

**BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH**  
**NEW DELHI**

**EA NO 27/ 2023**

**IN**

**MA NO 54/2023**

IN THE MATTER OF:

URVASHI SHOBHNA KACHARI

...COMPLAINANT

VERSUS

MINISTRY OF ENVIRONMENT FOREST  
AND CLIMATE CHANGE & ORS

...RESPONDENTS

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**ADDITIONAL DOCCUMENTS ON BEHALF OF STATE OF**  
**UTTARAKHAND IN COMPLIANCE OF THE ORDER DATED**  
**28.07.2025.**

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Dated: 15.09.2025



**Adv Anjali Rajput**

Counsel for State of Uttarakhand

Chamber no 136, M.C. Setalvad Block,

Supreme court of India, New Delhi-110001

9811777378



Letter No. WII/BSA-CCKHGY/2025/1

24 April, 2025

To,  
**Member Secretary**  
Uttarakhand Pollution Control Board  
Gauradevi Paryavaran Bhawan  
46-B, IT Park, Shastradhara Road  
Dehradun (Uttarakhand)

**Subject:** Submission of 6 monthly project report on “Scientific Study for Assessment of Carrying Capacity of Kedarnath, Hemkund Sahib, Gangotri & Yamunotri tracks of Uttarakhand” for the release of II instalment reg.

**Sir,**

With reference to the Agreement between WII and UPCB dated August, 2024, the First Report (6 monthly) is enclosed herewith for your kind information. As per the agreement we request you to kindly release 30% amount i.e. Rs. 29,24,220/- for the smooth conduction of the project work which is being carried out by the researchers in the field.

We may also would like to request you that in Base Camp hiring we need more money, which may be arranged from travel/contingency grant built in the project. So kindly allow us to manage it within the allocated budget of the project.

Thanking you

Sincerely,

[Dr. B.S. Adhikari]  
Scientist G & Head  
Ecodevelopment Planning & Participatory Management Department

PROGRESS REPORT

MARCH 2025

# “Assessment of Available Infrastructure for Tourist/Pilgrims in the Concerned Areas”



Prepared for :  
Government of Uttarakhand

Prepared by :  
Wildlife Institute of India

***Assessment of Available Infrastructure for  
Tourists/Pilgrims in the Concerned Areas***

**PROGRESS REPORT**

**MARCH 2025**

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**Citation**

***WII (2025). Progress Report on “Assessment of Available Infrastructure for Tourists/Pilgrims in the Concerned Areas”. 37p.***

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## 1. Introduction

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### 1.1 Overview

This report comprehensively outlines the secondary data collection as per Table 2.0 (in annexure) for the study on carrying capacity assessment of key pilgrim sites of Uttarakhand, specifically Kedarnath, Gangotri, Yamunotri, and Hemkund Sahib, located in the districts of Rudraprayag, Uttarkashi, and Chamoli respectively. In our previous report that is inception report, we conducted a comprehensive pre-primary survey to assess the infrastructure challenges and environmental impacts at these sacred sites. This foundational work outlined key methodologies for evaluating carrying capacity of existing infrastructure for the growing number of tourists and pilgrims, management of waste and sanitation, and safety and environmental compliance, therefore setting the stage for our progress report.

### 1.3 Study Area Location and Description

**Kedarnath:** Kedarnath (Latitude 30° 44'07" N & Longitude 79° 04'01.02" E) is located in the Ukhimath tehsil, Rudraprayag district of Uttarakhand. It is situated in laps of the Himalayas at an elevation of 3570 m above sea level near Chorabari glacier which is the source of Mandakini River and also a part of Kedarnath Wildlife Sanctuary. The study area is at a distance of 18km from Gaurikund which is the starting point of the trek, 50 km from Guptkashi, and 90 km from Rudraprayag. Kedarnath is covered under the Survey of India toposheet no. 53N/2 or H44H2. Famous treks from the study area are Vasuki Tal, Paniya Tal, and Gandhi Sarovar.

**Yamunotri:** Yamunotri (Latitude 30° 59'59" N & Longitude 78° 27'46" E) is located in the Barkot tehsil, Uttarkashi district of Uttarakhand. Surrounded by the majestic peaks of the Himalayas at an elevation of 3226 m above sea level, Yamunotri is a source of river Yamuna, famous for its hot water spring, and covers an area in Yamunotri Reserve Forest. The study area is at a distance of approx. 6 km from Jankichatti, the starting point of the trek, 48 km from Barkot, and 123 km from Uttarkashi. Yamunotri is covered under the Survey of India toposheet no.53J/5 or H44G5. Famous treks from the study area are the Bali Pass and the Spatarishi Kund trek.

**Gangotri:** Gangotri (Latitude  $30^{\circ} 59' 39''$  N & Longitude  $78^{\circ} 56' 28''$  E) is located in the Bhatwari tehsil, Uttarkashi district of Uttarakhand. Situated on the banks of river Bhagirathi- the origin of river Ganga, Gangotri has an elevation of 3195m and comes under Gangotri National Park. The study area is at a distance of 53 km from Harshil, and 98 km from Uttarkashi. Gangotri is covered under the Survey of India toposheet no. 53J/13 or H44G13. Famous treks from Gangotri are Gaumukh -Tapovan trek, and Kedartal trek.

**Hemkund:** Hemkund (Latitude  $30^{\circ} 41' 57''$  N & Longitude  $79^{\circ} 36' 54''$  E) is located in the Joshimath tehsil, Chamoli district of Uttarakhand. Surrounded by seven majestic peaks and a setting glacial lake, Hemkund has an elevation of 4329 m and is a part of Nanda Devi National Park. Hemkund is at a distance of 6 km from Ghangria, the last human habitation center for both Hemkund and Valley of Flowers, 16 km from Pulna, the starting point of the trek, and 40 km from Joshimath. Hemkund is covered under Survey of India toposheet no. 53N/10 or H44H10. The famous trek from Ghangria is the Valley of Flowers.

#### 1.4 Project objectives

- I. Assessment of the carrying capacity infrastructures for tourists/pilgrims, and limiting vehicles, equines, and visitor numbers during peak seasons.
- II. Assessment of the presence of solid and liquid waste management practices, sanitation facilities, and development of sustainable management mechanisms.
- III. Assessment of safety and precaution measures, environmental awareness and compliance, and prohibited activities.
- IV. Development of monitoring mechanism for sustainable tourism.

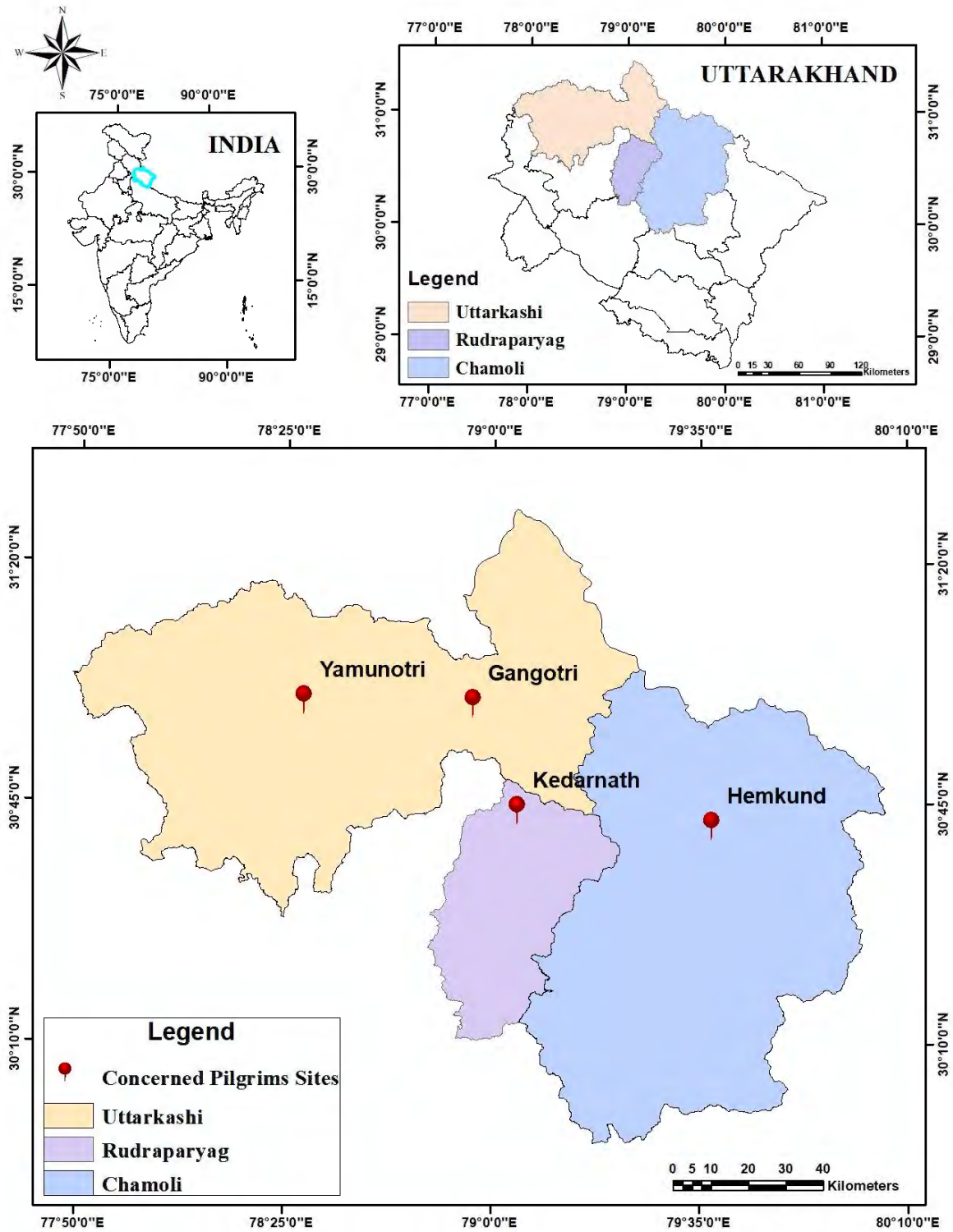


Fig 1.1: Study Area: Locations of the Concerned Pilgrim Sites

## 2. Secondary Data Collection

This study, based on the Holy Pilgrim sites, aimed to determine the carrying capacity of vehicles, tourists/pilgrims, accommodation, and equines through primary and secondary data collection. The field expedition for secondary data collection was conducted during January and February i.e. from 20<sup>th</sup> of January from 2025 to 20<sup>th</sup> of February 2025 in all three district i.e. Chamoli, Rudraprayag and Uttarkashi for their respective pilgrim sites namely Hemkund Sahib, Kedarnath, Gangotri and Yamunotri.

### 2.1 Kedarnath, Rudraprayag



**Fig 2.1. Pictorial representation of different departments of Rudraprayag district**

The table 2.1 (in Annexure) outlines the secondary data required from various departments of the district and the data gathered, which is described below:

- **Zila Panchayat**

The Zila Panchayat has not provided any of the required data concerning public toilets, waste management, equine facilities, and parking. This information is crucial for assessing infrastructure adequacy, waste disposal efficiency, and the management of equine resources used for transportation. A comprehensive 10-year dataset is needed to evaluate trends, identify gaps, and improve facilities.

- **District Hospital**

The District Medical Office has provided essential details regarding hospitals, medical relief posts, ambulances, and healthcare infrastructure spanning the last eight years. While this data is valuable, further assistance may be required for future collection and analysis to maintain updated records and ensure comprehensive healthcare planning for the Yatra season.

- **Jal Sansthan**

The Jal Sansthan Office has collected details regarding drinking water facilities for 2024-2025 but has not provided information on water quality parameters, maintenance details, and the final disposal method. Regular water quality testing and maintenance reports are necessary to ensure safe drinking water and sustainable management of water supply systems in the region.

- **District Tourism Department**

The District Tourism Department has shared information regarding hotels, home-stays, and their bedding capacities. However, it has not provided state-wise data on the number of tourists visiting the area in the last 10 years, nor the figures for 2024. This information is critical for understanding tourism trends, planning for peak seasons, and improving accommodations and facilities for visitors.

- **Police Department**

The Superintendent of Police (SP) Office has provided data on the number of vehicles over the last five years, but only in terms of total numbers without state-wise categorization. Similarly, road accident data has been provided for the same period, but only in summary form. However, detailed records on tourist demographics (national and international, state-wise), vehicle origins, police deployment during and off-season, and law enforcement activities over the last 10 years are still required.

- **Animal Husbandry Department**

The Animal Husbandry Department has shared mule health checkup and mortality data for the past two years. However, a 10-year dataset is necessary to analyse long-term trends, assess health risks, and improve veterinary services for mules that play a crucial role in transportation along the trekking routes.

- **Forest Department**

The Forest Department has not provided any data on flora and fauna, human-wildlife conflict, forest fires, illegal activities such as poaching and tree felling, or personnel deployment over the last 10 years. Given the ecological sensitivity of the region, this data is essential for conservation planning, wildlife management, and monitoring environmental changes.

- **G-Max IT Service, Sonprayag**

G-Max IT Service, responsible for tracking mules, has only provided data on registered mules from the last two years, along with their owner details. However, it has not shared data on blocked registrations, mule mortality, equine waste management, or health check-ups for specific diseases over the past 10 years. This data is critical for monitoring mule welfare, tracking illegal activities, and implementing better waste management practices.

- **Sulabh International Agency, Srinagar**

Sulabh International Agency has provided figures for permanent and steel toilets and the number of workers deployed during the Yatra season. However, no information has been shared on waste management infrastructure, including dump sites, waste collection vehicles, processing plants, or historical data on waste collection and treatment over the last 10 years. A complete dataset is required to evaluate sanitation facilities and waste disposal efficiency along the pilgrimage route.

- **Kedarnath Wildlife Sanctuary, Gopeshwar**

The Kedarnath Wildlife Sanctuary has provided all required data, except for human-wildlife conflict records between 2021 and 2024. This missing data is essential to analyze trends in human-animal interactions and take necessary conservation and mitigation measures.



**Plate. 2.1 Meeting with different departments of the Rudraprayag district i.e. (a) CDO office (b) DFO office**

## 2.2 Gangotri and Yamunotri, Uttarkashi



**Fig 2.2. Pictorial representation of different departments of Uttarkashi District**

The table 2.2 (in Annexure) outlines the secondary data required from various departments of the district and the data gathered, which is described below:

- **Zila panchayat**

The data collected from Zila Panchayat, Uttarkashi, provides crucial insights into waste management, sanitation, and track transport infrastructure facilities. Key metrics such as the number of Dandi and Kandi, toilets and urinals (M/F), cleaning staff (on/off season), and some idea on waste generation have been successfully gathered. Additionally, details on waste collection vehicles, dump sites, public toilets, parking areas, mules, equine water facilities, dung disposal pits, and mule overnight shelters have been recorded. However, information on small restaurants remains unavailable. This data is essential for improving public amenities and ensuring sustainable management of local resources as per records there is no housing facility for mule owner/muleteer, which in general leads to unhealthy and unsanitary living condition for them during the yatra season.

- **Jal Sansthan**

The Jal Sansthan, Uttarkashi, has provided details on public water dispensers, including ATMs and taps. However, maintenance and cleaning details are missing, as per the department the maintenance and cleaning of the public water facilities along the yatra routes is responsibility of the zila panchayat. Water quality data has been shared but is limited to one time sampling data, which does not give valuable insight about the overall water quality, restricting a comprehensive assessment of water safety and sanitation over time.

- **District Hospital**

The data gathered from District Hospital, Uttarkashi, highlights key healthcare infrastructure and services, especially during the Yatra season. Information on bed capacity, medical camps along the Yatra route, available facilities, staff, number of ambulances, and reported deaths has been collected. However, overstanding about healthcare schemes during the yatra season remain unavailable. Additionally, casualty data is limited to just two years with respect to the required ten-year data, restricting some aspect of long-term analysis of healthcare trends.

- **Border Roads Organisation**

The Border Roads Organisation (BRO) has provided critical data regarding highway packages, including length, width, theoretical capacity, and maintenance periods. We further seek the .kml and .shp files of the Yatra Road packages which will of great use for representation of geographic view of the available infrastructure and work toward further traffic management policies during yatra season.

- **District Disaster Management Authority (DDMA)**

The District Disaster Management Authority (DDMA), Uttarkashi, has provided critical data on natural calamities, landslides, road black spots, deaths of trekkers, road accident statistics, tourist and vehicle numbers, alternative routes for Yamunotri and Gangotri, personnel deployment (SDRF & NDRF), emergency vehicles, emergency shelters, and quick response teams. Additionally, avalanche data on Char Dham routes has been collected, ensuring a well-rounded disaster preparedness plan. Apart from its sole purpose i.e. disaster management, The DDMA Uttarkashi also headquarters the of char dham yatra management unit of the district. Due to which the

district body has provided a range of required valuable data from tourist number to facilities like public washrooms, petrol pumps, etc. along the yatra routes. However, the demographic data of the tourist was not available.

- **Police department**

Department has shared vehicle data, road accident records, and road black spots spanning the past three years. However, data on illegal or prohibited cases remains null. Moreover, there is a requirement for 10 years of road accident data, with at least five years being mandatory, for deeper insight and analysing the traffic and safety trends of yatra routes.

- **District Veterinary Department**

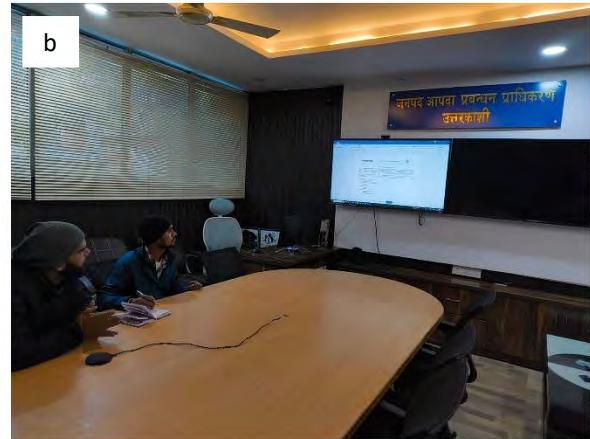
The District Veterinary Department has provided information on mule health checkups, health camps, staff, and mule death statistics. However, mule mortality data is limited to only two years irrespective ten-year data that required for a more detailed study of animal welfare and healthcare trends. The body seems to have undigitized form of historical data which making the data hard to retrieve or gather. Another reason for the lack of data is attributed to the fact that the policy mandating the registration of mules was implemented only a few years ago. Consequently, historical records are either limited or non-existent.

- **Forest Department**

The Forest Department has shared data on some of the forest fire cases, human-wildlife conflicts, and illegal/prohibited activities (H2 cases), conservation programs like plantation, soil moisture program, DRS, etc. However, flora/fauna details and remain unavailable. The yatra route in the district falls in toto jurisdiction of multiple forest divisions. Currently the data is gathered from Gangotri and Barkot divisions, that too is fragmented and limited requiring further information from all the divisions for a complete ecological assessment.

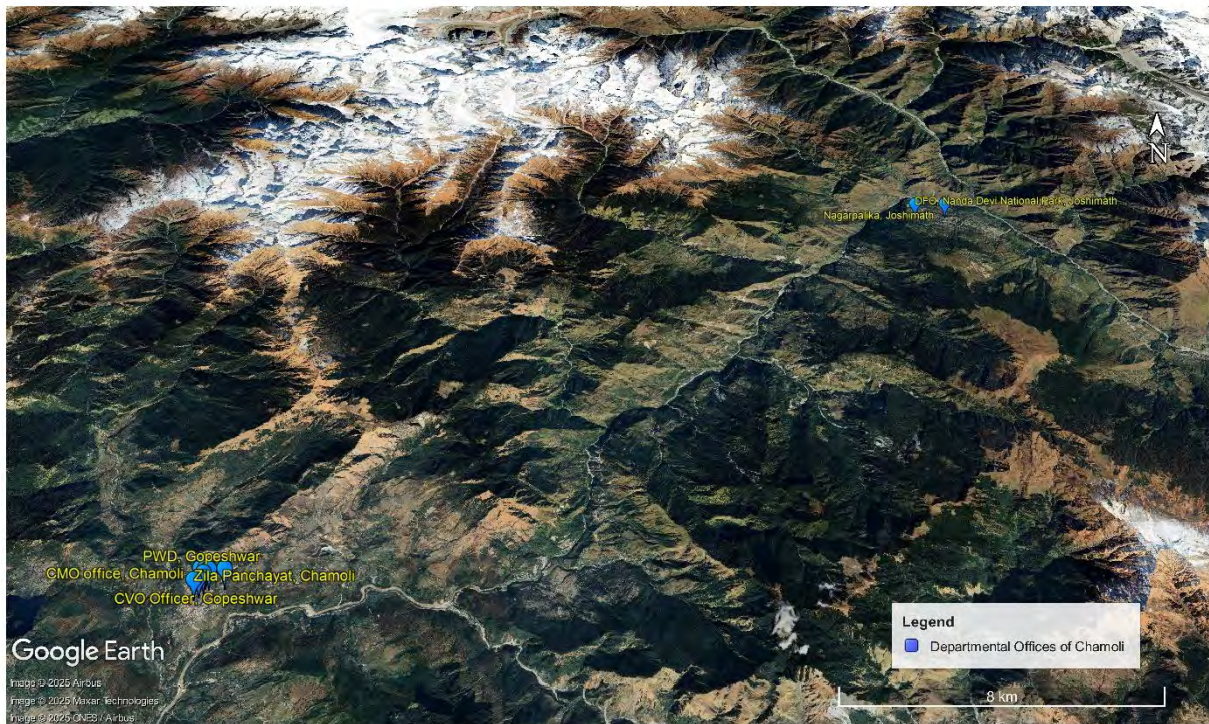
- **Public Works Department (PWD)**

The Public Works Department (PWD) has provided the required data on Yamunotri track specifications (width and length) and highway details, including package, length, width, theoretical capacity, and maintenance periods. Additionally, we seek the digitized Yatra Road packages from the department for further assessment.



