96.878	Lohit	E(o)	15.08	3,263
3474	03 92A14 17900	27.637	96.916	Lohit	E(c)	10.1	3,689
3475	03 92A14 17901	27.634	96.904	Lohit	E(c)	7.7	3,884
3476	03 92A14 17904	27.625	96.892	Lohit	E(o)	7.55	3,516
3477	03 92E01 17907	27.996	97.187	Lohit	E(c)	40.63	4,091
3478	03 92E01 17908	27.993	97.123	Lohit	E(o)	7.25	3,850
3479	03 92E01 17909	27.990	97.098	Lohit	E(o)	12.28	3,687
3480	03 92E01 17911	27.987	97.179	Lohit	E(o)	6.22	3,917
3481	03 92E01 17917	27.982	97.121	Lohit	E(c)	5.46	4,138
3482	03 92E01 17921	27.974	97.244	Lohit	E(o)	5.17	3,983
3483	03 92E01 17928	27.966	97.241	Lohit	E(o)	8.84	4,080
3484	03 92E01 17929	27.966	97.094	Lohit	E(o)	9.83	3,938
3485	03 92E01 17933	27.959	97.105	Lohit	E(o)	17.42	3,831
3486	03 92E01 17934	27.958	97.183	Lohit	E(o)	6.3	3,869
3487	03 92E01 17937	27.949	97.108	Lohit	E(o)	12.82	3,874
3488	03 92E01 17938	27.948	97.131	Lohit	E(c)	11.08	3,819
3489	03 92E01 17941	27.928	97.129	Lohit	E(o)	6.62	4,194
3490	03 92E01 17947	27.912	97.110	Lohit	E(o)	5.77	3,720
3491	03 92E01 17949	27.903	97.072	Lohit	E(o)	7.37	3,728
3492	03 92E01 17953	27.888	97.080	Lohit	E(c)	5.54	3,809
3493	03 92E05 17957	27.994	97.316	Lohit	E(o)	13.95	4,270
3494	03 92E05 17959	27.989	97.369	Lohit	E(o)	51.93	4,188
3495	03 92E05 17966	27.980	97.302	Lohit	E(o)	5.2	4,027
3496	03 92E05 17974	27.952	97.369	Lohit	E(o)	5.93	4,209
3497	03 92E05 17981	27.944	97.365	Lohit	E(o)	9.1	4,288
3498	03 92E05 17990	27.918	97.342	Lohit	E(o)	5.82	4,195
3499	03 92E05 17991	27.905	97.364	Lohit	E(o)	6.65	4,003
3500	03 92E05 17993	27.896	97.365	Lohit	E(o)	8.96	4,106
3501	03 92E05 17994	27.893	97.358	Lohit	E(o)	21.52	3,931
3502	03 92E05 18001	27.879	97.360	Lohit	E(o)	40.18	4,158

Annexure - III

Glacial Lakes of Brahmaputra River basin with area > 50 ha

There are 207 lakes having an area greater than 50 ha, which is just 1.15% of the total glacial lake count, but covers total of 32.50% of the total glacial lakes area. Spatial distribution of these very large sized lakes i.e. > 50 ha in area has been represented below in Figure 141 and details of these are given in Table 111, along with its area, type, geographic as well as hydrological location, and elevation at which they are situated. Among these 207 lakes, 121, 65 and 21 lakes are in the lake area range of < 100 ha, 100-250 ha and > 250 ha respectively. Out of these 207 large lakes, majority (87) is glacier erosion lakes followed by moraine-dammed glacial lakes (50) and few are glacial trough valley erosion lakes (7) and lateral moraine-dammed glacial lake (1).

