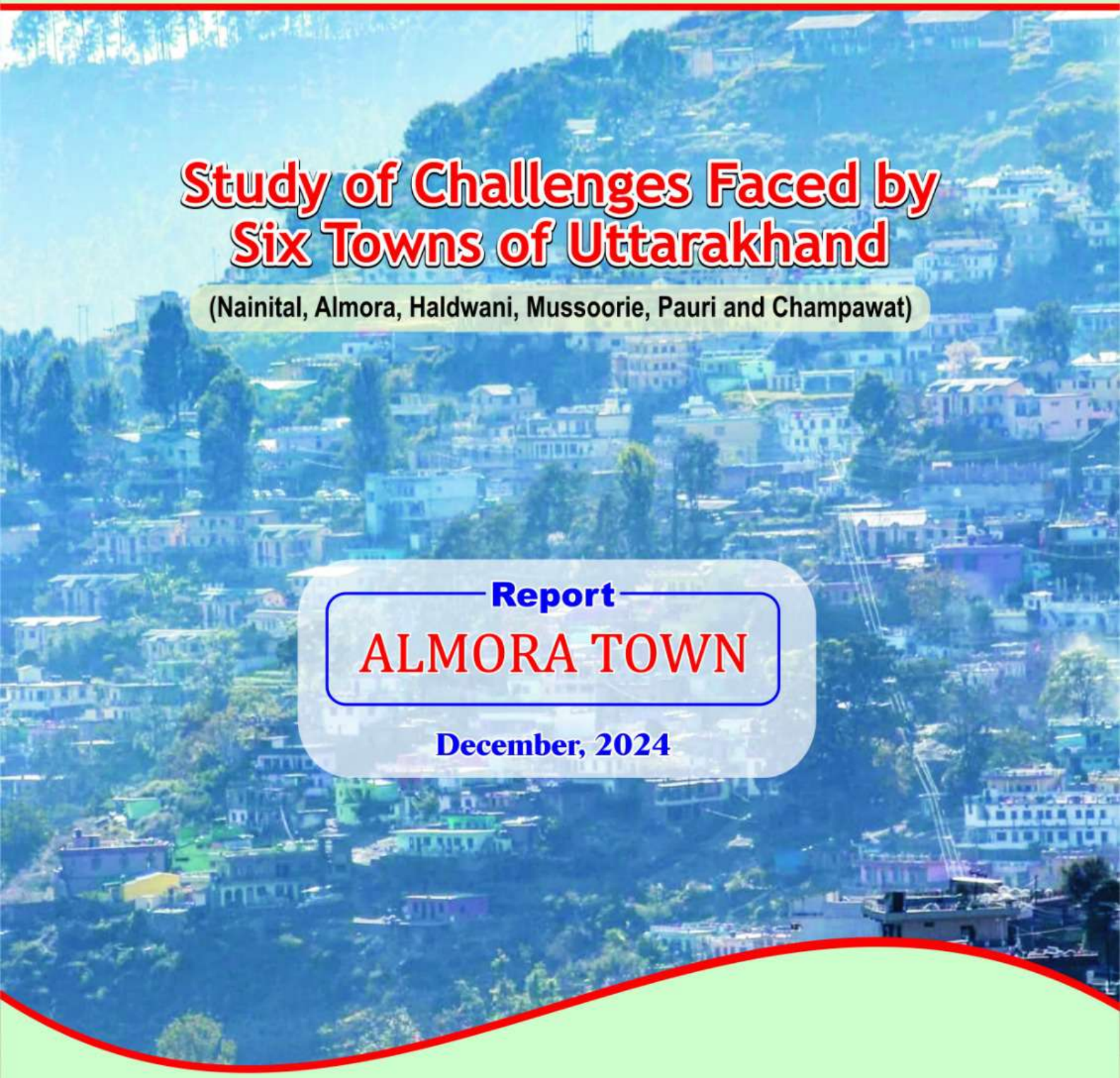

Study of Challenges Faced by Six Towns of Uttarakhand

(Nainital, Almora, Haldwani, Mussoorie, Pauri and Champawat)