**Plate 2.2 Meeting with different departments of the Uttarkashi district i.e. (a) Zila Panchayat (b) District Disaster Management Authority**

## 2.3 Hemkund Sahib: Chamoli



**Fig 2.3 Pictorial representation of different departments of Chamoli District**

The table 2.3 (in Annexure) outlines the secondary data required from various departments of the district and the data gathered, which is described below:

- **Zila Panchayat**

The Zila Panchayat has provided most of the required data, including information on public toilets, waste management, equine facilities, and parking. However, some data remain incomplete. These missing details fall under the jurisdiction of EDC Bhyundar, and collaboration between both entities is necessary to ensure a complete dataset.

- **District Hospital**

The District Medical Office has shared data on hospital facilities, medical relief posts, ambulances, and reported deaths. However, the records span only the last five years, whereas a full 10-year dataset is essential for a comprehensive assessment of

healthcare trends and improvements over time, particularly in the context of the Yatra season.

- **Jal Sansthan**

The Jal Sansthan Office has successfully provided all required information regarding drinking water supply or public water dispensers, water quality parameters. While the information about cleaning and maintenance of the drinking water facilities still remains.

- **District Tourism Department**

The tourism department of the district has delivered a complete dataset, including tourist arrival numbers, accommodations. No additional data is required at present, but continuous updates and monitoring will be necessary for future tourism planning and management.

- **District Disaster Management Authority (DDMA)**

The District Disaster Management Authority (DDMA) has only provided 10-year data on natural calamities, while other crucial details such as landslides, black spots, trekking deaths, accidents, and emergency response infrastructure remain unavailable.

- **Police Department**

The Superintendent of Police (SP) Office has provided road accident data from 2022 to 2024 in the Govindghat area, along with tourist data from 2020 to 2024. However, there is a significant lack of historical records, and 10 years of data on accidents, illegal cases, vehicle types, and police personnel deployment is required. This long-term dataset would be instrumental in identifying safety trends and improving law enforcement strategies during the pilgrimage season.

- **Animal Husbandry Department**

The Animal Husbandry Department has only provided one year data on mule health check-up, including details of health camps and staff involvement. However, a 10-year dataset is necessary to analyze trends in mule health, mortality, and veterinary services, which are critical for the well-being of equines used in trekking and transport.

- **Forest Departments**

The Forest Departments of Alaknanda and Badrinath Divisions have successfully provided all requested data on flora and fauna, human-wildlife conflicts, forest fires, and illegal activities. While no additional data is required at present, continued monitoring and updates will be necessary to ensure effective conservation efforts in the region. In contrast, the Forest Department (NDNP) Joshimath Division has not provided any of the required data on ecological changes, human-wildlife conflicts, or illegal activities over the last 10 years.



**Plate 2.3 Meeting with different departments of the Chamoli district i.e. (a) PWD office (b) Jal Sansthan lab**

### 3. Constraints in Gathering Secondary Data

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- Historical data is not properly managed as in some cases data is missing, causing hindrance to study trends or predict the future change.
- Some departments are unaware of the project as they didn't get any instruction related to this from higher officials.
- Departments are often unwilling to share information or resources with each other, causing delays and slowing the process.
- Each department has its own priorities, which might not align with the project's goals. This lack of alignment means some departments are not fully committed to the project.
- Some departments require official letters from their state headquarters, before sharing data with us.

To overcome these constraints, proposed approach to be followed is given in the Table No. 3.1 (in Annexure)



Table 2.1: Data required, obtained and need to be collected further from the various departments of Rudraprayag District

Data collection for Rudraprayag District			
Department	Data needed/required	Data obtained	Data in need
Zila Panchayat	<ul style="list-style-type: none"> <li>• Number of Public toilets with location and capacity, urinal seats (M/F).</li> <li>• Cleaning staff (on/off season).</li> <li>• Year-wise waste generation and processing report with their revenue of last 10 years.*</li> <li>• Number of waste collection vehicles.</li> <li>• Dump sites with locations and capacity.</li> <li>• Number of Dandi and Kandi.</li> <li>• Number of parking with location and capacity.</li> <li>• Number of mules.*</li> <li>• Equine water facilities – number, capacity.</li> <li>• Dung – collection, disposal pits, capacity.</li> <li>• Mule overnight shelters.</li> <li>• Equines rest stations.</li> <li>• Mule owners' quarters.</li> <li>• Small restaurants.</li> </ul>	<ul style="list-style-type: none"> <li>• No data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required of last 10 years in detail.</li> </ul>

District Medical Office	<ul style="list-style-type: none"> <li>• Details of permanent/temporary hospital, location, bed capacity, medical equipment's amenities, number of staff available.</li> <li>• Details of medical relief post, location, facilities provided.</li> <li>• Number of departmental/108 ambulance.</li> <li>• Number of reported deaths in last 10 years.*</li> <li>• Healthcare schemes during yatra season.</li> </ul>	<ul style="list-style-type: none"> <li>• All required Data of last 8 years was provided.</li> </ul>	<ul style="list-style-type: none"> <li>• For any further data collection, assistance is required.</li> </ul>
Jal Sansthan Office	<ul style="list-style-type: none"> <li>• Drinking water supply (Public water dispenser/ Nal coops, Water ATMs, taps, etc).</li> <li>• Maintenance and cleaning details of water supply facilities.</li> <li>• Waste water Treatment plants, Capacity, Treatment method, Final disposal method.</li> <li>• Water quality data and parameters.*</li> </ul>	<ul style="list-style-type: none"> <li>• Collected the details of drinking water facilities available for the year 2024-2025.</li> <li>• No data on water quality parameters, maintenance, final disposal method was retrieved.</li> </ul>	<ul style="list-style-type: none"> <li>• Test results of water quality parameters on regular basis and maintenance report of all the facilities is required.</li> </ul>
District Tourism Department	<ul style="list-style-type: none"> <li>• Number of tourists arrival in last 10 year (National (state-wise if possible) /International).*</li> <li>• Number of hotels and home-stays, along with their room,location and bedding capacities.</li> <li>• Details of any awareness programme, conducted by the department, any registered trekking organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of hotels, home-stays and bedding capacity was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of number of tourist in 2024 is required along with past 10 years information about state-wise data of tourists' arrival.</li> </ul>

The Superintendent Of Police (SP) office	<ul style="list-style-type: none"> <li>• Number of vehicles, types of vehicles (Private/Commercial), state origin of vehicles during yatra season.*</li> <li>• Road accident data.*</li> <li>• Illegal/prohibited cases.*</li> <li>• Road black spots/Landslide hotspot.</li> <li>• Number of tourist (National (if possible State-wise) / International).*</li> <li>• Number of Police personnel appointed during the season, their location.</li> <li>• Additional data held by the local investigation unit (LIU).</li> <li>• Number of temporary, permanent police chowki and their location.</li> </ul>	<ul style="list-style-type: none"> <li>• Data on number of vehicles was obtained of last 5 years but only in terms of numbers.</li> <li>• Road accident data of last 5 years was provided of entire district in terms of number.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of number of tourist (National (state-wise) / International) number of vehicles (state-wise) of last 10 years, police personnel data during the season and off season.</li> </ul>
Animal husbandry department	<ul style="list-style-type: none"> <li>• Mule's health checkup data.</li> <li>• Health checkup - camps, staff, locations.</li> <li>• Details of mules death.*</li> </ul>	<ul style="list-style-type: none"> <li>• Data of only past 2 years were obtained.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of past 10 years is needed for better interpretation of the situation.</li> </ul>
Forest Department	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• No data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required of last 10 years in detail.</li> <li>• KML or SHP files for division boundaries that include detailed layers for circles, divisions, ranges, and beats</li> </ul>

G- Max IT service, Sonprayag	<ul style="list-style-type: none"> <li>• Number of registered, blocked mules with their owners details (local and outsider) in last 10 years.*</li> <li>• Data of mules/equines waste collection (in terms of quantity) and management.*</li> <li>• Check-up details for any specific disease, number of mules died in last 10 years.*</li> </ul>	<ul style="list-style-type: none"> <li>• Only registered mules in last 2 years with their owner details were provided. No other information was given by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required of last 10 years in detail.</li> </ul>
Sulabh International Agency, Srinagar	<ul style="list-style-type: none"> <li>• Number of permanent and steel toilets in the Yatra Marg with the details of septic tanks location and capacity.</li> <li>• Number of workers during Yatra season with their working location.</li> <li>• Details about the waste management facilities like number of dumpsites available with location, capacity, processing plant with location and capacity and number of waste collection vehicles (temporary/permanent).</li> <li>• Amount of waste collected each year with its types and processing method in last 10 years,*</li> </ul>	<ul style="list-style-type: none"> <li>• Only numbers of permanent/steel toilets with workers during Yatra season was provide by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• All the data of waste collection, processing and management is needed along with the details of the workers working in the Yatra marg during the season.</li> </ul>
Kedarnath Wildlife Sanctuary, Gopeshwar	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• All the required data was provided by the department.</li> <li>• In case of human wildlife conflict data from 2016-2021 was provided and the remaining data of 2021-2024 is missing.</li> </ul>	<ul style="list-style-type: none"> <li>• The missing details from 2021-2024 of all the required data is needed.</li> </ul>

Table 2.2: Data required, obtained and need to be collected further from the various departments of Uttarkashi District

Data collection for Gangotri and Yamunotri, Uttarkashi			
Department	Data needed/required	Data obtained	Data in need
Zila Panchayat, Uttarkashi	<ul style="list-style-type: none"> <li>• Number of Public toilets with location and capacity, urinal seats (M/F).</li> <li>• Cleaning staff (on/off season).</li> <li>• Year-wise waste generation and processing report with their revenue of last 10 years.*</li> <li>• Number of waste collection vehicles.</li> <li>• Dump sites with locations and capacity.</li> <li>• Number of Dandi and Kandi.</li> <li>• Number of parking with location and capacity.</li> <li>• Number of mules.*</li> <li>• Equine water facilities – number, capacity.</li> <li>• Dung – collection, disposal pits, capacity.</li> <li>• Mule overnight shelters.</li> <li>• Equines rest stations.</li> <li>• Mule owners' quarters.</li> <li>• Small restaurants.</li> </ul>	All the required data was obtained.	For any further data collection, assistance is required.
BRO	<ul style="list-style-type: none"> <li>• Highway – Package, length, width, theoretical capacity, maintenance period.</li> </ul>	All the required data was obtained.	<ul style="list-style-type: none"> <li>• KML of the yatra road packages.</li> </ul>

District hospital, Uttarkashi	<ul style="list-style-type: none"> <li>• Details of permanent/temporary hospital, location, bed capacity, medical equipment's amenities, number of staff available.</li> <li>• Details of medical relief post, location, facilities provided.</li> <li>• Number of departmental/108 ambulance.</li> <li>• Number of reported deaths in last 10 years.*</li> </ul> <p>Healthcare schemes during yatra season.</p>	<ul style="list-style-type: none"> <li>• Casualties' data of just 2 years.</li> </ul>	Require 10-year data with at least 5-year being mandatory.
Jal Sansthan, Uttarkashi	<ul style="list-style-type: none"> <li>• Drinking water supply (Public water dispenser/ Nal coops, Water ATMs, taps, etc).</li> <li>• Maintenance and cleaning details of water supply facilities.</li> <li>• Waste water Treatment plants, Capacity, Treatment method, Final disposal method.</li> <li>• Water quality data and parameters.*</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality data of just one month.</li> </ul>	Require 10-year data with at least 5-year being mandatory.
District Tourism department	<ul style="list-style-type: none"> <li>• Number of tourists' arrival in last 10 year (National (state-wise if possible) /International).*</li> <li>• Number of hotels and home-stays, along with their room, location and bedding capacities.</li> <li>• Details of any awareness programme, conducted by the department, any registered trekking organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• Tourist data obtained in just total number.</li> </ul>	<ul style="list-style-type: none"> <li>• Demographic tourist data of 10 years.</li> </ul>

DDMA, Uttarkashi	<ul style="list-style-type: none"> <li>● Natural calamities – number, location, damage.*</li> <li>● Landslides, road black spots with locations.*</li> <li>● Death of trackers due to landslides.*</li> <li>● Data of road accident data.*</li> <li>● Tourist/ Vehicles numbers.</li> <li>● Number of avalanche at Char Dham routes.*</li> <li>● Alternatives routes (Yamunotri and Gangotri).</li> <li>● Personnel deployed (SDRF &amp; NDRF).</li> <li>● Emergency vehicles – Fire, Earthwork.</li> <li>● Emergency Shelters.</li> <li>● Quick response teams.</li> </ul>	All the required data was obtained.	Alternative routes .kml/.shp file.
SP office, Uttarkashi	<ul style="list-style-type: none"> <li>● Number of vehicles, types of vehicles (Private/ Commercial), state origin of vehicles during yatra season.*</li> <li>● Road accident data.*</li> <li>● Illegal/prohibited cases.*</li> <li>● Road black spots/Landslide hotspot.</li> <li>● Number of tourists (National (If possible State-wise) / International.)*</li> <li>● Number of Police personnel appointed during the season, their location.</li> <li>● Additional data held by the local investigation unit (LIU).</li> <li>● Number of temporary, permanent police chowki and their location.</li> </ul>	<ul style="list-style-type: none"> <li>● Received 3-year data.</li> </ul>	<ul style="list-style-type: none"> <li>● Require 10-year data with at least 5-year being mandatory.</li> </ul>
District Veterinary department	<ul style="list-style-type: none"> <li>● Mule's health checkup data.</li> <li>● Health checkup - camps, staff locations.</li> <li>● Details of mules death.*</li> </ul>	<ul style="list-style-type: none"> <li>● Only 2-year data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>● Require 10-year data with at least 5-year being mandatory.</li> </ul>

Forest department	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• Fragmented data is obtained.</li> </ul>	<ul style="list-style-type: none"> <li>• Require remaining data.</li> </ul>
PWD	<ul style="list-style-type: none"> <li>• Track (Yamunotri) data - width, length ✓</li> <li>• Highway – Package, length, width, theoretical capacity, maintenance period. ✓</li> </ul>	All the required data was obtained.	<ul style="list-style-type: none"> <li>• KML of the yatra road packages.</li> </ul>

Table 2.3: Data required, obtained and need to be collected further from the various departments of Chamoli District

Data collection for Chamoli District			
Department	Data needed/required	Data obtained	Data in need
Zila Panchayat	<ul style="list-style-type: none"> <li>• Number of Public toilets with location and capacity, urinal seats (M/F).</li> <li>• Cleaning staff (on/off season).</li> <li>• Year-wise waste generation and processing report with their revenue of last 10 years.*</li> <li>• Number of waste collection vehicles.</li> <li>• Dump sites with locations and capacity.</li> <li>• Number of Dandi and Kandi.</li> <li>• Number of parking with location and capacity.</li> <li>• Number of mules.*</li> <li>• Equine water facilities – number, capacity.</li> <li>• Dung – collection, disposal pits, capacity.</li> <li>• Mule overnight shelters.</li> <li>• Equines rest stations.</li> <li>• Mule owners' quarters.</li> <li>• Small restaurants.</li> </ul>	<ul style="list-style-type: none"> <li>• Almost all data was collected except some of the data which is to be collected by EDC Bhyundar.</li> </ul>	<ul style="list-style-type: none"> <li>• Remaining data should be provided by the collaboration of EDC Bhyundar and Zila Panchayat.</li> </ul>

District Medical Office	<ul style="list-style-type: none"> <li>• Details of permanent/temporary hospital, location, bed capacity, medical equipment's amenities, number of staff available.</li> <li>• Details of medical relief post, location, facilities provided.</li> <li>• Number of departmental/108 ambulance.</li> <li>• Number of reported deaths in last 10 years.*</li> <li>• Healthcare schemes during yatra season.</li> </ul>	<ul style="list-style-type: none"> <li>• 5 years of data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• Details of last 10 years is required.</li> </ul>
Jal Sansthan Office	<ul style="list-style-type: none"> <li>• Drinking water supply (Public water dispenser/ Nal coops, Water ATMs, taps, etc).</li> <li>• Maintenance and cleaning details of water supply facilities.</li> <li>• Waste water Treatment plants, Capacity, Treatment method, Final disposal method.</li> <li>• Water quality data and parameters.*</li> </ul>	<ul style="list-style-type: none"> <li>• All the necessary data was provide by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• For any further data collection, assistance is required.</li> </ul>
District Tourism Department	<ul style="list-style-type: none"> <li>• Number of tourists' arrival in last 10 year (National (state-wise if possible) /International).*</li> <li>• Number of hotels and home-stays, along with their room,location and bedding capacities.</li> <li>• Details of any awareness programme, conducted by the department, any registered trekking organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• All the necessary data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• For any further data collection, assistance is required.</li> </ul>

DDMA	<ul style="list-style-type: none"> <li>• Natural calamities – number, location, damage.*</li> <li>• Landslides, road black spots with locations.*</li> <li>• Death of trackers due to landslides.*</li> <li>• Data of road accident data.*</li> <li>• Tourist/ Vehicles numbers.</li> <li>• Number of avalanche at Char Dham routes.*</li> <li>• Alternatives routes (Yamunotri and Gangotri).</li> <li>• Personnel deployed (SDRF &amp; NDRF).</li> <li>• Emergency vehicles – Fire, Earthwork.</li> <li>• Emergency Shelters.</li> <li>• Quick response teams.</li> </ul>	<ul style="list-style-type: none"> <li>• 10 year data of natural calamities provided by department.</li> <li>• No other data provided.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required in detail.</li> </ul>
The Superintendent Of Police (SP) Office	<ul style="list-style-type: none"> <li>• Number of vehicles, types of vehicles (Private/ Commercial), state origin of vehicles during yatra season.*</li> <li>• Road accident data.*</li> <li>• Illegal/prohibited cases.*</li> <li>• Road black spots/Landslide hotspot.</li> <li>• Number of tourists (National (If possible State-wise) / International.)*</li> <li>• Number of Police personnel appointed during the season, their location.</li> <li>• Additional data held by the local investigation unit (LIU).</li> <li>• Number of temporary, permanent police chowki and their location.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of historical data.</li> <li>• Road accident data from 2022-2024 is provided which were registered in Govindghat area.</li> <li>• Tourist data from 2020-2024 is provided.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required of last 10 years in detail.</li> </ul>
Animal Husbandry Department	<ul style="list-style-type: none"> <li>• Mule's health checkup data.</li> <li>• Health checkup - camps, staff , locations.</li> <li>• Details of mules death.*</li> </ul>	<ul style="list-style-type: none"> <li>• Data of only 1 year was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of past 10 years is needed for better interpretation of the situation.</li> </ul>

Forest Department Alaknanda Division	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• All the required data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• For any further data collection, assistance is required.</li> <li>• KML or SHP files for division boundaries that include detailed layers for circles, divisions, ranges, and beats</li> </ul>
Forest Department Badrinath Division	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• All the required data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• For any further data collection, assistance is required.</li> </ul>
Forest Department (NDNP) Joshimath Division	<ul style="list-style-type: none"> <li>• Flora and fauna details of the district.*</li> <li>• Details of human- wildlife conflict, forest fire data, cases of illegal, hunting, poaching, tree felling of last 10 years.*</li> <li>• Number of forest ground personnel during and after the season.</li> </ul>	<ul style="list-style-type: none"> <li>• No data was provided by the department.</li> </ul>	<ul style="list-style-type: none"> <li>• All the mentioned data is required of last 10 years in detail.</li> </ul>

**Table 3.1: Proposed measures to overcome the constraints faced while data secondary collection**

Department	Head officer	Address Details	Forward To	Further Approach
U.K.P.C. B	Chairman	Gaura Devi Bhawan, 46 B IT Park Sahastradhara, Dehradun, Uttarakhand" Pincode- 248001 Ph No- 0135- 2976157 ,0135- 2607092	A letter to be forwarded by U.K.P.C.B to the Chief Secretary, mentioning problems faced by the team, and a letter to be forwarded by the Chief Secretary to the mentioned heads of departments	A letter to be forwarded by the Chief Secretary to the heads of all the mentioned departments for necessary data, assistance, and support for the project's successful completion and smooth workflow.
District Uttarkashi	DM Uttarkashi	District Magistrate Office Collectorate, Uttarkashi PIN- 249193	SDM Bhatwari, SDM Barkot	A letter to be forwarded by DM Uttarkashi to concerned departments, SDM Bhatwari and SDM Barkot for necessary data, assistance, and support for the successful completion of the project when required.
			Heads of Temple Committee Gangotri and Yamunotri	A letter is to be forwarded by DM Uttarkashi to the respective heads of the Temple Committee for the necessary data, assistance, and support for the successful completion of the project when required.
District Rudraprayag	DM Rudraprayag	Collectorate Compound, Rudraprayag,	SDM Ukhimath,	A letter to be forwarded by DM Rudraprayag to concerned

		District-Rudraprayag, Pin Code-246171,		departments and SDM Ukhimath for necessary data, assistance, and support for the successful completion of the project when required
			Badrinath Kedarnath Temple Committee	A letter is to be forwarded by DM Rudraprayag to the President of BKTC for the necessary data, assistance, and support for the successful completion of the project when required.
District Chamoli	DM Chamoli	District Magistrate Office, Gopeshwar, Chamoli PIN – 246401	SDM Joshimath,	A letter is to be forwarded by DM Chamoli to concerned departments and SDM Joshimath for necessary data, assistance, and support for the successful completion of the project when required.
			Hemkund Gurudwara Trust, EDC Bhyundar	A letter is to be forwarded by DM Chamoli to the Presidents of Hemkund Gurudwara Trust, and EDC Bhyundar for necessary data, assistance, and support for the successful completion of the project when required. (10 years data)
Uttarakhand Medical Health and Family Welfare	Director General of Uttarakhand	Directorate of Health Services	CMO Uttarkashi, Hans Foundation Uttarkashi	A letter to be forwarded to district offices for the necessary data, assistance, and support for the