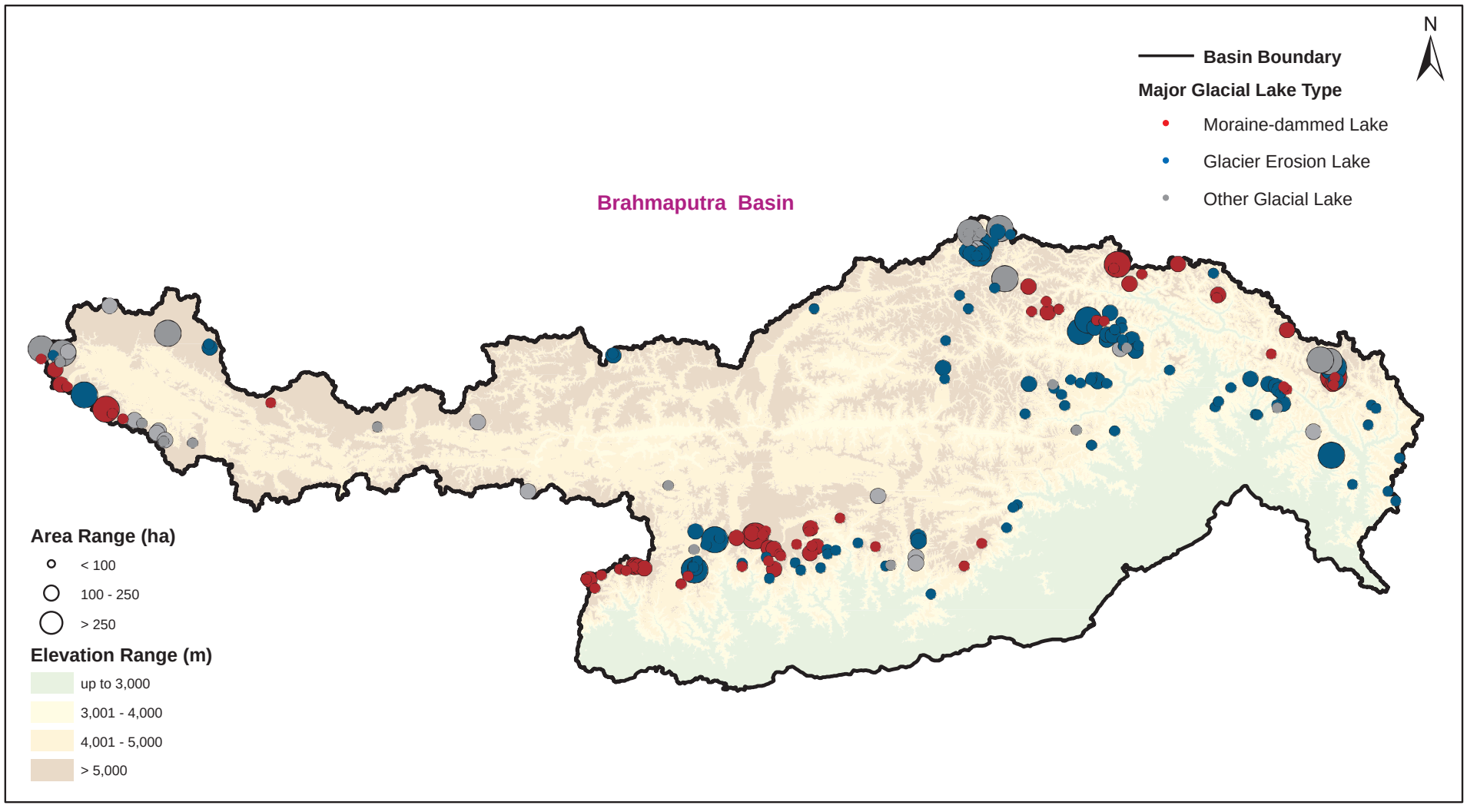


Figure 141: Spatial distribution of glacial lakes with area > 50 ha

Table 111: List of glacial lakes with area > 50 ha

S.No.	Glacial Lake ID Number			Latitude	Longitude	Subbasin	GL Type	Area (ha)	Elevation (m)
1	03	62J03	00044	30.468	82.060	Upper Yarlung Tsangpo	O	378.80	5,180
2	03	62J03	00151	30.398	82.192	Upper Yarlung Tsangpo	E(o)	86.53	5,203
3	03	62J03	00163	30.362	82.055	Upper Yarlung Tsangpo	M(e)	56.83	5,283
4	03	62J03	00201	30.255	82.209	Upper Yarlung Tsangpo	M(e)	128.70	5,057
5	03	62J07	00243	30.432	82.362	Upper Yarlung Tsangpo	O	152.61	4,882
6	03	62J07	00244	30.419	82.302	Upper Yarlung Tsangpo	O	901.40	4,931
7	03	62J07	00289	30.342	82.271	Upper Yarlung Tsangpo	O	69.03	4,993
8	03	62J07	00296	30.329	82.270	Upper Yarlung Tsangpo	O	58.67	4,990
9	03	62J08	00344	30.103	82.270	Upper Yarlung Tsangpo	M(e)	203.15	4,875
10	03	62J08	00354	30.079	82.343	Upper Yarlung Tsangpo	M(e)	91.73	4,849
11	03	62J13	00456	30.881	82.859	Upper Yarlung Tsangpo	O	146.23	5,446
12	03	62K09	00585	29.985	82.535	Upper Yarlung Tsangpo	E(o)	392.72	4,829
13	03	62K13	00646	29.840	82.782	Upper Yarlung Tsangpo	M(e)	291.26	5,058
14	03	62K13	00664	29.796	82.853	Upper Yarlung Tsangpo	M(e)	53.83	5,160
15	03	62K14	00680	29.735	82.974	Upper Yarlung Tsangpo	M(e)	80.86	5,337
16	03	62N10	00819	30.591	83.519	Upper Yarlung Tsangpo	O	270.94	5,227
17	03	62N15	00896	30.465	83.984	Upper Yarlung Tsangpo	E(o)	84.88	5,450
18	03	62N15	00912	30.431	83.996	Upper Yarlung Tsangpo	E(o)	206.16	5,429
19	03	62O02	00938	29.726	83.105	Upper Yarlung Tsangpo	O	113.22	5,010
20	03	62O02	00944	29.689	83.190	Upper Yarlung Tsangpo	O	54.50	5,007
21	03	62O06	01004	29.604	83.376	Upper Yarlung Tsangpo	O	145.71	4,889
22	03	62O06	01010	29.582	83.355	Upper Yarlung Tsangpo	O	118.74	4,888
23	03	62O06	01021	29.511	83.444	Upper Yarlung Tsangpo	O	211.06	4,959
24	03	62O07	01027	29.499	83.428	Upper Yarlung Tsangpo	O	59.80	4,959
25	03	62O15	01246	29.470	83.764	Upper Yarlung Tsangpo	O	77.62	5,282
26	03	71P09	01500	28.832	87.560	Upper Yarlung Tsangpo	O	140.16	5,296
27	03	71C09	01990	29.845	84.676	Upper Yarlung Tsangpo	M(e)	51.54	5,536
28	03	71G14	02213	29.558	85.880	Upper Yarlung Tsangpo	O	56.48	5,186
29	03	71O02	02336	29.556	87.028	Upper Yarlung Tsangpo	O	119.59	4,729
30	03	77B12	02407	30.168	88.620	Upper Yarlung Tsangpo	E(o)	50.13	5,029
31	03	77B12	02408	30.148	88.627	Upper Yarlung Tsangpo	E(o)	213.67	5,011
32	03	77D12	02625	28.026	88.710	Teesta	M(e)	113.46	5,148
33	03	77D12	02636	28.008	88.698	Teesta	M(e)	99.32	5,209
34	03	77D12	02640	28.006	88.713	Teesta	M(e)	119.15	5,238
35	03	77D16	02649	28.011	88.756	Teesta	M(o)	108.12	5,094
36	03	78A01	02664	27.920	88.159	Teesta	M(e)	83.63	5,441
37	03	78A01	02665	27.913	88.196	Teesta	M(e)	128.14	5,194
38	03	78A05	02815	27.947	88.332	Teesta	M(o)	60.49	5,034
39	03	78A05	02874	27.822	88.249	Teesta	M(e)	70.94	5,414
40	03	78A09	02955	27.992	88.545	Teesta	M(e)	68.28	5,161
41	03	78A09	02961	27.975	88.616	Teesta	M(e)	57.86	4,960
42	03	78A13	03118	27.990	88.816	Teesta	M(e)	174.29	5,303
43	03	77H01	03295	28.805	89.155	Upper Yarlung Tsangpo	O	68.23	4,219