		Village: Danda Lakhond P.O. Gujrara Sahastradhara Road Near Rajiv Gandhi Playground, Dehradun Uttarakhand, INDIA Ph. 0135-2608763	CMO Rudraprayag	successful completion of the project when required. (10 years data)
			CMO Chamoli	
Uttarakhand Forest Department	PCCF - Principal Chief Conservator of Forest	85, Rajpur Road, Dehradun, Uttarakhand, India.	APCCF Garhwal Circle	Your guidance and assistance are required for the successful completion of the project.
			DFO Gangotri	A letter from the respective State Forest Headquarters should be forwarded to the DFO of the mentioned concerned areas for necessary data, assistance, and support for the successful completion of the project. (10 years data)
			DFO Upper Yamuna Barkot	
			DFO Tehri Dam	
			DFO Rudraprayag	
			DFO Kedarnath Wildlife Sanctuary	
			DFO Alaknanda	
			DFO Badrinath	
DFO Nandadevi Biosphere Reserve				
Uttarakhand Police Department	Director General of Police (DGP)	Police Headquarters, Uttarakhand 12 Subhash Road, Dehradun Control Room-0135-2712685, 2712231 Fax-0135- 2712080 dgc-police-ua@nic.in	Superintendent of Police, Uttarkashi	A letter from the respective State Police Headquarters should be forwarded to the Superintendent of Police of the mentioned concerned areas for necessary data assistance, and support for the successful
			Superintendent of Police, Rudraprayag	
			Superintendent of Police, Chamoli	

				completion of the project when required. (10 years data)
Uttarakhand State Disaster Management Authority	Secretary (USDMA)	USDMA, 36, IT Park, Dehradun UK. usdmauttarakhand@gmail.com	Chairman DDMA, Uttarkashi	A letter from the respective USDMA Headquarters is to be forwarded to the Chairman of the mentioned districts for the collection of various historical data related to disasters, a minimum of (10-20 years), and future possibilities and increasing trends. Needs assistance and support during the project for successful completion of the project when required.
			Chairman DDMA, Rudraprayag	
			Chairman DDMA, Chamoli	
Ministry of Road Transport and Highways	Regional officer	First Floor, The Institution of Engineers (India) Building Near ISBT, Saharanpur Road Dehradun - 248001	NHAI office, Uttarkashi	A letter is to be forwarded to the mentioned NHAI offices from the Regional Office to provide landslide hotspots with geotagged locations, in the Yatra route, and also the carrying capacity of the routes.
			NHAI office, Rudraprayag	
			NHAI office, Chamoli	
Department of Rural Development	Secretary	4 Subash Road, Uttarakhand Secretariat, Fourth Floor New Building Dehradun, Uttarakhand, Pin Code 248001 Secretariat Office:0135-2650433,2716262	Zila Panchayat, Uttarkashi	A letter to be forwarded by the Secretary of the respective department to the mentioned zila panchayats, and to provide necessary data assistance, and support for the successful completion of the project when required. (10 years data)
			Zila Panchayat, Rudraprayag	
			Zila Panchayat, Chamoli	

State Transport Department, Uttarakhand	Transport Commissioner	Office of Transport Commissioner, Kulhan, Sahastradhara Road, Dehradun, Uttarakhand – 248001 www.transport.uk.gov.in	District Transport Office, Uttarkashi	A letter is to be forwarded to the mentioned district offices to provide various data related to the number of vehicles, emission data, schemes, etc. Needs necessary data, assistance, and support for successful completion of the project when required. (10 years data)
			District Transport Office, Rudraprayag	
			District Transport Office, Chamoli	
Uttarakhand Pollution Control Board	Chairman (U.K.P.C.B)	Gaura Devi Bhawan, 46 B IT Park Sahastradhara, Dehradun, UK msukpcb@yahoo.com	District P.C.B office, Uttarkashi	Needs necessary data, assistance, and support for successful completion of the project when required. (10 years data)
			District P.C.B office, Rudraprayag	
			District P.C.B office, Chamoli	
Uttarakhand Livestock Development Board (ULDB)	Chairman (ULDB)	First Floor, Pashudhan Bhawan, Mothrowala, Dehradun - 248001	C.V.O Office Uttarkashi	Needs necessary data, assistance, and support for successful completion of the project when required. (10 years data)
			C.V.O Office Rudraprayag	
			C.V.O Office Chamoli	
Uttarakhand Tourist Development Board	Secretary (UTDB)	Pt. Deendayal Upadhyay Paryatan Bhawan, Near ONGC Helipad Garhi Cantt, Dehradun-248001 (India)	UTDB District office, Uttarkashi	Online and offline registration data of tourists/pilgrims are to be collected from the State Headquarters of UTDB. The Headquarters should direct their district departments to provide an easy and simple process for registration of hotels, so registration should be completed before the start of Yatra 2025.
			UTDB District office, Rudraprayag	
			UTDB District office, Chamoli	

UCADA (Uttarakhand Civil Aviation Development Authority)	CEO (UCADA)	Uttarakhand Civil Aviation Development Authority (UCADA) Sahastradhara Helidrome, Mussoorie bypass, P.O. Kulhan Dehradun-248001, Uttarakhand (India)	Data to be taken from UCADA Dehradun	Number of tourists/pilgrims, Details of tourists/pilgrims, Air Strips/Helipad coordinates data.
P.W.D Head Office	Chief Engineer	Chief Engineer (HQ) P.W.D. Dehradun Office no.: 0135-2531424	P.W.D Office Uttarkashi	A letter is to be forwarded from the headquarters to the mentioned district offices. Needs necessary data, assistance, and support for successful completion of the project when required.
			P.W.D Office Rudraprayag	
			P.W.D Office Chamoli	
Sulabh International	President	862 Sanchar Vihar, Indra Nagar Colony, Dehradun, Uttarakhand 248001	All the Data related to Dham's.	A letter from the President should be forwarded to their offices for the collection of the data needed in the Gangotri, Kedarnath, and Yamunotri Dham's.

**Table 3.2: Secondary data to be collected from the various departments (updated from previous inception report).**

S. No.	Department	Data
1.	Zila Panchayat/Nagar Palika	Number of mules registered and blocked
		Details about water station (Luke water tanks)
		Details about rest station
		Details about overnight shelters
		Details about owners' quarters
		Details about veterinary support (Number of veterinary doctors and staff)
		Details about health checkup
		Details about burial management (Number of dead ones)
		Details about small restaurants, homestays, hotels etc
		Details about parking facilities(location and capacity)
		Details about helipad
		Details about future developments and schemes
		Details about public toilets (Number, sitting capacity for males/females, cleaning staff, disposal methods, frequency of cleaning)
		Details of waste generation, processing and final output
		Details about sanitary workers
		Details about waste management facilities, number of waste transportation vehicles and their capacity.
		Details about dumpsites with their location, overall capacity and spare capacity.
List of awareness and environmental initiatives programs		
Details about registered NGOs		
2.	Uttarakhand Tourism Development Board	Details about the numbers of tourists, both online and offline, categorized by demographics, including domestic and foreign visitors
		Details about accommodations (Number of hotels, home-stays, bedding capacity, etc)
		Number of tourists arrived by air services (Helicopter)
		Details about tourism development programs
		Details about registered tour/trek organizations
3.	Uttarakhand Forest Department	Details about flora and fauna (Species and their individual numbers, forest types)
		Details about forest fires, including their causes, effects, and the extent of loss they cause
		Details about conservation programs/efforts, initiatives for plastic free forest
		Number of forest personnel in on/off season
		Details about illegal and prohibited activities (Mining, illegal construction, illegal tree felling, Poaching & Smuggling etc.)
		Details about Wildlife-human conflict
		Number of wild kill of mules/equines
		Details about Land use and land cover

		Details about the penalties and punishments associated with forest invasion, including fines, imprisonment, confiscation of assets, and other legal consequences
		KML or SHP files for division boundaries that include detailed layers for circles, divisions, ranges, and beats
4.	Department of Animal Husbandry	Number of mules registered and blocked
		Details about veterinary support (Number of veterinary doctors and staff)
		Details about health checkup
		Details about insurance
5.	Uttarakhand Police Department	Number of vehicles (privates and commercial)
		Details about illegal and prohibited activities (Mining, Poaching & Smuggling)
		Number of road accidents data
		Number of police / defence personnel appointed during on and off season
		Number of temporary/permanent chowki, out station and thana with location.
		Details of penalties and punishments related to all kind of pollution
	Local Investigation Unit	Details about foreign and domestic tourists
6.	Uttarakhand Jal Sansthan	Number of water ATMs/ Nalcoops/ other public water dispenser and their location, capacity and details of maintenance.
		Number of STPs, their location, capacity, final disposal method.
		Details about drinking water quality and their parameters
		Details about river water quality
		Details about waste water management
		Details of penalties and punishments related to all kind of pollution
7.	Uttarakhand Pollution Control Board	Details about the parameters for assessing water, soil, air, and noise quality, along with any available previous reports on these assessments
		Details of penalties and punishments related to all kind of pollution
8.	State Disaster Management Authority	Details about Disaster type, location, date, casualties and extent of damage
		Number of trained personnel appointed on/off season
		Number of emergency vehicle, their type
		Details about emergency shelter facilities, location and their capacity
		Details about natural calamities
		Details about current monitoring mechanism
		Details about future action plans
9.	National Highway Authority of India (NHAI)	Details about NH roads( dimension, load capacity, carrying capacity, maintenance reports, landslide susceptibility mapping)
		Details about road black spots, Landslide prone areas with Geo tags
		Details about signage and caution boards
10.	Department of Medical Health and Family Welfare	Number of permanent/temporary health centers
		Details about healthcare infrastructure and tourism healthcare programs/schemes

11.	G- Max	Number of mules registered and blocked
		Details about mules owners details (name, place, age, gender and contact number)
		Details about disposal of mules (burial management, numbers of dead one)
		Details about dung collection and management of mule/ equines
		Details about checkup for any other specific diseases in mules
12.	Sulabh International	Details about amount of waste generated, processed and final output
		Number of workers during yatra season and their details (name, place, age, contact number, daily wages)
		Details about processing plants locations and its capacity
		Details about permanent/temporary steel toilets ( capacity, location, fecal management)
		Details pf dump sites and capacity
13.	UCADA	Number of tourists arrived by air services (Helicopter)
		Details about the tourists (age, place, state, country etc)
14.	Border Road Organization	Highway – Package, length, width, theoretical capacity, maintenance period, KML of the yatra road packages

**PROGRESS REPORT II****AUGUST 2025**

**“Assessment of Available  
Infrastructure for  
Tourist/Pilgrims in the  
Concerned Areas”**

**Prepared for :****Government of Uttarakhand****Prepared by :****Wildlife Institute of India, Dehradun**

***Assessment of Available Infrastructure for  
Tourists/Pilgrims in the Concerned Areas***

**PROGRESS REPORT II**

**AUGUST 2025**

**2025**

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### 1.1 Overview

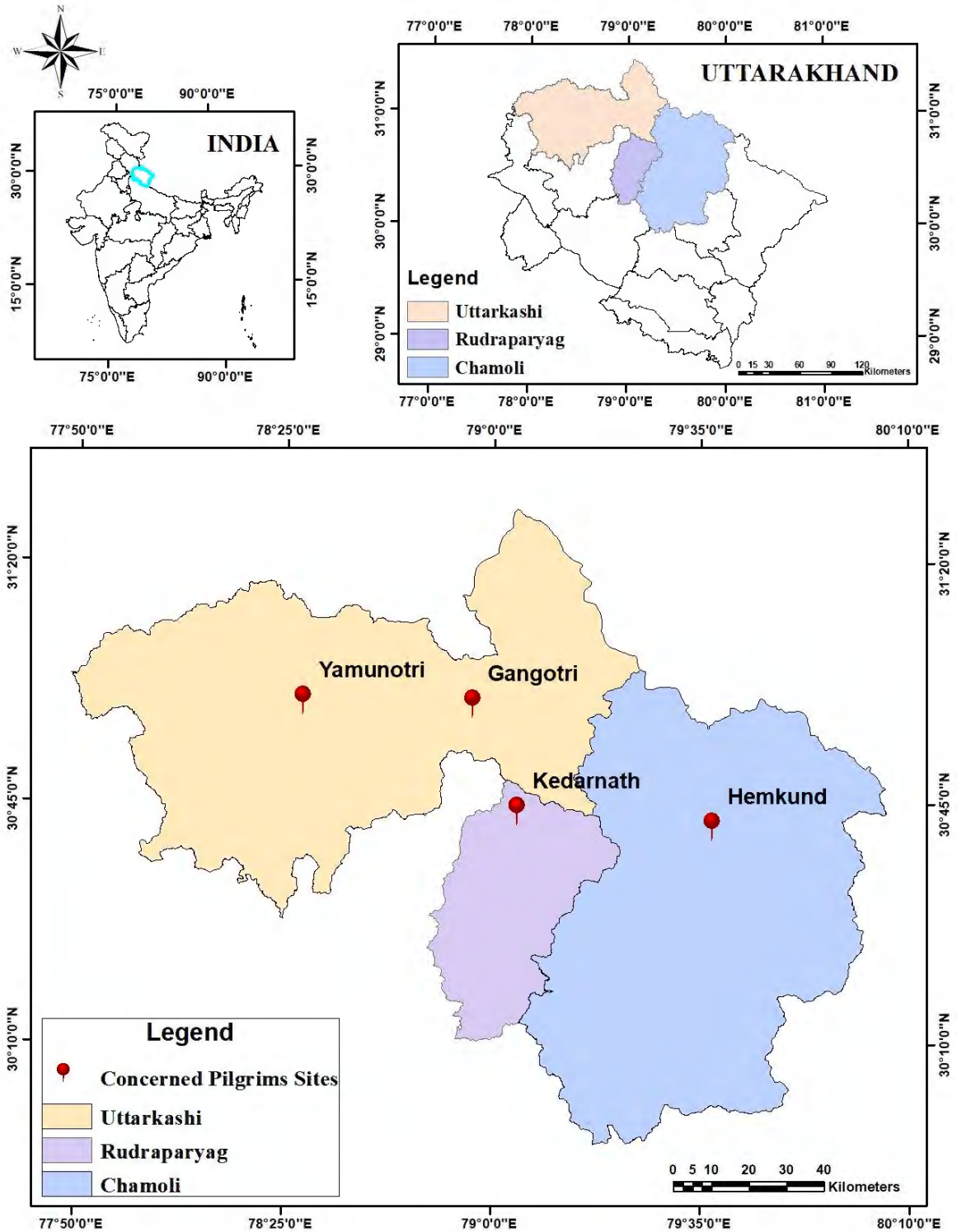
This report discursively presents the analysis of primary data and secondary data gathered in the form of a questionnaire survey as noted in the annexure and from different departments respectively for the study on carrying capacity assessment of important pilgrim destinations of Uttarakhand, namely Kedarnath, Gangotri, Yamunotri, and Hemkund Sahib, in Rudraprayag, Uttarkashi, and Chamoli districts. Together, these approaches provide a clear picture of the sites' status today and key issues. In addition to emphasizing the infrastructural and environmental stresses on these sites, the findings identify the increased need for sustainable management approaches which will form a sound ground for designing interventions which can promote pilgrim experience and ecological balance.

### 1.2 Study Area

Uttarakhand, a state nestled in the North India, covered with snow clad peaks of Himalayas often known as “Devbhoomi “. The name itself justify the reason as the state is known for its rich cultural heritage, presence of a few holiest pilgrims sites in the country i.e. Kedarnath , Yamunotri, Gangotri and Shri Hemkund Sahib. Every year lakhs of pilgrims/tourist from all over the world visits Uttarkhand to witness the holy sites and enlighten themselves with spirituality, therefore requiring a sustainable tourism plan.

### 1.3 Project objectives

- I. Assessment of the carrying capacity infrastructures for tourists/pilgrims, and limiting vehicles, equines, and visitor numbers during peak seasons.
- II. Assessment of the presence of solid and liquid waste management practices, sanitation facilities, and development of sustainable management mechanisms.
- III. Assessment of safety and precaution measures, environmental awareness and compliance, and prohibited activities.
- IV. Development of monitoring mechanism for sustainable tourism.



**Fig 1.0: Study Area: Locations of the Concerned Pilgrim Sites**

## Chapter 2. Kedarnath

---

Kedarnath (Latitude  $30^{\circ} 44'07''$  N & Longitude  $79^{\circ} 04'01.02''$  E) is located in the Ukhimath tehsil, Rudraprayag district of Uttarakhand. It is situated in laps of the Himalayas at an elevation of 3570 m above sea level near Chorabari glacier which is the source of Mandakini River and also a part of Kedarnath Wildlife Sanctuary. The study area is at a distance of 18km from Gaurikund which is the starting point of the trek, 50 km from Guptkashi, and 90 km from Rudraprayag. Kedarnath is covered under the Survey of India toposheet no. 53N/2 or H44H2. Famous treks from the study area are Vasuki Tal, Paniya Tal, and Gandhi Sarovar.



**Fig. 2.0.1 Kedarnath Temple**

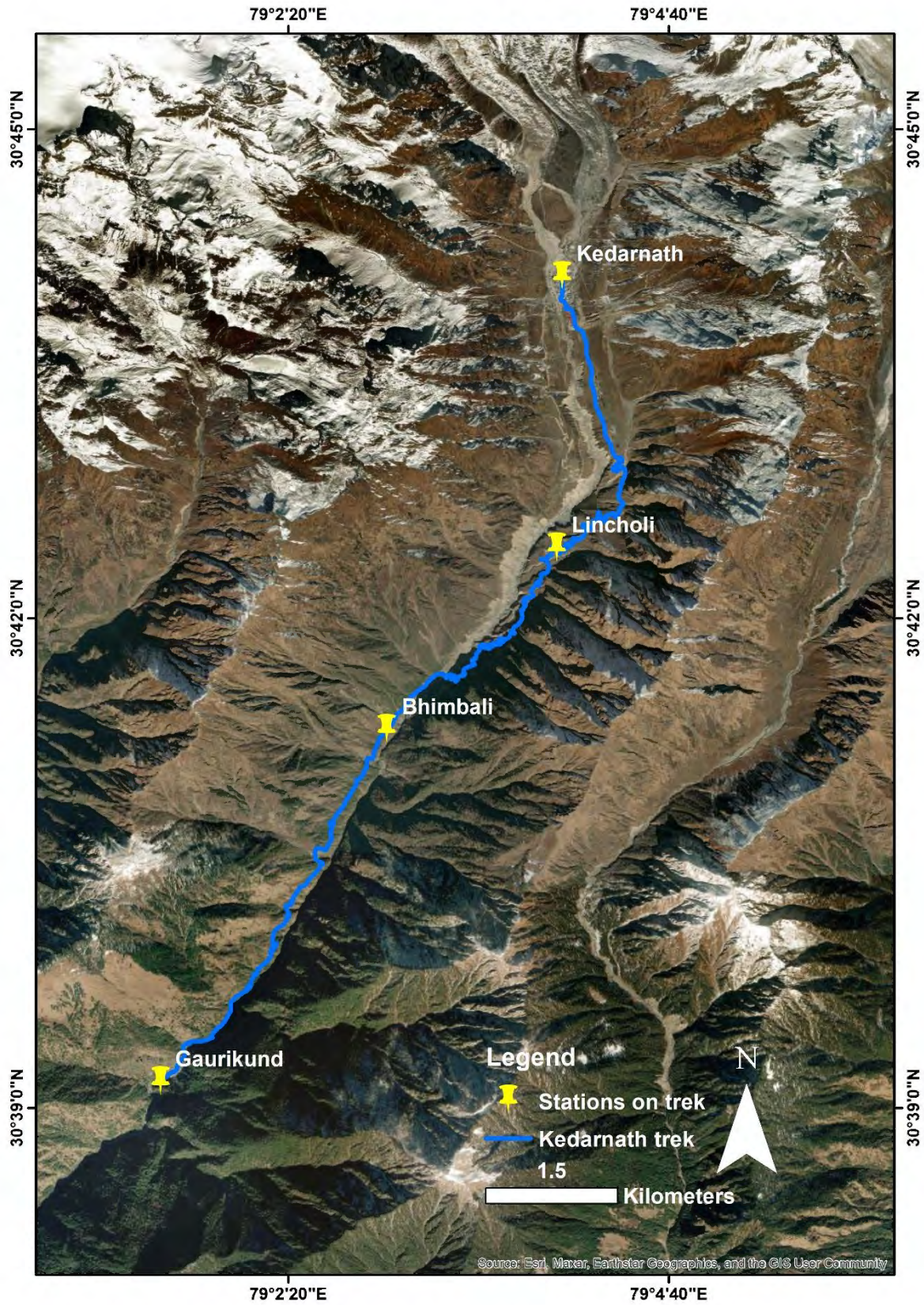
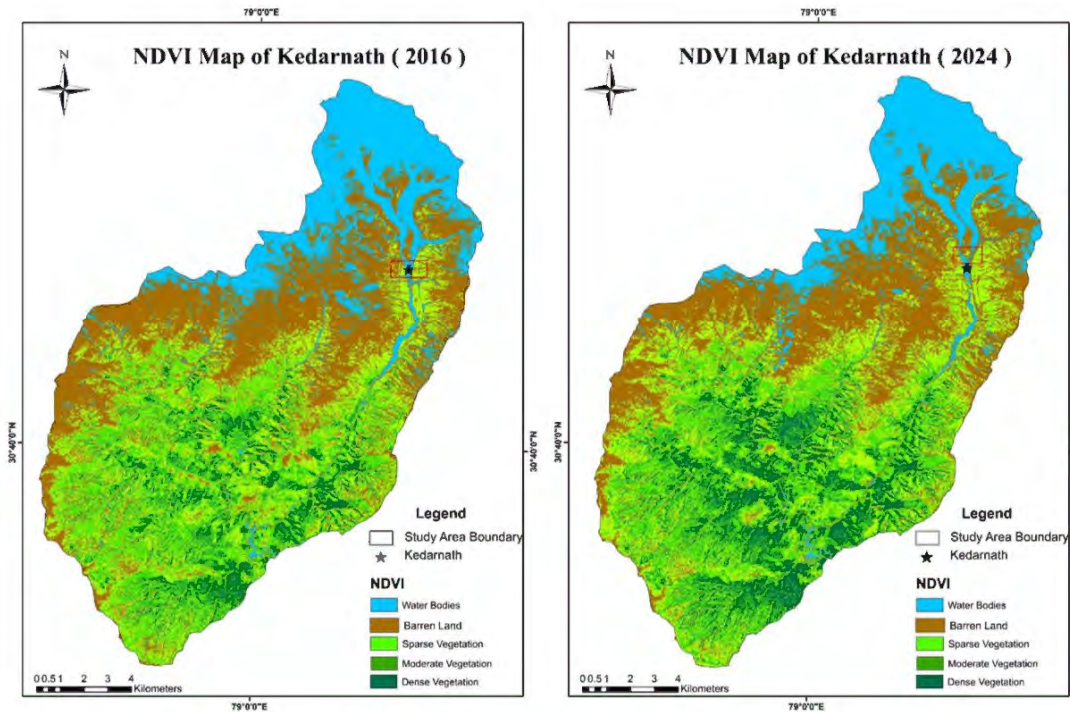


Fig. 2.0.2 Kedarnath Trek

Kedarnath is located in Kedarnath Wildlife Sanctuary, an ecologically sensitive zone of the Indian Western Himalaya region, and has a fragile environment. A small disturbance here can cause major changes in the flora and fauna and whole ecosystem. Therefore, in order to assess its ecological vulnerability and environmental change, remote sensing techniques are used. To check the change in status of vegetation cover during an 8-year time period, i.e., November 2016 to November 2024, Sentinel-2 satellite data is obtained, and NDVI (Normalized Difference Vegetation Index) cover is generated. The generated NDVI (fig 2.0.3) suggests a negative change in water bodies and barren land, and shows increased dense vegetation cover in November 2024 compared to November 2016.



**Plate 2.0: Status of Vegetation Cover in the Kedarnath (2016 & 2024)**

## 2.1 Primary Data: Observation

Lakhs of tourist pilgrims visit Kedarnath every year. Every visitor leaves behind a wealth of experiences and impressions, which can be documented through surveys. This is important for sustainable tourism, environmental protection, and enhancing visitor satisfaction. And to achieve those goals, the field survey is deigned in a way that covers from elements like waste & sanitation and environmental compliance to social survey to safety and precautions. The field work is still ongoing. So far, since May 2025 about more than 300 tourists, locals, and mule drivers have been surveyed, with the target of reaching over 600 by the end of the current tourism season.

### 2.1.1. Tourist Surveys

The above mentioned 300 plus surveys contain about 250 tourist responses. Till now, 100 responses have been digitized and analysed. Although few in number but they already offer some valuable insights. Of the total 100 responses, 66% have identified as Male and 29% as female, and the remaining have been placed in the other category, which also contains no response. Given the site witnesses' high number of visitors, more than 90% of the people feel the site can accommodate more tourists and recommend others to visit, with the sole reason for witnessing the holiness of the divine place. While most of people have been satisfied with their yatra, some people also pointed out the mismanagement and lack of facilities. The most common of them were inconvenience due to high equine traffic and an insufficient number of clean toilets, leading to lower visitors' satisfaction and environmental damage.



**Plate 2.1.1: Social survey (a) Business owner, (b) Tourist survey**

### 2.1.2. Waste and sanitation

Sanitation and proper waste management are one of the most common and important components of a tourist place. The serene beauty, clean environment, and peace of the hill draws is what draw the tourists. Being one of the most famous and serene pilgrimage sites, the Kedarnath valley attracts lakhs of pilgrims/tourists to the valley, increasing every season, boosting tourism and economic growth of the area. But the visitors in huge numbers have also always led to the humongous waste generation, posing a challenge to management and authorities. The terrain of the valley itself plays a significant setback in the management of waste; however, the people also lack civic sense and positive behaviour towards the environment. Overconsumption, unsustainable practices, and the habit of littering make things further difficult. Despite the multiple efforts from authorities to tackle the issue, the site still lacks efficient waste management and sustainable practices. The efforts of 'Parya Varan Matri' and Sulabh workers are hard to miss on the tracks and in other places, but the huge visitor influx makes the effort look very little. The waste is seen littered around in most of the areas where there are no Sulabh worker to cleanup or the terrain is hard to clean.



**Plate 2.1.2.1: Unmanage waste (a) Behind helipad on Kedarnath trek, (b) Roadside trash**

This issue has not been limited to Kedarnath alone or Sonprayag, but littered plastic waste is seen throughout, i.e., from the trek to the roadside down the national highway

to Rishikesh and further, where the places have their own urban waste stress. During the tourism season, the roadside throughout gets subjected to plastic waste due to people's behaviour of disposing of the waste through moving vehicle. The towns of Valley face the same issues of as much as the cities. But the hurdle of the tourism season often makes it look negligible. While most of tourists complains about the plastic pollution or littering yet often contribute to it: ongoing tourism and overconsumption add on pressure on already few sanitation workers and authorities, leading to unmanaged waste and degradation of soil, water, and environment.



**Plate 2.1.2.2: Waste and Sanitation (a) Waste dumped in a ditch near Nandi base camp, (b) Trash and mule dung thrown off the track in valley, (c) Sulabh worker cleaning a clog, (d) Waste dumped under a thin soil at waste management site, Kedarnath**

### 2.1.3 Equines Management

Historically, mules have served as a vital mode of transport on pilgrim paths. In modern times, their role as mules has been mostly central to religious tourism across mountainous and other difficult terrain where motor roads are not available. Yet simultaneously it strikes concern over sanitation environmental management and most importantly animal welfare.

The Kedarnath site is no indifferent to these issues as they of often gain public attention. About thousands of mules find themselves in the valley during an active tourism season; however, as per the district veterinary department, for mules and public welfare, the number of mules on trek per day has been restricted to 5000 per day, of which 4000 mules per day are for pilgrimage tourist transport and the remaining 1000 mules per day for carrying daily goods. But even with the restriction, congestion is often seen on trek during peak time at bottlenecks and rest stations, leading to a hindrance in smooth traffic flow.

The situation gets worse in rain when both tourist and mules take shelter under rain shed, the mule dung on track losses its viscosity taking form of mud and slurry Which leads to unsanitary condition of track. The sulabh worker try their best to clean but their effort often looks granular. The heavy mule traffic requires constant cleaning, but the heavy crowd often makes it difficult to maintain cleanliness on the track.

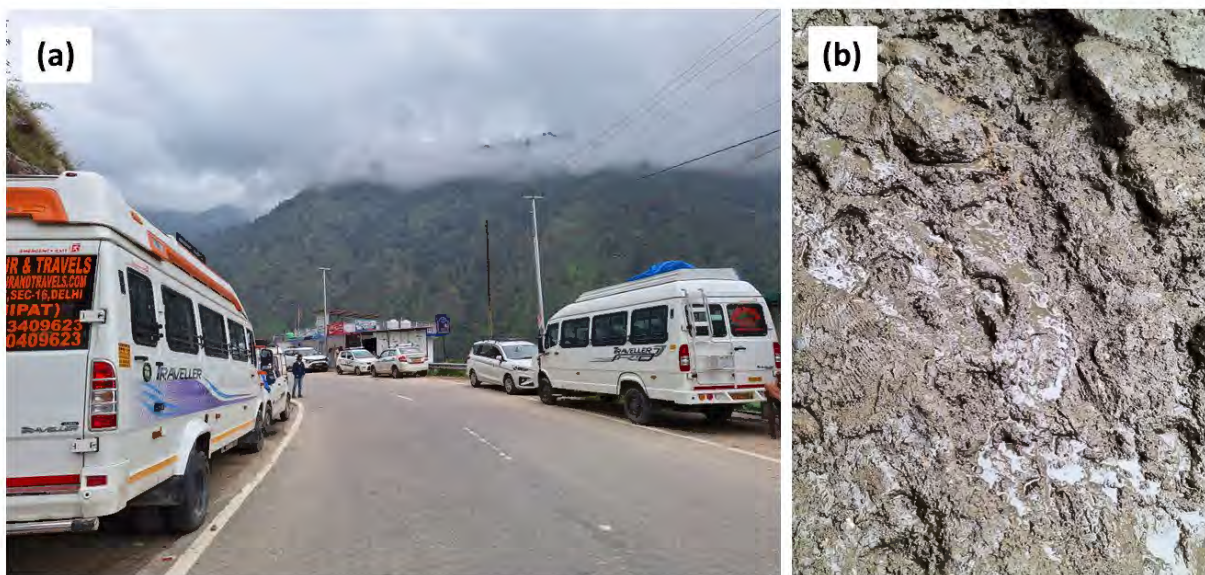


**Plate 2.1.3: Equine management (a) Equines transporting goods during a sunny hour after heavy rainfall (b) Mule dung mud on track on rainfall**

### 2.1.4 Safety and Precautions

Ensuring the safety of the tourists and pilgrim is one of the topmost aspects of sustainable tourism. As the pilgrimage site is located in disasters high-disaster-prone area, events like cloudburst, landslide, and rock felling are seen quite often, raising safety concerns both on the road and the trek. The periodic road inspection and maintenance, road signage, pavement marking, reflectors are necessary for smooth and safe travel on roads. The main highway to Gaurikund lacks most of them. Road signage erected are lesser in number, neither light nor road markings are there for most of the route from Guptkashi to Gaurikund, making low light travel full of risk. At a few locations, coarse aggregate or sand is heaped on the roadside, which often gets dispersed on the highway due to moving vehicles, making critical riding conditions mostly for two-wheeler riders. The tourist themselves violates the road safety norms quite often i.e. act recklessly, stopping vehicle anywhere, parking large vehicle on sharp curves, making the road unsafe to themselves as well as other tourists. In Monsoon, the trek route itself at some parts is laced with risks.

On the trek this season itself, the natural accidents of rockfall have resulted in a few casualties and injuries. In the rainy season, the mule dung mud makes the track difficult to walk on. In addition to that, the smoothing of pavement stones due to heavy equine traffic further complements the problem, making the track very slippery and increasing the safety concern of tourists and pilgrims



**Plate 2.1.4: Safety concerns (a) Vehicles parked on roadside on sharp curves (b) Slippery zone on track due to dung**

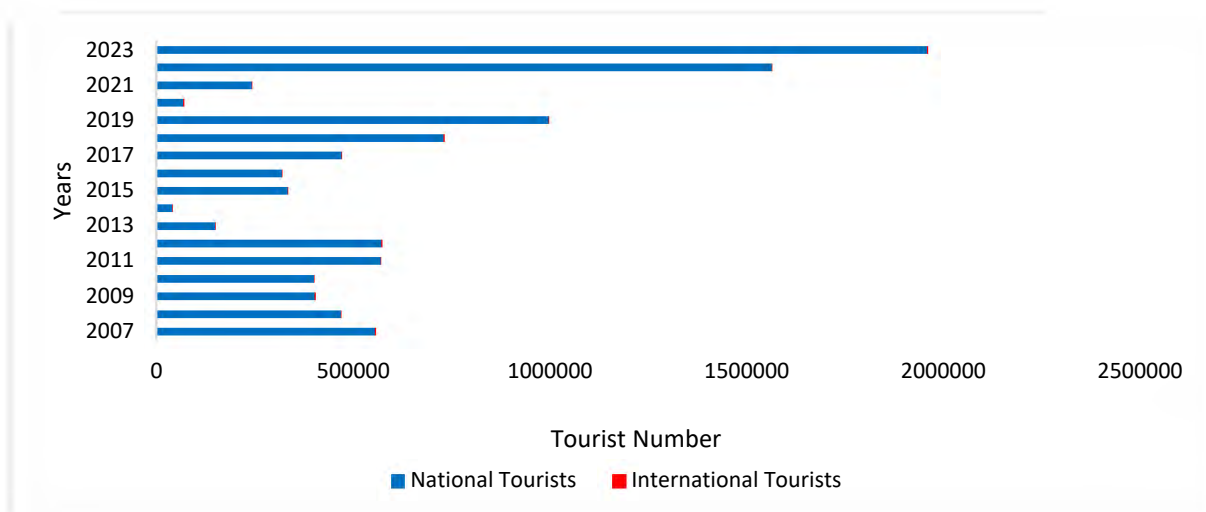
## 2.2 Secondary Data

### 2.2.1. Tourist Number

**Table 2.2.1: Historical tourist numbers in Kedarnath**

S No.	Year	National Tourists	International Tourists	Total Tourists
1	2007	555918	1505	557423
2	2008	468982	1066	470048
3	2009	402633	1003	403836
4	2010	400243	268	400511
5	2011	569863	738	571601
6	2012	572442	598	573040
7	2013	149689	26	149715
8	2014	40694	228	40922
9	2015	333575	81	333656
10	2016	319141	695	319836
11	2017	470517	718	471235
12	2018	730387	1604	731991
13	2019	996312	1065	997377
14	2020	69062	62	69124
15	2021	242685	27	242712
16	2022	1562307	968	1563275
17	2023	1957609	1254	1958863

The historical tourism data is received from District tourism department in terms of national and international tourist however demographic data of tourists was not available. Table 2.2.1 shows the number of tourists per season from 2007 to 2023. The graphical representation of the numbers is shown in Fig.2.2.1. The numbers have increased significantly in the post-COVID period. The foreigner's trend is moreover similar, but a drastic rise is seen in domestic numbers since 2021.



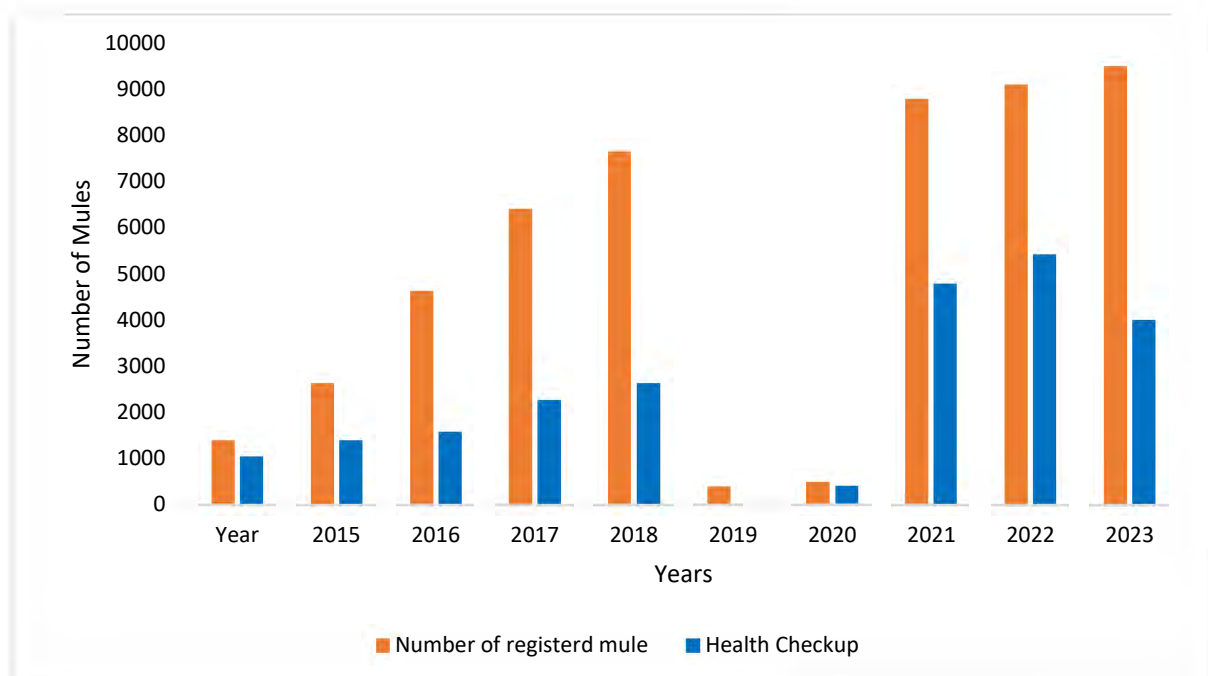
**Fig. 2.2.1: National and international tourists since 2007**

## 2.2.2 Equines historical data

**Table 2.2.2: Number of mules active per yatra season**

S. No.	Year	Number of registered mules	Health Checkup
1	2015	1372	1024
2	2016	2633	1387
3	2017	4609	1574
4	2018	6408	2273
5	2019	7636	2632
6	2020	374	0
7	2021	480	395
8	2022	8774	4785
9	2023	9096	5423
10	2024	9500	4003

Table 2.2.2 shows the mule data provided by district veterinary department however the no info on how many mules were insured was available. The Fig.2.2.2 shows that with the rise of tourism in the post-pandemic period, the active mules also rose in the area, showing economic revival after shut shutdown and restriction on travel during covid. But despite the increment in mule number, the number of health check-ups declined as compared to previous years.



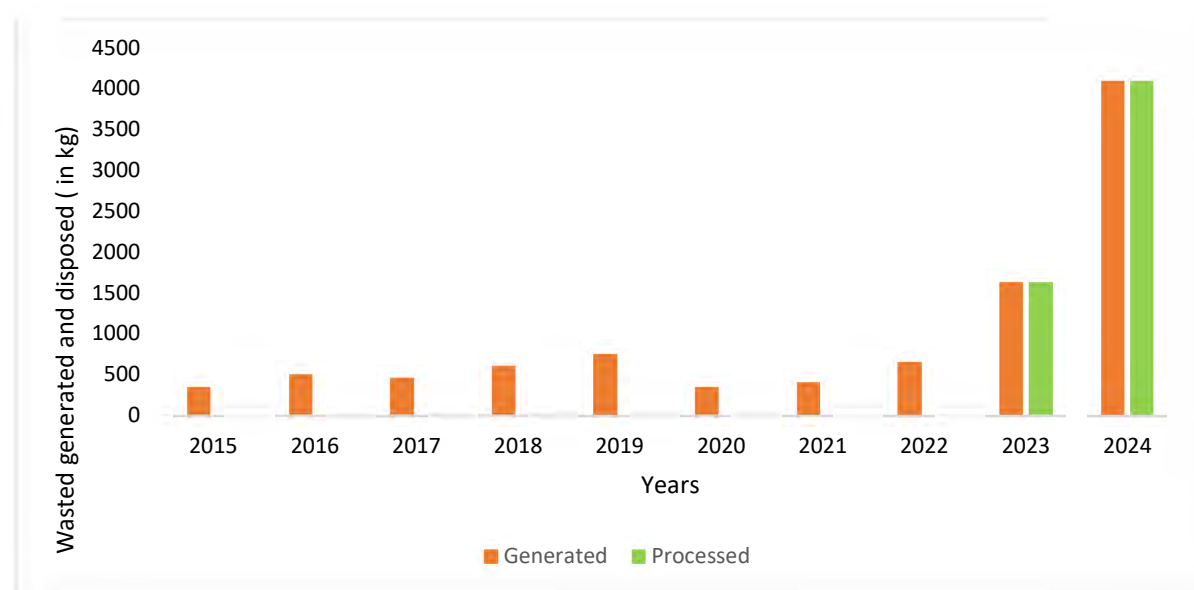
**Fig. 2.2.2 Number of mules and mule health check-up**

### 2.2.3 Waste Management

**Table 2.2.3: Amount of waste generated in the area**

S. No.	Year	Generated	Processed
1	2015	350	0
2	2016	500	0
3	2017	460	0
4	2018	600	0
5	2019	745	0
6	2020	350	0
7	2021	400	0
8	2022	650	0
9	2023	1625	1625
10	2024	4085	4085

The generated waste data in Table 2.2.3 is given by zila panchayat Rudraprayag. As per the department, waste collected till 2022 was dumped in the dumping zone of Nagar Palika Rudraprayag without any kind of processing. But since 2023, the waste is segregated into organic and inorganic categories, where the organic waste is dumped into composting pits and the other is processed through compactors installed at different locations in the area. The Fig 2.2.3 shows the significant increase in waste collection as compared to the COVID and pre-COVID period, signifying higher consumption of goods. Apart from zila panchayat, sulabh also manages waste.



**Fig. 2.2.3: Amount of generated and processed waste**



## Chapter 3. Hemkund Shahib

Hemkund (Latitude  $30^{\circ} 41'57''$  N & Longitude  $79^{\circ} 36'54''$  E) is located in the Joshimath tehsil, Chamoli district of Uttarakhand. Surrounded by seven majestic peaks and a setting glacial lake, Hemkund has an elevation of 4329 m and is a part of Nanda Devi National Park. Hemkund is at a distance of 6 km from Ghangria, the last human habitation center for both Hemkund and Valley of Flowers, 16 km from Pulna, the starting point of the trek, and 40 km from Joshimath. Hemkund is covered under the Survey of India toposheet no. 53N/10 or H44H10. The famous trek from Ghangria is to the Valley of Flowers.