S.No.	Glacial Lake ID Number			Latitude	Longitude	Subbasin	GL Type	Area (ha)	Elevation (m)
44	03	77H07	03298	28.327	89.430	Upper Yarlung Tsangpo	E(o)	140.50	4,426
45	03	77H08	03302	28.144	89.396	Upper Yarlung Tsangpo	O	62.48	4,473
46	03	77H08	03328	28.025	89.428	Upper Yarlung Tsangpo	E(o)	63.43	4,791
47	03	77H12	03343	28.241	89.695	Upper Yarlung Tsangpo	E(o)	70.85	4,693
48	03	77H12	03344	28.228	89.638	Upper Yarlung Tsangpo	E(o)	1273.72	4,568
49	03	77H12	03352	28.181	89.535	Upper Yarlung Tsangpo	E(o)	82.15	4,694
50	03	77H16	03368	28.230	89.887	Upper Yarlung Tsangpo	M(e)	151.09	4,921
51	03	77L03	03394	28.264	90.068	Upper Yarlung Tsangpo	M(e)	188.07	5,149
52	03	77L04	03395	28.236	90.104	Upper Yarlung Tsangpo	M(e)	585.02	5,126
53	03	78E05	03424	27.969	89.379	Upper Yarlung Tsangpo	E(o)	66.73	4,568
54	03	78E05	03429	27.959	89.397	Upper Yarlung Tsangpo	E(o)	181.69	4,576
55	03	78E05	03433	27.941	89.389	Upper Yarlung Tsangpo	E(o)	279.30	4,572
56	03	78E05	03454	27.878	89.312	Upper Yarlung Tsangpo	M(e)	61.73	5,001
57	03	78E01	03664	27.809	89.230	Amo Chu	M(e)	52.68	5,137
58	03	77L04	04187	28.107	90.247	Puna Tsang Chu	M(e)	132.27	4,369
59	03	77L04	04243	28.016	90.210	Puna Tsang Chu	E(o)	54.12	5,127
60	03	77L08	04272	28.092	90.301	Puna Tsang Chu	M(e)	153.89	4,513
61	03	78E13	04457	27.973	89.930	Puna Tsang Chu	E(c)	65.00	5,076
62	03	78E13	04481	27.940	89.930	Puna Tsang Chu	M(o)	72.67	5,002
63	03	78I01	04658	27.977	90.233	Puna Tsang Chu	M(o)	67.28	5,072
64	03	78I01	04807	27.800	90.231	Puna Tsang Chu	E(o)	74.59	4,758
65	03	77J15	05060	30.479	90.966	Lhasa Tsangpo	E(o)	85.72	5,035
66	03	82A16	05382	31.120	92.833	Lhasa Tsangpo	O	388.59	4,902
67	03	82A16	05393	31.112	92.815	Lhasa Tsangpo	O	68.03	4,905
68	03	82A16	05396	31.109	92.952	Lhasa Tsangpo	O	97.67	4,894
69	03	82A16	05447	31.036	92.787	Lhasa Tsangpo	O	94.42	4,908
70	03	82B11	05671	30.494	92.646	Lhasa Tsangpo	E(o)	98.02	4,817
71	03	82B11	05688	30.350	92.735	Lhasa Tsangpo	E(o)	87.32	5,112
72	03	82B13	05785	30.976	92.941	Lhasa Tsangpo	E(o)	441.76	4,904
73	03	82B13	05792	30.949	92.890	Lhasa Tsangpo	O	118.54	4,892
74	03	82B13	05795	30.935	92.828	Lhasa Tsangpo	O	222.71	4,886
75	03	82B13	05797	30.934	92.775	Lhasa Tsangpo	E(o)	122.17	4,835
76	03	82B13	05803	30.906	92.817	Lhasa Tsangpo	E(o)	177.10	4,960
77	03	82B13	05804	30.896	92.910	Lhasa Tsangpo	E(o)	266.63	4,923
78	03	82B13	05805	30.894	92.951	Lhasa Tsangpo	E(o)	205.95	4,958
79	03	82B13	05808	30.879	92.881	Lhasa Tsangpo	E(o)	52.44	4,982
80	03	82C05	05928	29.779	92.388	Lhasa Tsangpo	E(o)	154.54	4,916
81	03	82C06	05941	29.667	92.394	Lhasa Tsangpo	E(o)	53.86	4,677
82	03	82E04	06022	31.132	93.177	Lhasa Tsangpo	O	692.16	5,007
83	03	82E04	06068	31.103	93.144	Lhasa Tsangpo	E(o)	101.01	5,024
84	03	82E04	06096	31.004	93.088	Lhasa Tsangpo	E(o)	71.50	5,040
85	03	82E08	06104	31.065	93.292	Lhasa Tsangpo	E(o)	51.21	5,047
86	03	77L03	06157	28.278	90.226	Upper Yarlung Tsangpo	M(e)	86.59	5,301
87	03	77L04	06161	28.245	90.185	Upper Yarlung Tsangpo	M(e)	60.02	5,455