**Fig. 3.0.1: Hemkund Shahib**

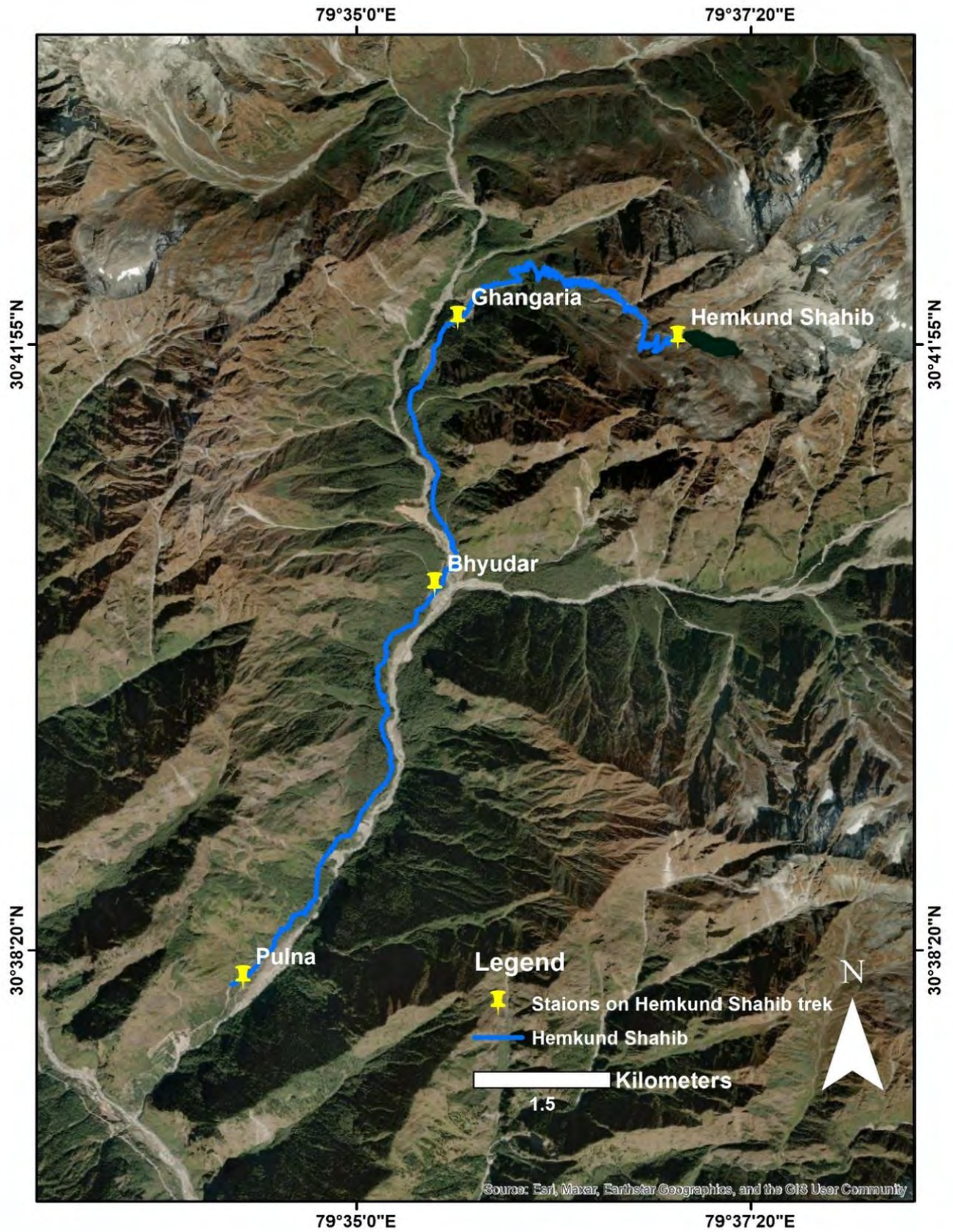


Fig. 3.0.2 Hemkund Sahib Trek

### NDVI (Normalized Difference Vegetation Index)

Hemkund Sahib, located in the Nandadevi National Park close to the Valley of Flowers, is an ecologically sensitive zone of the Himalayan region and has a fragile environment. A small disturbance at the site can cause major changes in the ecosystem. To ensure the variations that have occurred in the region, we have used spatial data from the Sentinel-2 satellite for the generation of NDVI (Normalized Difference Vegetation Index) of all the sites from 2016 to 2024 to detect the status of vegetation cover. The map represents the changes that occurred in vegetation, such as sparse vegetation. Moderate vegetation, and dense vegetation has increased by a margin. Sparse vegetation is reduced cause of climate change, the tree lines are shifting to higher elevations, and increased infrastructure developments at higher elevations could be the reason.

The NDVI is calculated using the given formula:

$$\text{NDVI} = \frac{(\text{Band 8} - \text{Band 4})}{(\text{Band 8} + \text{Band 4})}$$

Where,

NDVI = Normalized Difference Vegetation Index

Band 8 = Near Infra-red

Band 4 = Red

The status is visible in the fig (3.0.3) below, representing NDVI of the year 2016, and fig (3.0.4), representing NDVI of the year 2024 of Hemkund Sahib Region.



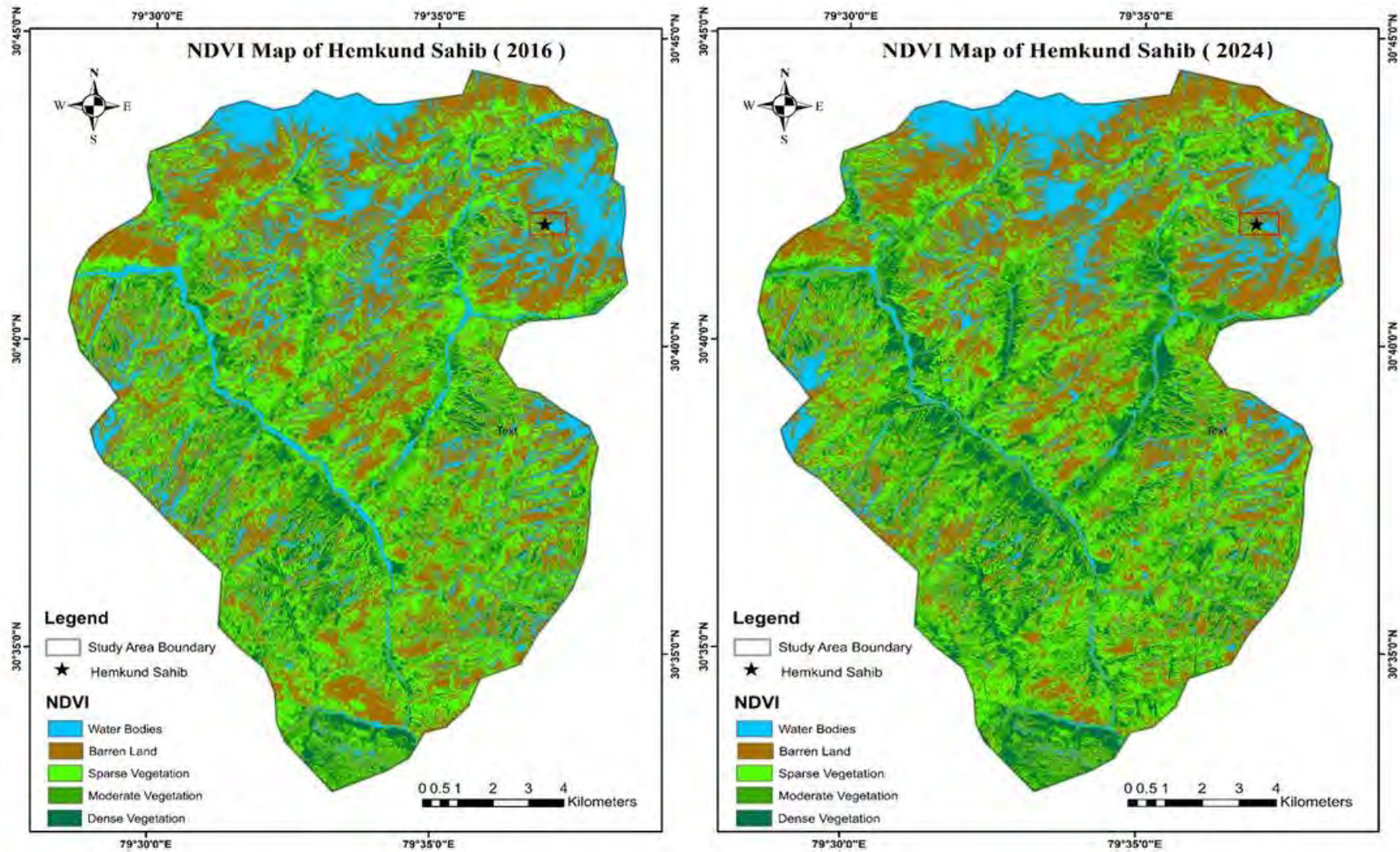


Plate: 3.0 Status of Vegetation Cover in the Hemkund Sahib (2016 & 2024)

### 3.1 Primary data

#### 3.1.1 Tourist survey

A total of 350 interviews have been conducted currently in the region. To understand the initial pattern of the tourists concerns, A set of 100 survey data have been analysed, which provides insights like various problems and consequences that have emerged during their visit to Hemkund region, like poor waste management, insufficiency of drinking water facilities, lack of proper toilet facilities, lack of proper tourist information centres, and network connectivity on the path to the Hemkund Shahib region.

Our main focus is on the tourist survey to gather field information regarding the Hemkund sahib region. We aim to complete the whole tourist survey to take approximately 600+ surveys by October 10 last day of the yatra. The final result may vary, which may be based on a survey that will be completed by October.



**Plate 3.1.1: Questionnaire survey**

### 3.1.2 Infrastructure

#### 3.1.2.1 Trek Route Analysis

The trek route is 18 km long, starting from Pulna to Ghangaria to Hemkund Sahib. There are proper signs of Do's and Don'ts and proper drinking water facilities along the trek with resting shades for tourists at every kilometer from Pulna to Ghangaria. But the frequency of resting shades reduces from Ghangaria to Hemkund Sahib due to heavy snowfall on the route. A map has been attached above showing track satellite imagery.

**Table 3.1.2: Trek route details from Pulna to Ghangaria to Hemkund Sahib**

Place	Description	Distance in (Km)
Govindghat	Small place for an accommodation facility, Gurudwara (1), and a Helipad for transportation.	
Pulna	A small village from where the trek starts has a Primary healthcare center and a few accommodation facilities.	5
Pulna to Jungle Chatti	Jungle Chatti is a small settlement with dhabas for the refreshment of tourists, with very few accommodation facilities. (No Network Zone)	2
Jungle Chatti to Bhyundar	Bhyundar is a small migratory village; locals from Pulna migrate here in summer for agricultural activities. It has an MRP healthcare facility and a few accommodation services. (No Network Zone)	4
Bhyundar to Kanjila Helipad Ghangaria	The steep route starts after Bhyundar, till Kanjila few camping and accommodation facilities are available. (No Network Zone)	5
Ghangaria	This place acts as a main junction for tourists and pilgrims visiting both Hemkund Sahib and the Valley of Flowers has a decent number of accommodation facilities and an M.R.P. healthcare facility, and a Gurudwara (2).	-
Ghangaria to Atlakoti	A steep route of 3 km has a small settlement of dhabas for refreshment.	3
Atlakoti to Hemkund Sahib	The Hemkund Sahib Gurudwara (3) shrine is located 3km from Atlakoti. No accommodation and pilgrims near Gurudwara, pilgrims return to Ghangaria.	3

### 3.1.2.2 Accommodation and lodging

Availability of safe and comfortable accommodations facility is vital for visitor's spiritual fulfilment and overall satisfaction of their pilgrimage. Ghangaria and Govindghat provide both temporary and permanent structure type accommodation and lodging facilities i.e. hotels, guest houses, camps, Gurudwara. Most of the facilities are of concrete structures with an average of two to floor levels. Although the hotels are densely clustered within an area and provide moderate level services, the prices are relatively high. Hotels in general maintains average cleanliness. During peak traffic day of peak tourism month, the place often gets so overcrowded that tourist and pilgrims sleeps outside with just a mattress or just a blanket. Hotels in general maintains average cleanliness. As per as accommodation survey done on field, in Ghangaria, most of the hotels, camps, and guest houses are not registered according to the tourism department data, which will be further elaborated in the final report with additional data.



### 3.1.3 Equines management

In the region of Hemkund Sahib, a study of mule owners was conducted, and information was obtained related to their way of management, healthcare, and safety facilities on the route. During the yatra, 2 teams of the veterinary departments are posted at Pulna and Ghangaria. Before the start of the yatra, a fitness certificate is provided for mules, after which, the mules are approved for the yatra. The veterinary department ensures vaccination and routine checkups for the mules. There are decent number of drinking water holes, but only a limited number of lukewarm water facilities available on the route.



**Fig. 3.1.3: Equine Management (a) and (b) shows the drinking facility for mule's, and (c) Represents dead Mule management by the veterinary department.**

### 3.1.4 Waste and sanitation

As this trek route falls under the Nandadevi National Park, which is a UNESCO World Heritage Site, waste management and sanitation are of major concerns that need frequent surveillance and monitoring. Various types of waste are generated in the area, which consists of Biodegradable, Non-Biodegradable, Biomedical, and Hazardous waste.

The main generation of non-biodegradable waste, done by pilgrims and tourists, mainly consists of plastic bottles, wrappers of packaged edible items, polyethylene bags, and disposable plastic raincoats, which are sold all over the trek. The waste produced is hard to trace as it has been littered along the trek routes, which have reached some non-accessible slopes and areas. Whereas Gurudwara, hotels, and Dhaba generate both biodegradable and non-biodegradable waste, and their management is comparatively simple, as waste is usually collected in dustbins by hotel and shop owners and collected by sanitary workers regularly.

Biomedical waste is generated by healthcare centres, pharmacy, Gurudwaras and Veterinary health care centres located in the region sanitary workers do not collect these wastes as they are not trained to handle these types of wastes, and the waste produced by these generators are often disposed in the pit according to the interview with the health care staff located on field and no waste is sent for proper disposal due to lack of transport facility as special care is taken to handle the waste hence there is no proper track of generated waste which is very serious concern.

**Management:** Waste and sanitation of the Hemkund region is managed by the EDC (Eco-Development Committee) Bhyundar, an NGO, which was formed in 2002-2003, where locals of the surrounding region, Pulna, Bhyundar, and Ghangaria, regularly monitor and clean the entire trekking path from Pulna to Ghangaria to Hemkund Sahib Gurudwara.

**Collection process:** Sanitary workers collect waste generated from every local shop, stall, and hotel, as well as dhabas, and gather litter waste along the trekking route from Pulna to Hemkund Sahib on an everyday basis. The collected waste is brought to the segregation points, rectangular pits, and further segregated, separating biodegradable and non-biodegradable waste. The mule dung is also cleared from the entire trek route toward Hemkund Sahib. The collected non-biodegradable waste is transported to

Govindghat. This is further sent to Nagar Palika Joshimath for further processing of disposal and recycling.



**Plate 3.1.4.1: EDC waste management of the Hemkund Shahib region**



**Fig. 3.1.4: Waste deposition points in Ghangaria**

### 3.1.5 Sanitation facilities

There are limited number of toilets which are developed by Sulabh Zila Panchyat and EDC. All of them are managed by EDC Bhyundar. The cleaning is done daily by the sanitation workers, but frequent continuous monitoring and cleaning are not done, which makes the toilets unusable by tourists. Only the Sulabh complex is continuously monitored; the rest are not suitable for use by tourists and pilgrims along the route. The toilets are properly attached to the pits, and no overflow or open disposal is seen during the field from the public toilets and restrooms.



**Plate 3.1.5: Sanitation condition (a) Poor hygiene, (b) Sulabh toilet, (c) No door structure, and (d) Poor maintenance**

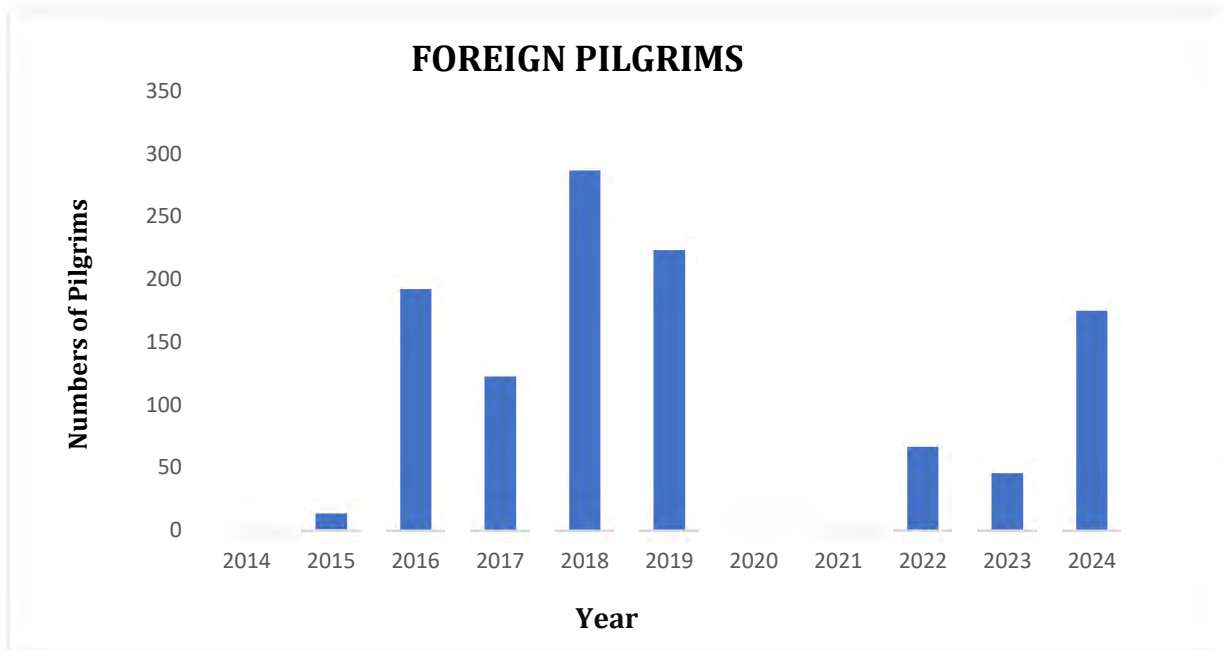
### 3.2 Secondary data analysis

#### 3.2.1 Tourist survey

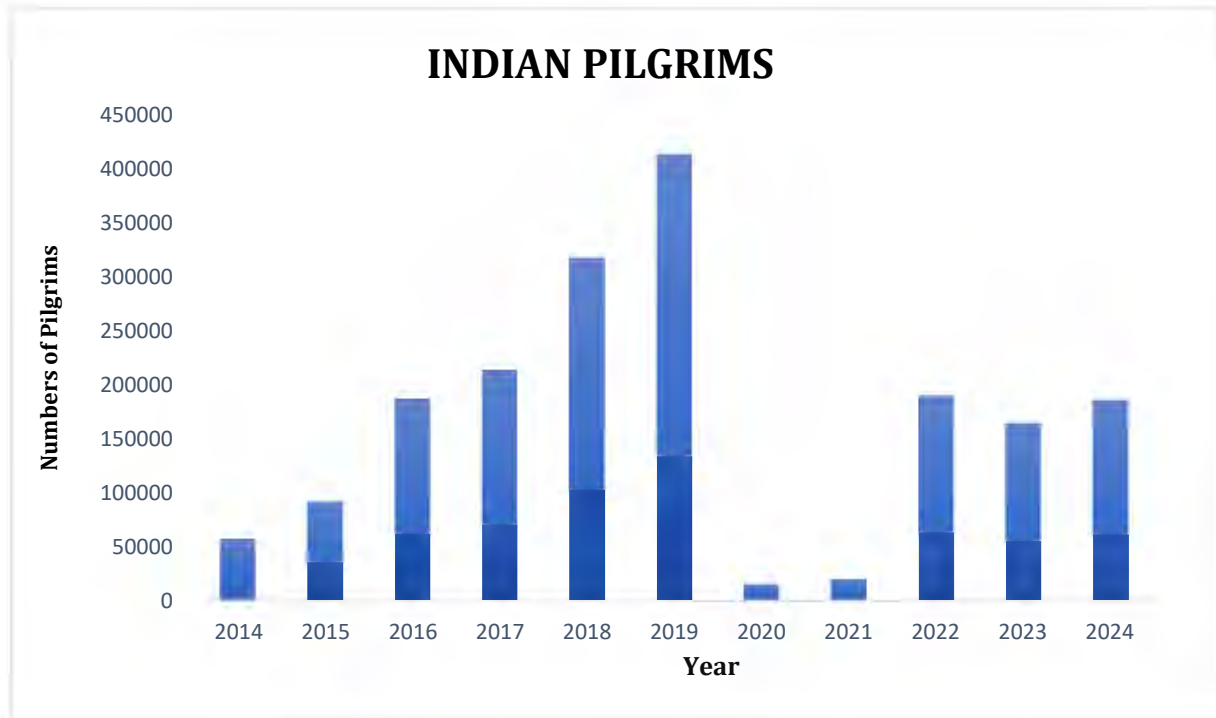
As per the above table represent the maximum number of pilgrims arrived in the year 2019 was about 412771 Indian pilgrims, and the lowest was seen in the years of 2020 and 2021, which were about 15488 and 19909 due to COVID. The highest number of foreign tourists arrived in 2018, at about 286, and the lowest number arrived in 2020 and 2021, due to COVID, and increased again significantly.

**Table 3.2.1: Hemkund Sahib pilgrims' data since 2014-2024**

Year	Indian	Foreigner	Total
2014	57382	0	57382
2015	91485	13	91498
2016	186745	192	186937
2017	213279	122	213401
2018	316941	286	317227
2019	412771	223	412994
2020	15488	0	15488
2021	19909	0	19909
2022	189882	66	189948
2023	164501	45	164546
2024	185797	175	185972



**Fig. 3.2.1(I): Foreign tourists Numbers from 2014 to 2024**

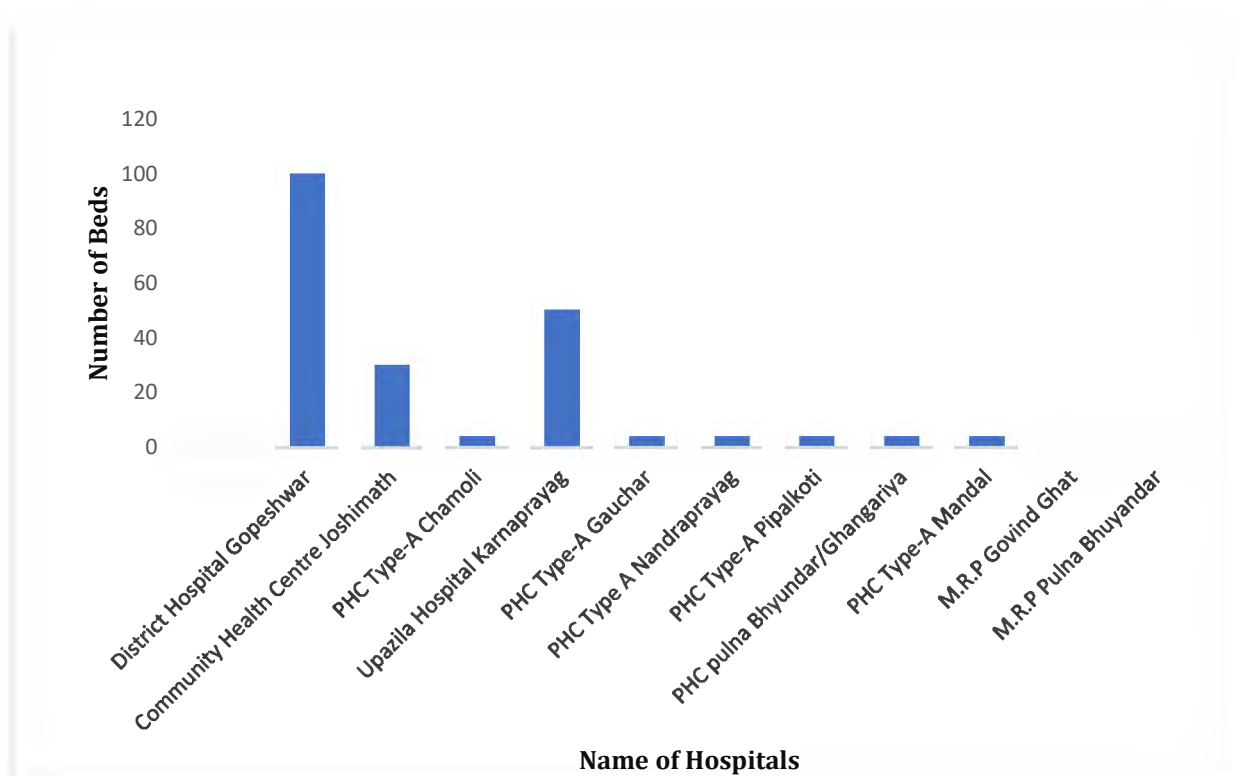


**Fig. 3.2.1(II): Indian tourists' Numbers from 2014 to 2024**

### 3.2.2 Medical infrastructure



**Fig. 3.2.2(I): The hospital at Ghangria is a Primary healthcare center with a few basic amenities, and no proper dedicated structure running on GMVN (Garhwal Mandal Vikas Nigam) land and structure provided, which is a serious concern.**



**Fig. 3.2.2(II): Pictorial representation of the bedding capacity in the hospital and healthcare center along the route in the Chamoli district**

**Table 3.2.2: Medical facilities unit located on the yatra route (Chamoli District)**

SL NO.	Name of the medical facility along the Yatra route	Number of beds in the hospital
1	District Hospital Gopeshwar	100
2	Community Health Centre Joshimath	30
3	Primary Health Centre Type-A Chamoli	4
4	Upazila Hospital Karnaprayag	50
5	Primary Health Centre Type-A Gauchar	4
6	Primary Health Centre Type A Nandraprayag	4
7	Primary Health Centre Type-A Pipalkoti	4
8	Primary health centre Pulna Bhyundar/Ghangaria	4
9	Primary Health Centre Type-A Mandal	4
10	MRP Govind Ghat	0
11	MRP Bhyundar	0
<b>TOTAL</b>		<b>204</b>

The table above represents available medical facilities on Hemkund Sahib yatra routes in Chamoli district, where the district hospital is located in Gopeshwar, Joshimath, PHC Chamoli, Karnaprayag, Gauchar, PHC Mandal, PHC Pipalkoti, and PHC Bhyundar/Ghangaria have primary medical supplies, in the region, of which Govindghat and Bhyundar have MRP units.

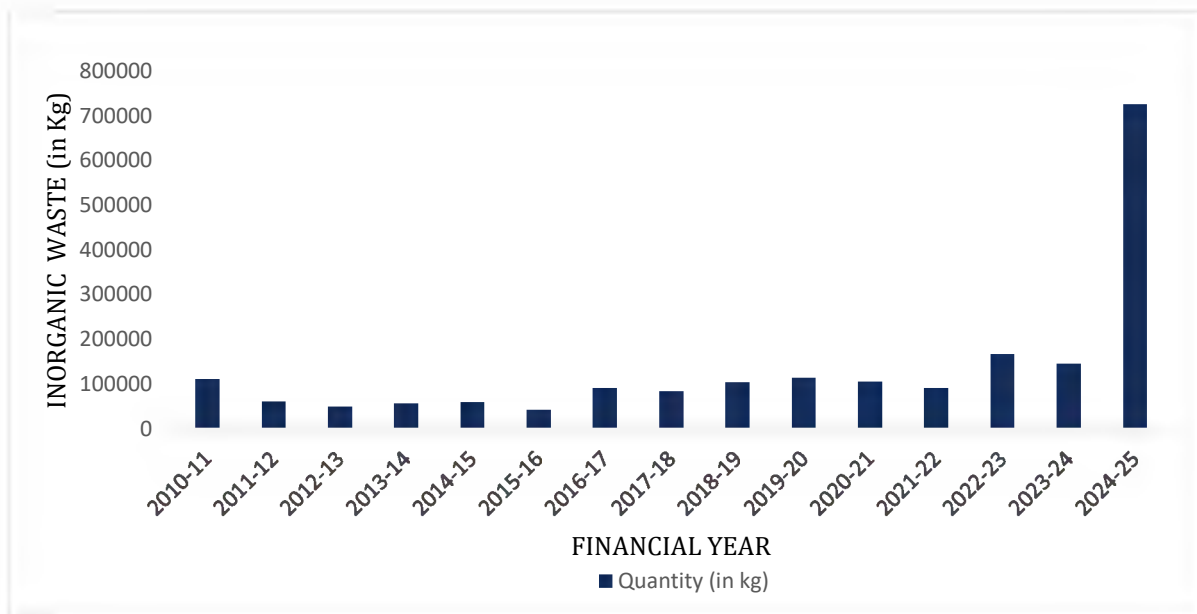
### 3.3.3 Waste management

Nagar Palika Parishad Joshimath also manages the waste significantly during the yatra season. It is a gateway for Hemkund Sahib and Badrinath shrines, and due to accommodation and other infrastructure facilities, pilgrims and tourists often take a halt during their visit.

**Table 3.3.3: The table shows Income and waste generation (Inorganic) from the financial year 2010 to 2025, by Nagar Palika.**

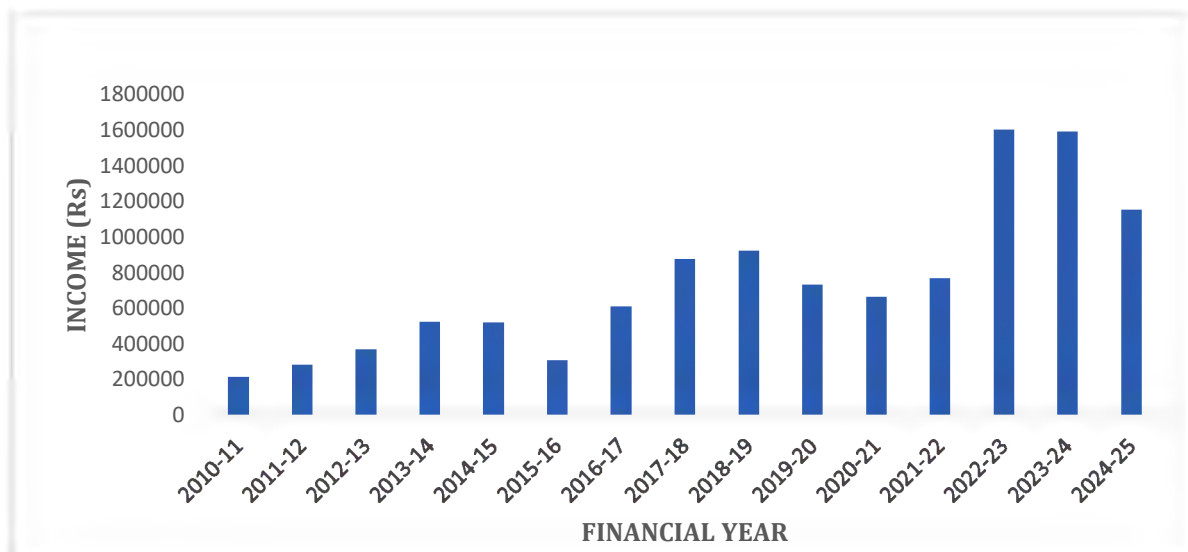
S.No.	Financial year	Total Income generation (Rs)	Quantity of waste ( kg)
1	2010-11	215573	111340
2	2011-12	286872	60787
3	2012-13	372169	48793
4	2013-14	525498	56567
5	2014-15	522713	59085
6	2015-16	311075	42751
7	2016-17	613989	90977
8	2017-18	880114	83789
9	2018-19	925201	103213
10	2019-20	734735	114459
11	2020-21	668307	104697
12	2021-22	770975	90405
13	2022-23	1606193	166599
14	2023-24	1592748	144907
15	2024-25	1156997	724255
	<b>Total</b>	<b>1,11,83,159</b>	<b>20,02,624</b>

There is a significant increase in both income and waste generation due to increased tourist flow and an increasing population in the region.



**Fig 3.3.3(I): Inorganic waste**

The above figure represents the highest inorganic waste in the financial year 2024-25, about 7, 24,255 kg, and the lowest in the financial year of 2015-16, which was about 42751kg of inorganic waste. Fig. 3.3.3.2 shows the income generation from the waste from 2010 to 2024, which was maximum in the financial year 2022-2023 and minimum in 2010-2011



**Fig. 3.3.3(II): Revenue from waste**

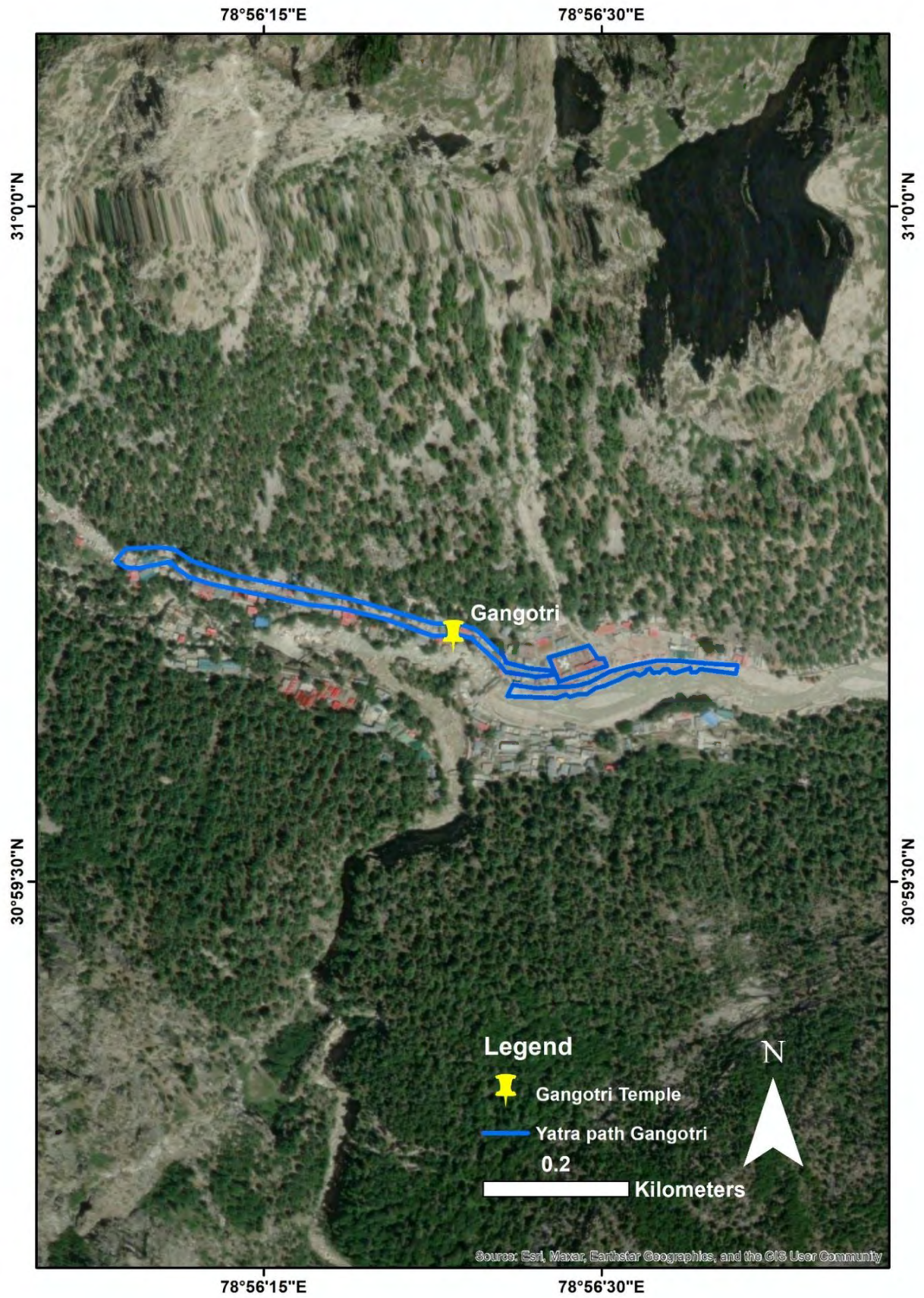


## 4. Gangotri

Gangotri (Latitude  $30^{\circ} 59'39''$  N & Longitude  $78^{\circ} 56'28''$  E) is located in the Bhatwari tehsil, Uttarkashi district of Uttarakhand. Situated on the banks of the river Bhagirathi- the origin of the river Ganga, Gangotri has an elevation of 3195m and comes under Gangotri National Park. The study area is at a distance of 53 km from Harshil and 98 km from Uttarkashi. Gangotri is covered under the Survey of India toposheet no. 53J/13 or H44G13. Famous treks from Gangotri are the Gaumukh -Tapovan trek and the Kedartal trek.



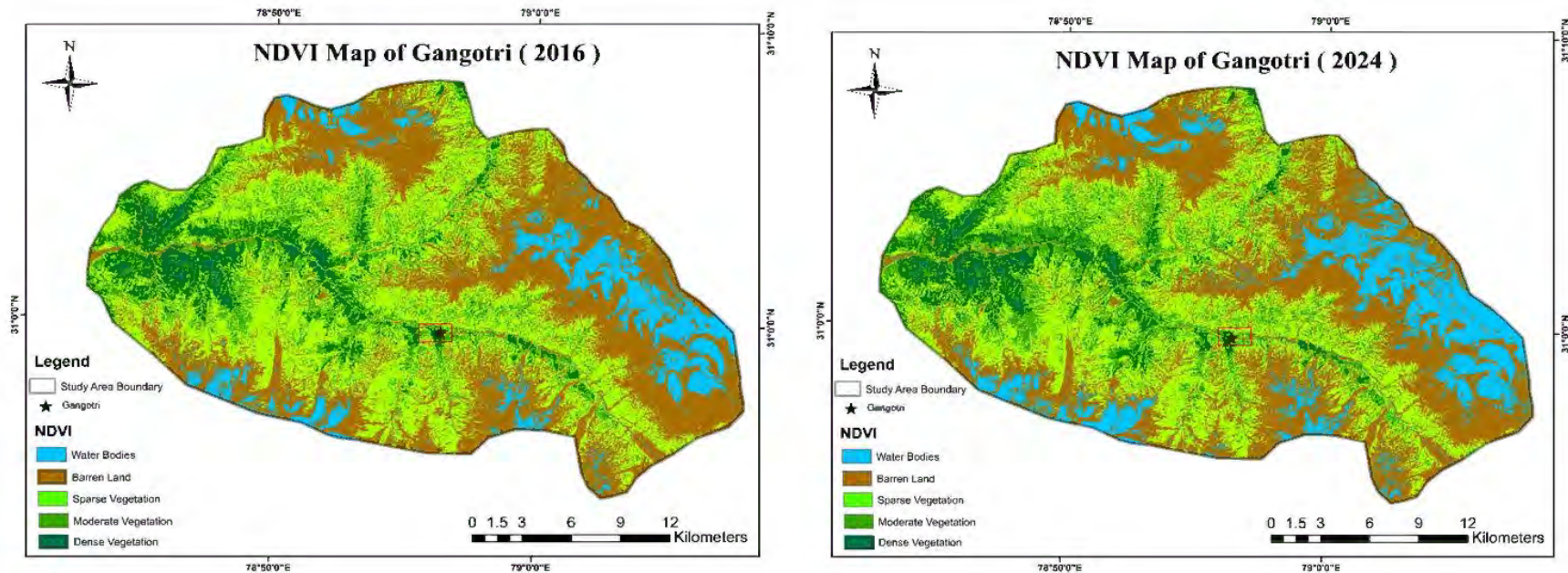
**Fig. 4.0.1: Gangotri Temple**



**Fig. 4.0.2:- Pedestrian Yatra Path Gangotr**

### Normalized Difference Vegetation Index (NDVI)

Gangotri is located within the Gangotri Reserve Forest, an extremely ecologically sensitive area with a weak Himalayan ecosystem, in which even slight disturbances, like landslides and cloudbursts, cause dramatic ecological shifts. Recent spatial analysis based on Sentinel-2 satellite imagery of November (2026, 2024) shown in (Fig 5.0.3 and 5.0.4) capturing ecosystem patterns in Gangotri. This monitoring is crucial in determining the impacts of climate change since increased temperatures lead to glacier retreat and vertical movement of vegetation zones. The majority of the surroundings of the temple are conserved within Gangotri National Park, which is strictly protected and monitored, hence minimal changes occur within most vegetation classes. Yet, during the period of eight years, there has been an apparent growth in moderate and dense forest cover, with the indication of a positive shift in NDVI.



**Plate: 4.0 Status of Vegetation Cover in the Gangotri (2016 & 2024)**

## 4.1 Primary Data

In order to attain insights about primary data we mostly carried out interviews through purposive-random sampling with tourists to learn about their general experience on the Char Dham Yatra, shown in Figure 4.1.1. The interviews were held in English and Hindi, as preferred by the respondent. Interviews were also conducted with an assortment of stakeholders, such as business people and local service providers who have dealings with tourists/pilgrims. The major areas covered during these interviews were accommodation facilities, sanitation, hygiene, medical facilities, and waste management.

### 4.1.1 Tourist Survey

Approximately 300 questionnaires were carried out, and 100 of them have been processed in order to analyze emerging patterns and extract conclusions from tourists. Initial findings indicate that although the majority of tourists declared their contentment with the general experience, issues involving waste disposal and the universal use of single-use plastic were mentioned by a majority of respondents. These problems point to the need to address urgent challenges in order to achieve a cleaner and more sustainable pilgrimage setting. The exercise of the survey continues, aiming to finish more than 600 surveys upon the closure of Kapat, which will provide a deeper understanding of tourist views.



**Plate 4.1.1: - Questionnaire survey at Gangotri Dham**

#### 4.1.2. Waste Management

Gangotri, one of the sacred Char Dham sites, is widely regarded as relatively clean in terms of hygiene compared to other pilgrimage destinations. However, despite this reputation, the region continues to face persistent challenges in managing solid waste effectively. At Gangotri, devotees who come to collect holy water or bathe in the river often leave behind clothes, plastics, and other non-biodegradable items directly in the Gangotri shown in Figure 4 (b), degrading the purity of the sacred river. Plastic bottles, bags, disposable plates, and food wrappers are frequently thrown in open spaces, riverbanks, and sacred paths, causing severe plastic pollution.

Permanent shopkeepers operating in the area generally dispose of their garbage through the Nagar Panchayat collection system. In contrast, temporary vendors such as tea stalls and food outlets often discard their refuse along mountain ridges. Over time, this careless disposal leads to the accumulation of waste in the valleys, which is eventually washed into the river Ganga during rainfall, creating significant environmental hazards, threatening aquatic life, and water quality downstream.

Another pressing issue arises from the practices of pilgrims, many of whom cook food along roadsides and leave their litter behind. This contributes to localized waste heaps that not only degrade the visual appeal of the sacred but also add to long-term ecological stress. Furthermore, the scarcity of waste disposal infrastructure makes the problem worse; along the entire route from Ganganani to Gangotri, dustbins are extremely limited, often only one or two in long stretches, making responsible disposal difficult for visitors. In some areas, even the dead animals are left uncovered, contaminating water sources and spreading foul odour.

The area surrounding Pandava cave, around 5 km from Gangotri, also experiences unchecked littering, with plastic bottles and wrappers scattered along the trekking trail due to the absence of awareness boards, lack of dustbins, and monitoring systems, as shown fig 4 (c). The lack of systematic waste collection, segregation, and disposal measures reflects weak management practices in this ecologically sensitive zone.

To address these issues, it is crucial to strengthen solid waste management and sanitation measures through adequate installation of bio-toilets, compost pits, and sufficient covered dustbins along the yatra route. Awareness campaigns encouraging pilgrims to minimize plastic use, adopt eco-friendly practices, and respect the sanctity

of the site are needed. Strict monitoring of vendors, regulated waste disposal mechanisms, and setting up recycling centers near major stopping points could significantly reduce pollution. Ensuring that Gangotri remains a clean and spiritually pure destination requires a collective effort from authorities, local communities, and Pilgrims.



**Plate 4.1.2: Unmanaged waste (a) Dumped waste eaten by animals near Dharali; (b) Clothes left behind by pilgrims; (c) Disposed waste near Pandav cave; (d) Disposed waste near Harshil Gangotri; (e) Burning of dumped waste after Dharali.**

#### **4.1.3 Road infrastructure**

During the physical survey of the Char Dham Yatra, Gangotri was considered one of the easiest shrines to access due to the proximity of the road to the temple, which allows vehicles to travel very near the sacred site. However, the route from Uttarkashi to Gangotri is often challenging. Pilgrims frequently face poor road conditions marked by muddy stretches, landslides, and debris, especially during the monsoon season shown in Fig. 4.1.3. These natural hazards can lead to road blockages and delays, requiring ongoing restoration efforts and sometimes necessitating the delivery of essential supplies by helicopter when roads close. Additionally, narrow, winding mountain roads demand cautious driving, frequent honking at blind curves, and increased attention to weather updates due to risks of sudden landslides. The

unpredictability and severity of road conditions between Uttarkashi and Gangotri add a layer of difficulty to the yatra, testing the preparedness and patience of pilgrims throughout their journey.