S.No.	Glacial Lake ID Number			Latitude	Longitude	Subbasin	GL Type	Area (ha)	Elevation (m)
88	03	77P10	06238	28.546	91.525	Upper Yarlung Tsangpo	O	101.76	5,083
89	03	77L11	06298	28.273	90.736	Manas	M(e)	167.03	4,510
90	03	77L12	06314	28.241	90.724	Manas	M(e)	88.56	4,654
91	03	77L12	06349	28.123	90.566	Manas	M(e)	67.52	5,172
92	03	77L12	06358	28.096	90.738	Manas	M(e)	67.74	5,004
93	03	77L16	06450	28.086	90.787	Manas	M(e)	216.41	5,165
94	03	77L16	06456	28.059	90.903	Manas	E(o)	52.05	4,768
95	03	77L16	06503	28.003	90.905	Manas	E(o)	87.32	4,754
96	03	77P03	06540	28.351	91.079	Manas	M(e)	77.20	4,787
97	03	77P04	06580	28.034	91.003	Manas	E(o)	76.90	4,200
98	03	77P08	06632	28.088	91.257	Manas	E(o)	56.11	4,630
99	03	77L08	06904	28.037	90.364	Manas	M(e)	84.10	5,216
100	03	77L08	06928	28.014	90.374	Manas	M(e)	72.68	5,182
101	03	77L12	07005	28.022	90.709	Manas	M(e)	145.52	4,868
102	03	78I05	07173	27.890	90.290	Manas	M(e)	114.20	5,059
103	03	78I09	07447	27.939	90.535	Manas	E(c)	59.94	5,036
104	03	78I09	07510	27.861	90.591	Manas	E(o)	74.98	4,770
105	03	78I13	07712	27.867	90.816	Manas	E(o)	53.98	4,135
106	03	77P08	07817	28.037	91.452	Manas	M(o)	56.24	4,737
107	03	77P16	07886	28.102	91.942	Manas	E(o)	117.73	4,705
108	03	77P16	07892	28.059	91.939	Manas	E(o)	240.03	4,631
109	03	78M09	08030	27.838	91.605	Manas	O	66.35	4,125
110	03	78M09	08032	27.834	91.553	Manas	E(c)	67.23	4,521
111	03	78M13	08095	27.901	91.896	Manas	O	217.48	4,452
112	03	78M13	08130	27.841	91.892	Manas	O	145.65	4,638
113	03	83A02	08572	27.519	92.033	Manas	E(o)	60.79	4,274
114	03	83A05	08628	27.771	92.435	Manas	M(o)	55.56	5,179
115	03	82F02	08814	30.621	93.181	Lower Yarlung Tsangpo	O	689.79	4,499
116	03	82F02	08824	30.535	93.058	Lower Yarlung Tsangpo	E(o)	86.74	4,817
117	03	82F06	08851	30.521	93.445	Lower Yarlung Tsangpo	M(o)	114.42	4,780
118	03	82F11	08921	30.355	93.632	Lower Yarlung Tsangpo	M(e)	54.25	4,442
119	03	82J06	09026	30.654	94.492	Lower Yarlung Tsangpo	M(e)	530.64	3,942
120	03	82J06	09027	30.626	94.444	Lower Yarlung Tsangpo	M(e)	66.04	4,095
121	03	82J11	09055	30.452	94.603	Lower Yarlung Tsangpo	M(e)	181.75	3,998
122	03	82J14	09067	30.537	94.759	Lower Yarlung Tsangpo	M(e)	51.12	3,631
123	03	82B08	09108	30.049	92.443	Lower Yarlung Tsangpo	E(o)	52.80	4,993
124	03	82F07	09589	30.267	93.457	Lower Yarlung Tsangpo	M(o)	70.57	4,076
125	03	82F12	09688	30.242	93.638	Lower Yarlung Tsangpo	M(e)	108.96	4,181
126	03	82F15	09750	30.261	93.764	Lower Yarlung Tsangpo	M(e)	64.75	4,019
127	03	82F16	09776	30.020	93.967	Lower Yarlung Tsangpo	E(v)	2658.49	3,475
128	03	82G06	10094	29.541	93.345	Lower Yarlung Tsangpo	E(o)	100.03	4,631
129	03	82G10	10253	29.513	93.620	Lower Yarlung Tsangpo	O	79.97	4,362
130	03	82G11	10262	29.477	93.631	Lower Yarlung Tsangpo	E(o)	82.79	4,369
131	03	82G14	10427	29.542	93.830	Lower Yarlung Tsangpo	E(o)	56.22	4,419

S.No.	Glacial Lake ID Number			Latitude	Longitude	Subbasin	GL Type	Area (ha)	Elevation (m)
132	03	82G14	10455	29.502	93.937	Lower Yarlung Tsangpo	E(o)	56.29	4,444
133	03	82J04	10483	30.126	94.090	Lower Yarlung Tsangpo	E(o)	276.68	3,802
134	03	82J04	10484	30.115	94.188	Lower Yarlung Tsangpo	M(e)	94.40	3,905
135	03	82J04	10489	30.046	94.157	Lower Yarlung Tsangpo	E(o)	107.17	4,294
136	03	82J08	10499	30.099	94.270	Lower Yarlung Tsangpo	M(e)	68.10	3,924
137	03	82K02	10661	29.545	94.067	Lower Yarlung Tsangpo	E(o)	50.77	4,299
138	03	82K02	10688	29.526	94.057	Lower Yarlung Tsangpo	E(o)	78.00	4,533
139	03	82K02	10696	29.518	94.121	Lower Yarlung Tsangpo	E(o)	118.34	4,501
140	03	82K02	10703	29.505	94.133	Lower Yarlung Tsangpo	E(o)	101.69	4,577
141	03	82K03	10730	29.472	94.236	Lower Yarlung Tsangpo	E(o)	50.80	4,509
142	03	82K05	10788	29.915	94.280	Lower Yarlung Tsangpo	E(c)	183.14	4,385
143	03	82K05	10845	29.828	94.462	Lower Yarlung Tsangpo	E(o)	57.27	4,133
144	03	82K05	10852	29.813	94.433	Lower Yarlung Tsangpo	O	228.43	4,083
145	03	82K09	10962	29.808	94.501	Lower Yarlung Tsangpo	O	55.81	4,305
146	03	82G08	11911	29.240	93.276	Lower Yarlung Tsangpo	E(o)	58.59	4,914
147	03	82G11	12006	29.405	93.708	Lower Yarlung Tsangpo	E(o)	74.32	4,505
148	03	82G11	12065	29.287	93.736	Lower Yarlung Tsangpo	E(o)	59.16	4,562
149	03	82G16	12326	29.035	93.836	Lower Yarlung Tsangpo	O	67.89	4,116
150	03	82H13	12506	28.856	94.000	Lower Yarlung Tsangpo	E(o)	73.89	3,868
151	03	82K14	12810	29.545	94.965	Lower Yarlung Tsangpo	E(c)	91.95	4,300
152	03	82L05	12837	28.986	94.270	Lower Yarlung Tsangpo	E(o)	50.66	3,478
153	03	82H03	13095	28.342	93.092	Subansiri	E(o)	62.44	4,251
154	03	82H03	13097	28.320	93.047	Subansiri	E(o)	72.68	4,255
155	03	83A09	13285	27.980	92.651	Subansiri	M(e)	52.21	4,988
156	03	82D16	13318	28.116	92.951	Subansiri	E(c)	55.58	4,648
157	03	82J08	13621	30.174	94.346	Lower Yarlung Tsangpo	E(v)	180.80	3,654
158	03	82J08	13634	30.073	94.464	Lower Yarlung Tsangpo	E(o)	90.19	4,110
159	03	82J08	13655	30.013	94.472	Lower Yarlung Tsangpo	E(c)	66.38	4,327
160	03	82J08	13657	30.005	94.384	Lower Yarlung Tsangpo	E(o)	59.09	4,020
161	03	82K05	13679	29.959	94.292	Lower Yarlung Tsangpo	E(v)	134.02	4,282
162	03	82K05	13686	29.947	94.358	Lower Yarlung Tsangpo	E(o)	109.97	4,148
163	03	82K05	13714	29.896	94.461	Lower Yarlung Tsangpo	E(o)	85.25	4,346
164	03	82K09	13791	29.890	94.569	Lower Yarlung Tsangpo	E(v)	158.02	4,149
165	03	82K09	13855	29.829	94.633	Lower Yarlung Tsangpo	E(v)	60.20	4,231
166	03	82K09	13886	29.779	94.601	Lower Yarlung Tsangpo	E(v)	184.22	4,146
167	03	82N02	14031	30.603	95.182	Lower Yarlung Tsangpo	M(e)	110.12	4,278
168	03	82N10	14193	30.473	95.575	Lower Yarlung Tsangpo	E(o)	56.47	4,866
169	03	82N11	14301	30.251	95.604	Lower Yarlung Tsangpo	M(o)	134.45	4,442
170	03	82N12	14308	30.221	95.584	Lower Yarlung Tsangpo	M(e)	85.49	4,342
171	03	91C02	14526	29.598	96.141	Lower Yarlung Tsangpo	M(o)	65.09	4,025
172	03	91C05	14550	29.823	96.351	Lower Yarlung Tsangpo	M(o)	101.06	4,870
173	03	82O08	14709	29.180	95.486	Dihang	E(o)	93.81	3,533
174	03	82O11	14834	29.304	95.640	Dihang	E(v)	70.17	3,322
175	03	82O15	14903	29.371	95.873	Dihang	E(o)	103.75	4,344