**Fig. 4.1.3: - Connectivity from Uttarkashi to Gangotri**

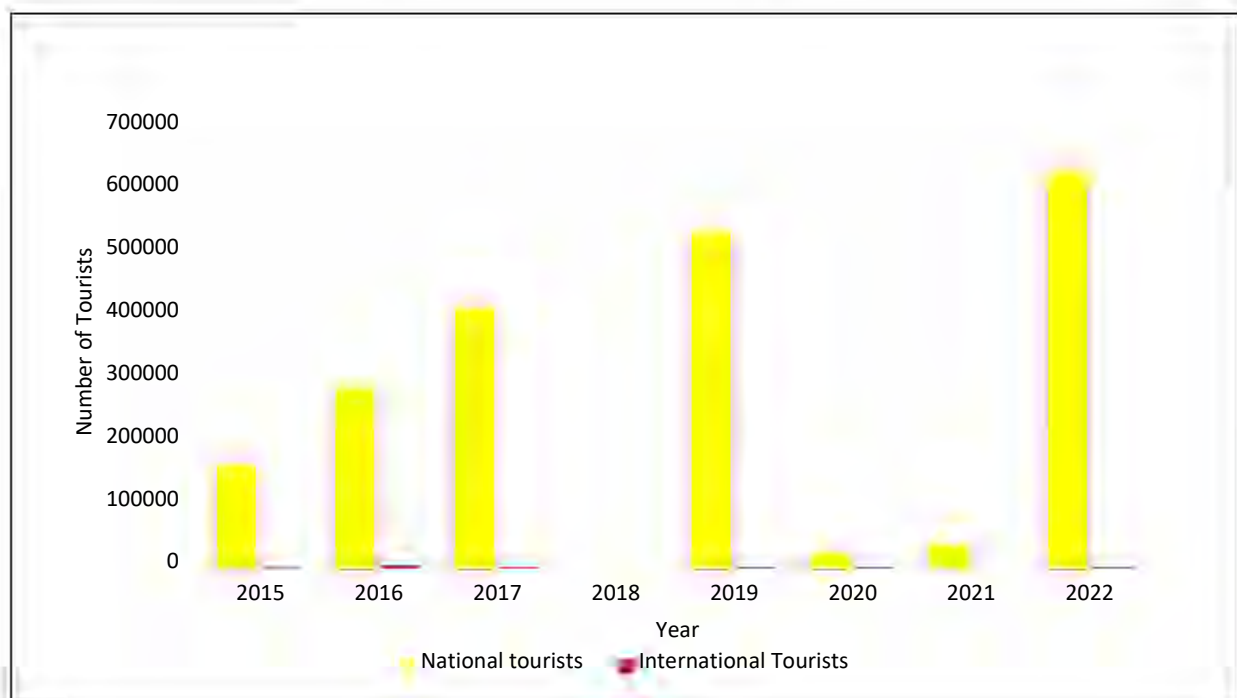
## 4.2. Secondary Data

### 4.2.1 Tourist historical numbers

The table 4.2.1 below shows the annual trend of tourists' data provided by the Tourism Department, Uttarkashi. Domestic visitors have significantly increased between 2015 and 2019 by 7.7 to 25.6 percent, after a sharp decline was seen in 2020–21 due to the COVID-19 pandemic, and foreign arrivals peaked in 2016. Rapid rebound flow of tourists in 2022, 30 percent of the suppressed 2019 level. However, international arrivals remained negligible shown in Figure 4.2.1. (Data for 2018 is unavailable.)

**Table 4.2.1: Yearly flow of Tourists (National and International)**

Year	National tourists	International tourists
2015	159684	508
2016	284350	1109
2017	408275	463
2018	NA	NA
2019	529880	454
2020	23736	38
2021	33771	0
2022	624458	58



**Fig. 4.2.1: Historical Tourist Number in Yamunotri**

#### 4.2.2 Healthcare facilities

The table 4.2.2(a) provides information about the Permanent Medical Units based on data from the Chief Medical Officer (CMO) of Uttarkashi. These facilities, along with their designated bed capacities, are available to both tourists and residents during emergencies along the Gangotri Dham route.

**Table 4.2.2(I): Number of PHC units along the Gangotri route**

Name of permanent medical facility along the Yatra route			Bed capacity
Hospital name	Type	Location	
CHC	-	Chinyalisaur	10
PHC	B	Dunda	4
DH	-	Uttarkashi	200
PHC	B	Netala	4
	A	Maneri	4
	B	Bhatwari	4
	A	Gangnani	4
	A	Harshil	4
	A	Gangotri	4

**Table 4.2.2(II) PHC facility distance in the Gangotri route**

Name	Distance to next facility
Chinyalisaur - Dunda	20 km
Dunda - Uttarkashi	14 km
Uttarkashi - Netala	8 km
Netala - Maneri	7 km
Maneri - Bhatwari	16 km
Bhatwari - Gangnani	13 km
Gangnani - Harshil	32 km
Harshil - Gangotri	22 km

**Ambulance Services:** The below table 4.2.2(c) provides details of ambulance services available along the Nataka–Gangotri routes, including both Basic Life Support (BLS) and Advanced Life Support (ALS) types. According to data from the

Chief Medical Officer (CMO) of Uttarkashi, ambulance services are not available at Netala and Maneri. This lack of emergency ambulance facilities poses a significant challenge for tourists and residents in these areas during critical situation.

**Table 4.2.2(III): Number of ambulances available along the route**

Name of permanent medical unit/ MRP			Number of Departmental Ambulances		Number of 108 Ambulances	
			BLS	ALS	BLS	ALS
Hospital name	Type	Location				
CHC	-	Chinyalisaur	3	-	1	1
PHC	B	Dunda	1	-	1	-
DH	-	Uttarkashi	5	-	1	1
PHC	B	Netala	-	-	-	-
	A	Maneri	-	-	-	-
	B	Bhatwari	1	-	1	-
	A	Gangnani	-	-	-	-
	A	Harshil	1	-	-	1
			Gangotri	1	-	-

\* (DH – District Hospital, CHC- Community Health Centre, PHC - Primary Health Centre, BLS - Basic Life Support, ALS - Advance Life Support)

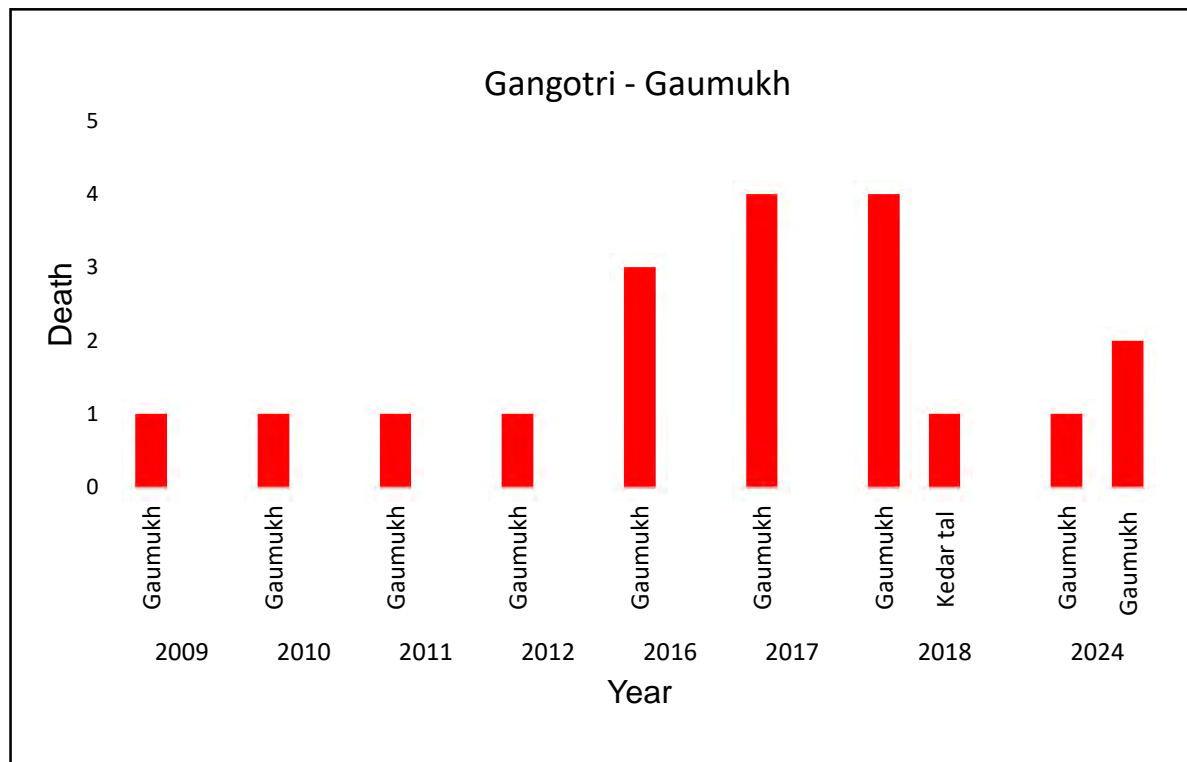
### 4.2.3 Trekking-Related Death

The following table 4.2.3 displays the trekkers' annual fatality count documented by the District Disaster Management Authority, Uttarkashi, from 2009 to 2024 in treks in the area of the Gangotri temple during a trek to Gaumukh. During the initial years from 2009 to 2012, accidents were few and comprised mostly of avalanches and medical issues. A dramatic increase occurred in 2016 and 2017 with three and four fatalities respectively. These fatalities were attributed primarily to heart attacks, which reflect the effect of altitude on trekkers. The greatest loss was in 2018 when four individuals lost their lives in an avalanche at Gaumukh, and one at Kedartal from a heart attack. Fatalities stopped for a while, and then in 2024 again occurred at Gaumukh. These were due to health issues and increased water levels, reflecting

climate-related hazards. In general, the information reveals that death results from sudden natural occurrences and long-term health complications. It points to the necessity for more strict acclimatization processes, health preparedness, and enhanced observation of environmental risks within such fragile regions.

**Table 4.2.3: Annual fatalities recorded during Gaumukh and KedarTaal**

Year	Track name	Death number	Reason
2009	Gaumukh	1	Avalanche
2010		1	
2011		1	Health problem
2012		1	
2016		3	
2017		4	Heart Attack
2018	Gaumukh	4	Avalanche
	Kedartal	1	Heart Attack
2024	Gaumukh	1	Health problem
		2	Increased water level



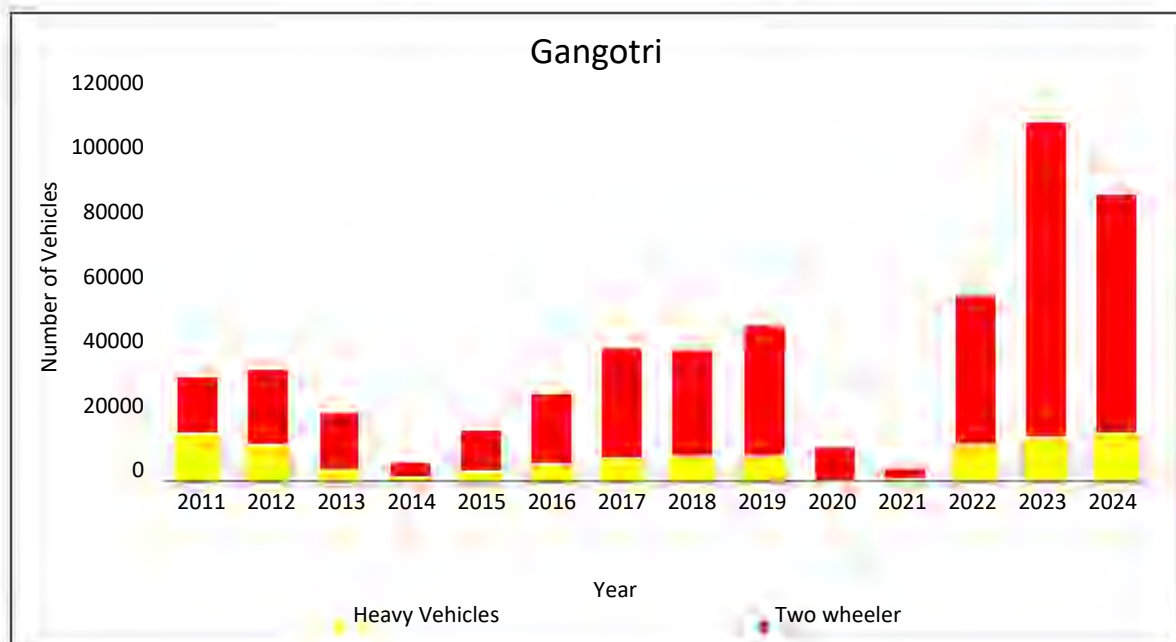
**Fig. 4.2.3: Annual number of death along the Gangotri - Gaumukh trek**

#### 4.2.4 Historical Vehicular Data

Vehicular data of the Gangotri yatra route collected from Uttarkashi (DDMA) over 14 years (2011-2024) is shown below in Table 4.2.4, and a rise in two-wheelers peaked in 2023, while heavy vehicle numbers fluctuated, highest in 2011 and rising again from 2022 shown in fig 4.2.4. The drop in 2020 and 2021 was due to the COVID-19 pandemic. It is essential to closely monitor and enforce traffic rules to prevent fatalities and ensure the smooth operation of the yatra.

**Table 4.2.4: Vehicular data of Gangotri Dham**

Year	Heavy Vehicles	Two-wheeler
2011	14391	17294
2012	11010	23008
2013	3530	17561
2014	902	4759
2015	2445	13262
2016	4892	21834
2017	6599	33948
2018	7641	32136
2019	7534	40122
2020	69	10359
2021	646	3483
2022	11050	46158
2023	13125	96884
2024	14370	73766



**Fig. 4.2.4: Graphical representation of Vehicle inflow**



## 5. Yamunotri

Yamunotri (Latitude 30°59'59" N & Longitude 78°27'46" E) is located in the Barkot tehsil, Uttarkashi district of Uttarakhand. Surrounded by the majestic peaks of the Himalayas at an elevation of 3226 m above sea level, Yamunotri is a source of the river Yamuna, famous for its hot water spring, and covers an area in the Yamunotri Reserve Forest. The study area is at a distance of approximately. 6 km from Jankichatti, the starting point of the trek, 48 km from Barkot, and 123 km from Uttarkashi. Yamunotri is covered under the Survey of India toposheet no.53J/5 or H44G5. Famous treks from the study area are the Bali Pass and the Spatarishi Kund trek.



**Fig. 5.0.1: Yamunotri Temple**

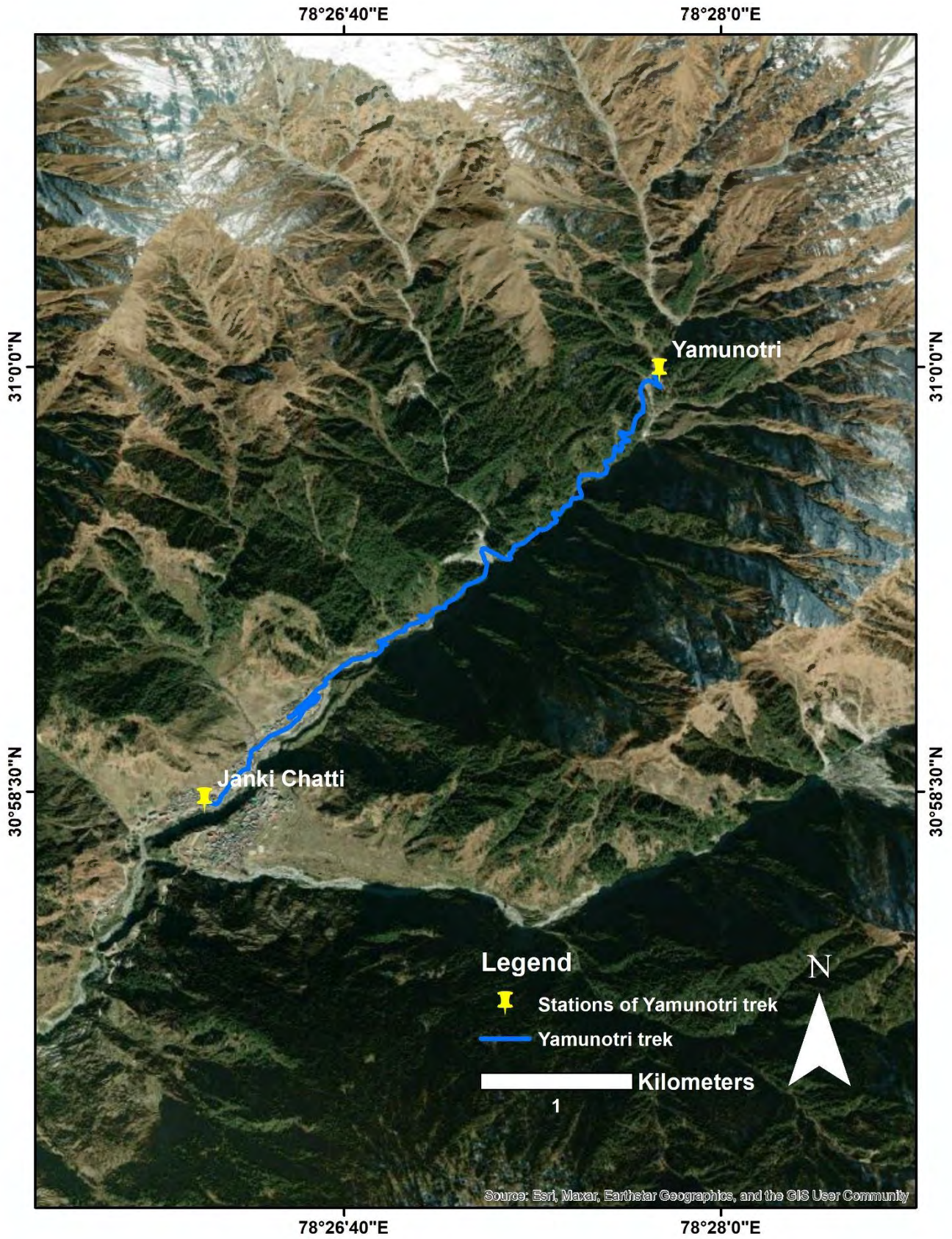
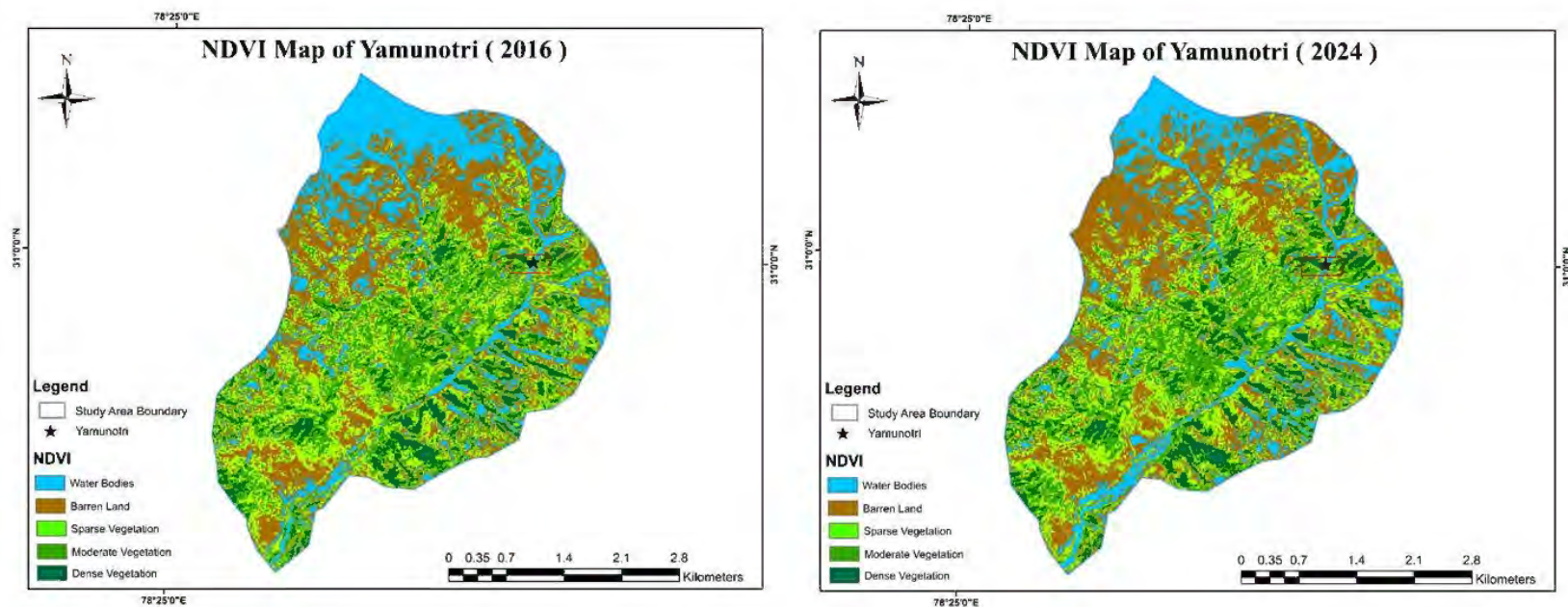


Fig. 5.0.2:- Yamunotri track

### Normalized Difference Vegetation Index (NDVI)

Yamunotri, part of Upper Yamuna Barkot forest division is an ecologically sensitive zone due to its fragile ecosystem. A small disturbance like landslide, cloud burst at this site can cause major changes in the ecosystem. Spatial data from Sentinel 2 satellite of November 2016 and 2024 was processed to create the NDVI map shown in Fig 5.0.3 and 5.0.4 respectively. Monitoring NDVI in this region helps to assess the impact of climate change, as rising temperatures cause glacial retreat and shift vegetation zones upwards. The map shows the negative change in water bodies like snow and water while over the period the dense forest area shows a positive impact.