S.No.	Glacial Lake ID Number			Latitude	Longitude	Subbasin	GL Type	Area (ha)	Elevation (m)
176	03	82O08	14974	29.129	95.439	Dibang	E(o)	53.88	3,284
177	03	82O16	15129	29.011	95.885	Dibang	E(o)	55.15	3,778
178	03	82P13	15195	29.005	95.905	Dibang	E(o)	54.45	3,598
179	03	91C03	15223	29.302	96.082	Dibang	E(o)	119.59	4,274
180	03	91C03	15250	29.269	96.157	Dibang	E(o)	102.66	3,991
181	03	91C04	15278	29.229	96.192	Dibang	E(o)	106.39	3,473
182	03	91C04	15283	29.226	96.160	Dibang	E(o)	57.36	3,313
183	03	91C04	15296	29.196	96.203	Dibang	E(o)	64.06	4,246
184	03	91C04	15336	29.091	96.211	Dibang	E(o)	100.77	4,188
185	03	91C04	15344	29.079	96.145	Dibang	E(c)	86.02	3,945
186	03	91C04	15360	29.051	96.144	Dibang	O	79.93	3,602
187	03	91C08	15390	29.244	96.245	Dibang	E(o)	50.88	4,360
188	03	91D09	15690	28.776	96.531	Dibang	O	101.67	3,510
189	03	91C03	15760	29.257	96.246	Lohit	M(o)	89.30	4,432
190	03	91C08	15774	29.224	96.279	Lohit	M(o)	66.27	4,207
191	03	91C11	15833	29.491	96.701	Lohit	O	610.17	3,916
192	03	91C15	15967	29.462	96.787	Lohit	O	518.00	3,916
193	03	91C15	15982	29.397	96.828	Lohit	E(o)	401.62	3,917
194	03	91C15	15998	29.298	96.816	Lohit	M(e)	292.36	3,954
195	03	91C15	16000	29.295	96.835	Lohit	M(l)	95.04	4,013
196	03	91C15	16004	29.268	96.837	Lohit	E(o)	108.04	4,119
197	03	91C16	16019	29.238	96.826	Lohit	M(o)	209.76	4,219
198	03	91C16	16020	29.230	96.805	Lohit	M(o)	144.00	4,266
199	03	91C16	16024	29.221	96.814	Lohit	M(e)	52.51	4,279
200	03	91D10	16210	28.516	96.699	Lohit	E(o)	299.20	3,330
201	03	91D16	16419	28.202	96.898	Lohit	E(o)	67.30	3,731
202	03	91H01	16757	28.977	97.215	Lohit	E(o)	63.42	4,092
203	03	91H01	16898	28.783	97.153	Lohit	E(o)	83.11	3,712
204	03	91H05	17167	28.940	97.262	Lohit	E(o)	93.63	4,412
205	03	91H07	17452	28.412	97.465	Lohit	E(o)	56.61	4,300
206	03	91H08	17635	28.096	97.289	Lohit	E(o)	53.06	3,762
207	03	92E05	17959	27.989	97.369	Lohit	E(o)	51.93	4,188

Annexure - IV: Glossary

Ablation: The process that reduce the mass of the glacier (Cogley et al., 2011).

Ablation area/zone: The part of the glacier where ablation exceeds accumulation in magnitude, that is, where the cumulative mass balance relative to the start of the mass-balance year is negative. The extent of the ablation zone can vary strongly from year to year (Cogley et al., 2011).

Accumulation: The process that add to the mass of the glacier (Cogley et al., 2011).

Accumulation area/zone: The part of the glacier where accumulation exceeds ablation in magnitude, that is, where the cumulative mass balance relative to the start of the mass-balance year is positive. The extent of the accumulation zone can vary strongly from year to year. The accumulation zone is not the same as the firn area (Cogley et al., 2011).

Altitude: The vertical distance of a point above a datum, which is usually an estimate of mean sea level. Altitude and elevation are synonyms in common usage (Cogley et al., 2011).

Aspect: The compass direction towards which a slope faces; measured clockwise in degrees from the North.
Attribute: Non-spatial descriptive characteristics of a real-world phenomenon, often a measurement or value associated with spatial locations.

Attribute: Non-spatial descriptive characteristics of a real-world phenomenon, often a measurement or value associated with spatial locations.

Avalanche: A slide or flow of a mass of snow, firn or ice that becomes detached abruptly, often entraining additional material such as snow, debris and vegetation as it descends. The duration of an avalanche is typically seconds to minutes (Cogley et al., 2011).

Band: One layer of multispectral image representing data values for a specific range of the electromagnetic spectrum of reflected light or heat.

Climate: Climate is usually defined as the average weather or as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years. The relevant quantities are most often surface variables such as temperature, precipitation and wind (Pandey, 2019).

Climate change: Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. UNFCCC defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. (Pandey, 2019).

Climate variability: Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability) (Pandey, 2019).

Cryosphere: The cryosphere is the part of the Earth system that contains ice, for example snow on the ground, glaciers, ice sheets, lake ice, river ice, sea ice, seasonally and perennially frozen ground (GCW 2016).

Database: An organized, integrated collection of data related by a common fact or purpose.

Debris-covered glacier: A glacier that is covered at its tongue with supra-glacial debris across its full width (Kirkbride, 2011). In the accumulation zone any deposited debris is buried by later snowfalls, but in the ablation zone debris remains at the surface and englacial debris is added to the surface layer from beneath as ice ablates away. The debris cover affects the rate of ablation, with very thin debris resulting in accelerated melt and debris thicker than a few tens of millimetres reducing the melting rate (Cogley et al., 2011).

Digital Elevation Model (DEM): An array of numbers representing the elevation of part or all of the Earth's surface as samples or averages at fixed spacing in two horizontal coordinate directions (Cogley et al., 2011).

Disaster: A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts (UNISDR 2017).

Disaster risk: The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity (UNISDR 2017).

Early warning system: The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss (Pandey, 2019).

Electromagnetic spectrum: The spectrum of wavelengths of electromagnetic radiation.

Englacial: Pertaining to the interior of the glacier, between the summer surface and the bed (Cogley et al., 2011).

Exposure: The presence or situation of people, livelihoods, species, ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings, and other tangible human assets located in hazard-prone areas that could be adversely affected (UNISDR, 2017; Pandey, 2019).

Feature: A real-world phenomenon, often used in cartography to name classes of elements shown on a map.

Firn: Snow (in which the pore space is at least partially interconnected, allowing air and water to circulate) that has survived at least one ablation season but has not been transformed to glacier ice (Cogley et al., 2011).

Flood: The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods and glacial lake outburst floods (Pandey, 2019).

Format: The pattern into which data are systematically arranged for use on a computer.

Geographic Information System (GIS): A set of tools for collecting, storing, retrieving, transforming, and displaying spatial data from the real world for a particular set of circumstances.

Glacial Lake Outburst Flood (GLOF): Flood caused by the outburst of a glacial lake due to rapid accumulation of water in it, resulting to extreme damage in loss of lives and infrastructure in the downstream area.

Glacial Lake: As a result of glacier thinning and retreating, melt water gets accumulated at terminal moraines or on it covered by glacier ice, is known as glacial lake.

Glacier Erosion Lake: These are the water bodies formed in a depression after the glacier has retreated in a form of cirque or trough valley, might be isolated and far away from the present glaciated area, and mostly stable in nature.

Glacier: A perennial mass of ice, and possibly firn and snow, originating on the land surface by their crystallization of snow or other forms of solid precipitation and showing evidence of past or present flow (Cogley et al., 2011).

Global Positioning System (GPS): A GPS is a position-fixing system that uses the time taken for signals to travel from at least three GPS satellites in a known orbit to a receiver on the ground.

Hazard: The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources (Pandey, 2019).

Ice-dammed Lake: An Ice-dammed Lake is produced on the side(s) of a glacier, when an advancing glacier happens to intercept a tributary/tributaries pouring into a main glacier valley.

Impacts: The term impacts is used primarily to refer to the effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system. Impacts are also referred to as consequences and outcomes. The impacts of climate change on geophysical systems, including floods, droughts and sea level rise, are a subset of impacts called physical impacts (Pandey, 2019).

Latitude: Angle measured in a north-south direction from the Earth's center to locations on the Earth's surface.

Longitude: Angle measured in an east-west direction from the Earth's center to locations on the Earth's surface.

Layer: Usually represents a theme or a feature type within the database.

Map: An abstract representation of the physical features of a portion of the Earth's surface graphically displayed on a planar surface. Map display signs, symbols and spatial relationships among the features.

Melt water: The liquid resulting from melting of ice, firn or snow (Cogley et al., 2011).

Moraine-dammed Lake: In the retreating process of a glacier, ice tends to melt in the lowest part of the glacier surrounded by Lateral-moraines and End-moraines, and forms into a lake known as Moraine-dammed Lake or Proglacial Lake.

Pixel: Smallest discrete element that makes up an image, generally represents either a small square or portion of the Earth's surface, scanned by satellite or aircraft.

Precipitation: Liquid or solid products of the condensation of water vapour that fall from clouds or are deposited from the air onto the surface (Cogley et al., 2011).

Remote sensing: The technique of obtaining data about the environment and surface of the earth from a distance, e.g. from an aircraft or satellite.

Resolution: It is the accuracy at which a given map scale can depict the location and shape of geographic features.

Retreat: Decrease of the length of a flow line (in case of glacier which is its terminus), measured from a fixed point. Advance is the opposite of retreat, that is, advance of the terminus (Cogley et al., 2011).

Risk: The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability or likelihood of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. In this report, the term risk is often used to refer to the potential, when the outcome is uncertain, for adverse consequences on lives, livelihoods, health, ecosystems and species, economic, social and cultural assets, services (including environmental services) and infrastructure (Pandey, 2019).