**Plate 5.0: Status of Vegetation Cover in the Yamunotri (2016 & 2024)**

## 5.1 Primary data collection

The primary survey used a mixed-method approach combining face-to-face interviews and observational surveys to collect both qualitative and quantitative data. Tourists were interviewed using structured questionnaires and data sheets regarding tourist overall satisfaction and environmental awareness..

### 5.1.1 Tourist survey

As part of the main survey, a total of 350 interviews with tourists and pilgrims in the study area were recorded. So far, 120 of these responses has been analysed to understand visitor views and the challenges on the ground. The initial analysis shows that the most common issues are waste management and equine management. Both of these directly impact pilgrims' overall experiences and the ecological balance of the region. The survey is still ongoing, and the goal is to complete 600 interviews by the time of the Kapat opening. This will provide a better dataset for the final analysis.



Plate 5.1.1 Questionnaire survey at Yamunotri Dham

### 5.1.2 Waste Management

Yamunotri, a sacred pilgrimage site of the Char Dham Yatra in Uttarakhand, is facing significant challenges in waste management and sanitation. During our visit, we observed widespread mismanagement of solid waste along the pilgrimage route. Large amounts of household refuse, religious offerings, sewage, and wastewater have been littered between Kharshali and Yamunotri. In several areas near Jankichatti, heaps of garbage have been dumped openly, while sweepers, often irregular in their duties, and have resorted to throwing collected waste down the mountain slopes during sweeping, which eventually pollutes the Yamuna River. Waste along the trekking path is rarely collected on time. In some places, garbage was burned openly shown in Figure 5.1.2 (a), releasing toxic fumes that pose health risks to both pilgrims and residents, as well as the surrounding environment.

A major concern is the unchecked disposal of plastic bottles and packaging materials. Pilgrims frequently discard them along the route, creating large clusters of non-biodegradable waste. The shortage of dustbins is an issue on track and yatra routes, with the limited ones available often overflowing and unattended, particularly around Kalbhairo temple and adjoining areas. This unchecked dumping has severely degraded the surrounding environment.

Hygiene practices further compound the issue. Pilgrim's bathing in the hot springs and river often leave their clothes and offerings behind, significantly contributing to pollution from religious waste shown in fig 5.1.2 (c), (d). Local restaurants and shops usually operate without proper sanitation measures, with wastewater frequently being discharged into open drains or streams. Surrounding areas were littered with plastic-coated plates, wrappers, and other food packaging materials that were carelessly discarded by tourists and swept into the valley without proper disposal shown in in fig 5.1.2 (b), (e).

Sanitation facilities for pilgrims remain grossly inadequate. Existing toilets and washrooms are poorly maintained, largely unusable, and insufficient in number. The absence of toilet facilities along the trekking route forces many visitors to engage in open defecation, further worsening hygienic conditions. Additionally, in yatra routes, mobile toilets are rarely present.

The lack of effective waste segregation, insufficient sanitation infrastructure, weak enforcement by authorities, and limited awareness among visitors and locals have collectively created a critical ecological imbalance in Yamunotri. Immediate remedial measures are essential. These include installing sufficient garbage bins at regular intervals, ensuring systematic waste collection and treatment, improving sewage and toilet facilities, enforcing strict hygiene practices among shops and eateries, and actively promoting a plastic-free pilgrimage.

Protecting the sanitation and ecological balance of Yamunotri is not only important for preserving its spiritual significance but also for safeguarding the fragile Himalayan environment upon which millions of lives depend.



**Fig. 5.1.2: Unmanaged waste (a) Open burning of trash; (b) Plastic debris near Yamunotri trek; (c), (d) Floral and textile waste in the Yamunotri river; (e), (f) Waste on Yamunotri trek**

### 5.1.3 Road infrastructure

During the field survey, weekly visits from Uttarkashi to Yamunotri by vehicles and buses revealed several challenges along the route. Major issues included poor road conditions, collapsed sections, frequent potholes, waterlogging and sewage overflow, roadside waste dumping, and drains filled with mud and stones. Signage was either missing, tilted, or damaged, with many traffic mirrors broken and a limited reflective indicator for night travel. Stones and rocks scattered on the road posed additional safety hazards, while domestic animals straying on the route created serious risks that could lead to accidents. Further, commonly faced problems include frequent traffic congestion, narrow roads, inadequate street lighting, absence of proper parking spaces, and limited emergency response facilities along the yatra route.

The trekking route from Kharshali to Yamunotri faced several challenges, including waterlogging along the path, narrow and congested stretches, parking areas built beside the Yamunotri stream that obstruct the environment, open sewage flow, and slippery tracks that pose risks to pilgrims. Other problems include limited resting shelters, lack of proper sanitation, inadequate lighting, scattered stones and debris on the trail, and limited first-aid facilities, all of which increase the difficulty and safety risks for tourists and pilgrims.

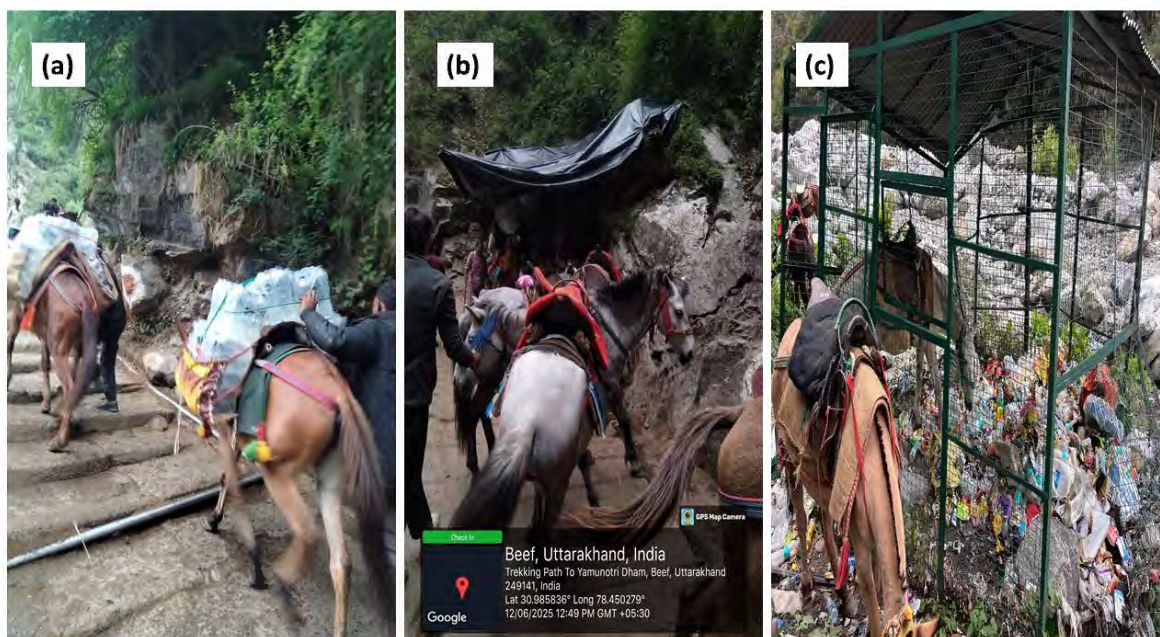


**Fig. 5.1.3: (a), (b) Road condition along Yamunotri**

### 5.1.4 Mule and Dandi/ Kandi

Equines such as mules, horses, and ponies remain the most common and cost-effective means of transport for pilgrims traveling from Kharshali to Yamunotri, especially for those unable to trek long distances. While dandi/kandi services are available and less damaging to the track. The heavy presence of equines along the narrow Yamunotri trekking trail often causes congestion and delays. Poor sanitation and mismanagement of mule dung and urine lead to unhygienic conditions, foul odors, and slippery paths, creating health and safety risks for both devotees and animals. Continuous use of mules further damages the fragile environment of the route.

A major concern during the Char Dham Yatra is the poor care of equines. Many mules are overworked, underfed, and often forced to eat whatever is available on the track, including waste such as plastic wrappers and discarded food. This leads to various health issues and injuries among the animals, and there is limited veterinary support or proper monitoring of their welfare. Overcrowding, a lack of rest stops, and inadequate medical facilities exacerbate these problems. Reports have noted cases of mule deaths due to exhaustion, injuries, and consumption of non-biodegradable waste, highlighting the urgent need for stricter regulations, improved animal care, and management practices during the pilgrimage.



**Fig. 5.1.4: Mules condition (a) Carrying goods along the Yamunotri trail; (b) Resting area in the trail; (c) Plastic waste eaten by equines**

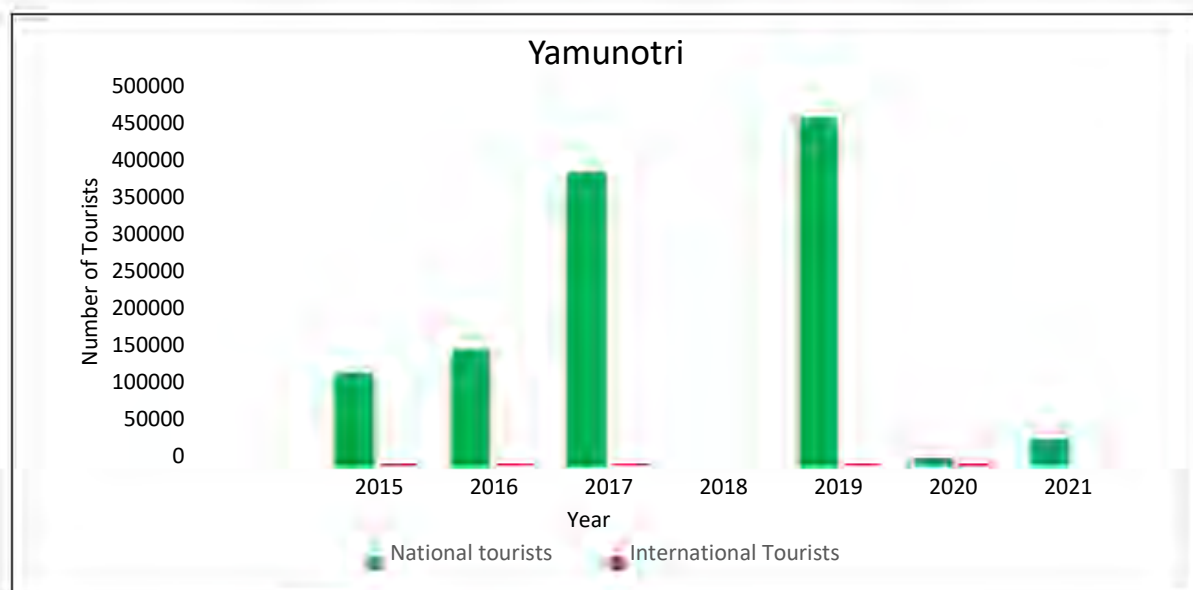
## 5.5. Secondary data

### 5.5.1 Historical Tourist Data

Analytical data collected from the Tourist Department, Uttarkashi, showing the flow and decline of tourism from 2015 to 2022 of the Yamunotri Dham, as presented in Table 5.5.1, and Figure 5.5.1 below. During this period, domestic visitor numbers increased by about 7.7-25.6 percent from 2015 to 2019, while foreign tourist numbers remained minimal. The COVID-19 pandemic led to a sharp decline in 2020–21, but domestic tourism quickly rebounded in 2022, with a 30% increase over 2019 levels. Although international arrivals remained very low, the domestic tourism sector experienced a notable recovery.

**Table 5.5.1: Yearly flow of Tourists (National and International)**

Years	National tourists	International Tourists
2015	122710	216
2016	154563	566
2017	391732	476
2018	NA	NA
2019	465111	423
2020	7717	11
2021	33311	0
2022	485654	34



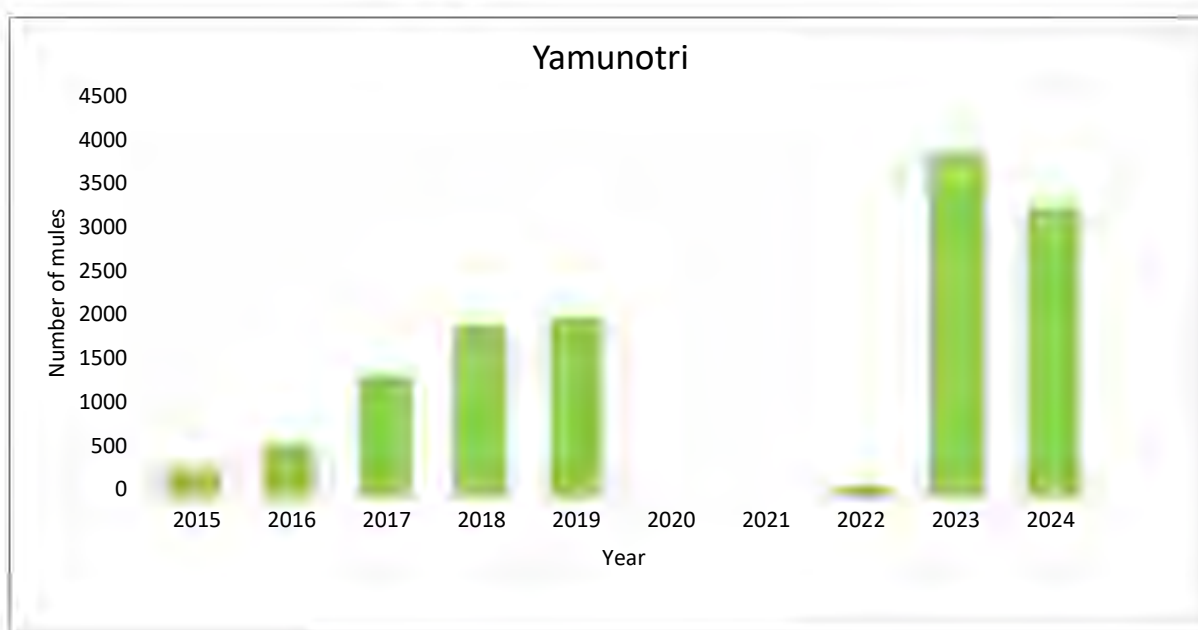
**Fig. 5.5.1: Historical Tourist Number in Yamunotri**

### 5.5.2 Mules registration

Annual data collected from the District Veterinary Office, Uttarkashi, provide insights into the trend of mule numbers at Yamunotri. Between 2015 and 2019, the number of mules increased rapidly; however, this trend was followed by a sharp decline in 2020–21 due to the COVID-19 pandemic. With the resumption of the Char Dham Yatra, mule numbers showed a slight recovery in 2022 and were expected to rise significantly in 2023 and 2024 shown in Figure 5.5.2.

**Table 5.5.2: Data of registered mules in Yamunotri**

Year	Number of mules
2015	300
2016	570
2017	1340
2018	1910
2019	2000
2020	COVID-19
2021	COVID-19
2022	100
2023	3909
2024	3270



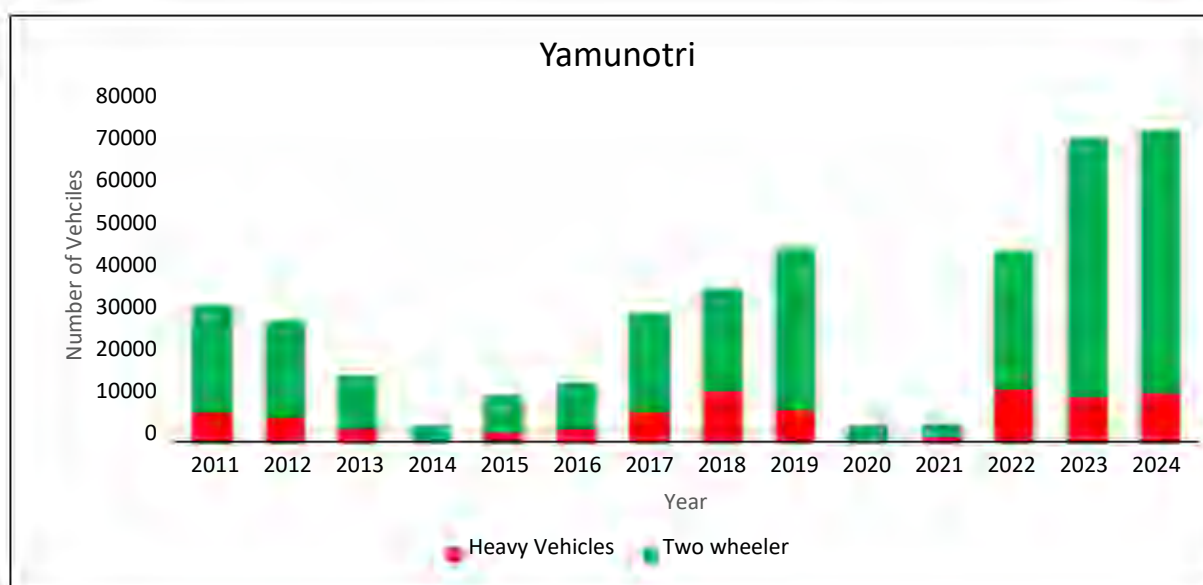
**Fig. 5.5.2.: Trends in Mule Population in Yamunotri**

### 5.5.3 Historical Vehicular Data

Tourism at Yamunotri continued to grow year after year, with roads busy with vehicles and filled with pilgrims, especially by 2019. Then, the pandemic hit suddenly, and the crowds vanished, along with the traffic, leaving the route almost vacant in 2020 and 2021. By 2022, the pilgrims returned in huge numbers, and the familiar rush of vehicles and life along the road came back to normal.

**Table 5.5.3: Data of vehicles inflow in Yamuntri Dham in last 13 years**

Year	Heavy vehicles	Two-wheeler
2011	7117	24447
2012	5486	22357
2013	3076	11754
2014	371	3130
2015	1868	8612
2016	2992	10393
2017	7142	22691
2018	11692	24155
2019	7472	37547
2020	56	3194
2021	1258	2768
2022	12405	32368
2023	10599	60285
2024	11427	61547



**Fig. 5.5.3: Graph showing data of vehicle inflow**



## 6. Overall field work progress

**Table 6.0: Progress of different objectives of field work**

Work	Kedarnath	Gangotri	Yamunotri	Hemkund Sahib
• Tourist survey	300+ surveys done	300+ surveys done	350+ surveys done	350+ surveys done
• Mules'/Kandi owner survey	✓	No Need	✓	✓
• Business owner survey	✓	Yet to be done	✓	✓
• Environmental awareness	Yet to be done	Yet to be done	✓	Yet to be done
• Environmental compliances	✓	✓	✓	✓
• Vegetation Survey	✓	No Need	No Need	Yet to be done
• Hotel carrying capacity	ongoing	✓	ongoing	ongoing
• Mule carrying capacity	Yet to be done	Yet to be done	Yet to be done	Yet to be done

## 7. Constraints during Field Work

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- Early arrival of monsoon.
- Some departments do not have data record and some are not providing data even after multiple consultation.
- Expenses at the sites are high, due to which we are not on site for longer durations which leads to shorter survey period.
- Some departments are not providing data.

## 8. Way Forward

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- Conduct remaining questionnaire survey and other project related field work.
- Data entry and analysis
- Documenting the findings and drafting the management plan



## 9. Annexure

The below attached datasheet was used for the interviewing the tourist. As already discussed above the datasheet covers various aspects of tourist perspective about the management of the Char Dham.

Tourist Datasheet

Name:

Place:

Date:

Age:

Gender:

Country/State:

S.No	Questions	Response					
1.	Purpose of visit?	<input type="checkbox"/> Pilgrimage	<input type="checkbox"/> Business	<input type="checkbox"/> Fun	<input type="checkbox"/> Other		
2.	Frequency of visits?	<input type="checkbox"/> First time	<input type="checkbox"/> Occasionally	<input type="checkbox"/> Frequently			
3.	How did you travel?	<input type="checkbox"/> Public Transport	<input type="checkbox"/> Private Taxi	<input type="checkbox"/> 2-wheeler	<input type="checkbox"/> Personal Car/UV		
4.	Was there any traffic jam, if yes where and why?						
5.	How do you find the transportation availability?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	<input type="checkbox"/> I came in my own vehicle
6.	Rate the road infrastructure like road condition, regulatory signage, etc.	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	
7.	Type of stay and where?	<input type="checkbox"/> Hotel/Homestay	<input type="checkbox"/> Dharamshala	<input type="checkbox"/> Guesthouse	<input type="checkbox"/> Camp/tent	<input type="checkbox"/> No stay	

8.	Rate the hygiene of the stay facility	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	
9.	Rate affordability as per facilities provided.	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	
10.	Did you see any type of harm/damage to environment, if yes, then what type?						
11.	Did you use a public urinal? If yes, rate its cleanliness?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	<input type="checkbox"/> Did not use any
12.	Rate cleanliness of the pilgrim/tourist site?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor	
13.	Did you face any trouble/problems with locals, shop owners, paalki walas and mule owners during your visit? If yes, what and how was it managed?						
14.	Rate the law enforcement of the place as per your experience during the visit.	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor
15.	Rate the Healthcare/medical infrastructure, if used any.	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor
16.	Did you witness any prohibited/illegal activity during your visit, if yes, what?						
17.	Can site accommodate more tourists?	<input type="checkbox"/> Yes			<input type="checkbox"/> No	17.	
18.	Rate the comfort of space use of the track and pilgrimage site?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor
19.	Rating on public information services regarding Yatra?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor
20.	Food and beverage rating?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor	<input type="checkbox"/> Very poor

21.	Overall satisfaction level?	<input type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair		<input type="checkbox"/> Poor <input type="checkbox"/> Very poor
22.	Would you recommend this site to others, why?	<input type="checkbox"/> Yes			<input type="checkbox"/> No	
23.	Suggestions for improvement?					