Scale: The ratio or fraction between the distance on a map, chart or photograph and the corresponding distance on the surface of the Earth.

Slope: A measure of change on surface value over distance, expressed in degrees or as a percentage.

Snow: Solid precipitation in the form of ice crystals, chiefly in complex branched hexagonal form and often agglomerated into snowflakes; or an accumulation of the same on the Earth's surface. It is also known as solid precipitation that has accumulated on the summer surface on a glacier and that transforms to firn at the end of the mass-balance year (Cogley et al., 2011).

Subglacial: Pertaining to the glacier bed or to the material below the bed (Cogley et al., 2011).

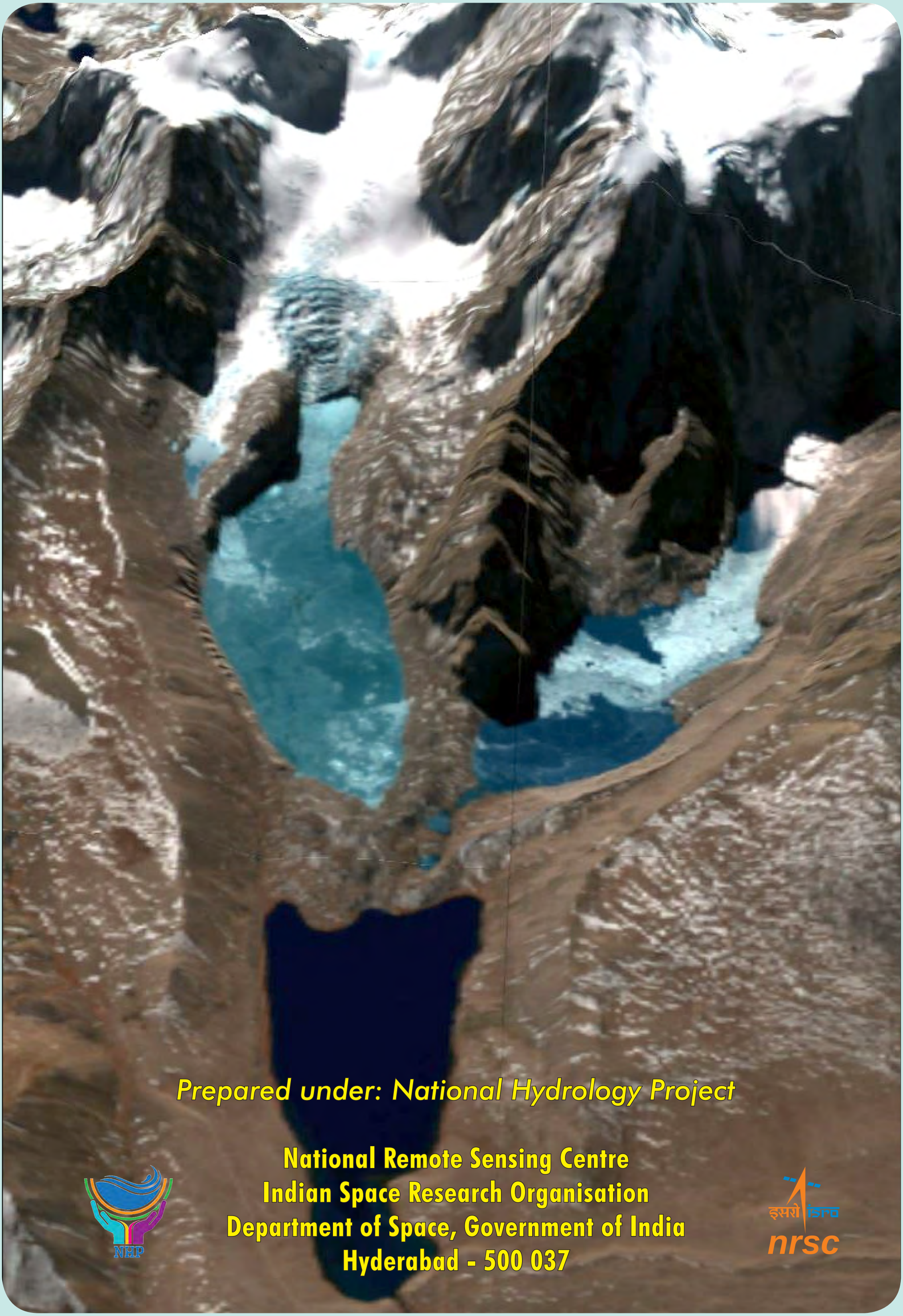
Supra-glacial Lake: Water bodies develop within the ice mass in any position of the glacier, but away from the terminal moraines are known as Supra-glacial lakes. Its basic characteristics are shifting, merging, and draining.

Terminus: The lowest end of a glacier, also called glacier snout, glacier front or glacier toe (Cogley et al., 2011).

Tongue: The lower, elongate part of a valley glacier or outlet glacier or a floating extension of a glacier or ice stream, laterally unconfined but markedly longer than wide (Cogley et al., 2011).

Topographic Map: A map showing the features that describes the surface of a particular place or region. It contains contours indicating lines of equal surface elevation (relief), often referred to a topo maps.

Vulnerability: The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (Pandey, 2019).



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