Report

ALMORA TOWN

December, 2024

State Institute of Urban Development

Dr. R. S. Tolia Uttarakhand Academy of Administration, Nainital

Study of Challenges Faced by Six Towns of Uttarakhand

(Nainital, Almora, Haldwani, Mussoorie, Pauri and Champawat)

Research Project Report -

Almora Town

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Department of Housing,
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FOREWORD

It is a matter of satisfaction that the State Institute of Urban Development (SIUD) is publishing this research study, a collaborative effort between the State Institute of Urban Development (SIUD), Dr. R.S. Tolia Uttarakhand Academy of Administration, Nainital, and the School of Planning and Architecture (SPA), New Delhi. This study covers six prominent towns of Uttarakhand—Nainital, Mussoorie, Almora, Pauri, Champawat, and Haldwani—and focuses on three crucial urban sectoral areas: Solid Waste Management, Urban Transportation & Parking, and Water Availability & Supply.

Uttarakhand's hilly towns face unique urban challenges due to their geographical constraints, fragile ecosystems, increasing pressures of urbanization, and tourist inflows. These challenges are further exacerbated by fast-changing land use patterns and the impacts of climate change. Addressing these issues requires well-researched, practical, and sustainable solutions. The findings of this study provide valuable insights that will assist Urban Local Bodies (ULBs), policymakers, and planners in devising effective strategies for urban management in the region.

I take this opportunity to commend the dedicated efforts of the research team from SPA, New Delhi, and SIUD, Nainital, for their meticulous fieldwork, stakeholder consultations, and data-driven analysis. Their work will serve as an important reference document for urban development practitioners in Uttarakhand and beyond.

I am confident that this study will contribute significantly to the ongoing discourse on sustainable urbanization in the Himalayan region and inspire further research and action toward resilient and efficient urban management.

(B. P. Pandey)

Nitesh Kumar Jha I.A.S.
Secretary

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MESSAGE

I am pleased to note that the State Institute of Urban Development (SIUD), Dr. R.S. Tolia Uttarakhand Academy of Administration, Nainital, in collaboration with the School of Planning and Architecture (SPA), New Delhi, has undertaken an important research study on the challenges faced by six towns of Uttarakhand — Nainital, Almora, Haldwani-Kathgodam, Mussoorie, Pauri and Champawat. This study focuses on three critical urban issues: Solid Waste Management, Urban Transportation & Parking, and Water Availability & Supply. Urbanization in hilly regions presents unique challenges that require innovative and sustainable solutions. The recommendations from this study will undoubtedly contribute to policy formulation, improved urban governance, and enhanced quality of life for residents of these towns. Addressing these issues effectively demands collaboration between Urban Local Bodies, related Parastatal Organisations, the Private Sector, and communities. I am also delighted that the State Institute of Urban Development is publishing this research study, which will serve as a valuable resource for Urban Local Bodies (ULBs), policymakers, and urban planners and will enable them to develop informed strategies that are key to ensuring that our towns become more liveable, sustainable, and resilient. I extend my best wishes to the Dr. R.S. Tolia Uttarakhand Academy of Administration, SIUD Nainital, and SPA New Delhi for their commendable efforts in addressing the pressing urban challenges of Uttarakhand.

(Nitesh Kumar Jha)

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ACKNOWLEDGMENT

We are thankful to Dr. R. S. Tolia Uttarakhand Academy of Administration, Nainital, Uttarakhand for giving us an opportunity to undertake this research study. We place on record our gratitude to Shri Bhagwati Prasad Pandey, IAS (Retd.), Director General, Dr. R. S. Tolia Uttarakhand Academy of Administration, Nainital, Dr. Mahesh Kumar, Joint Director, Dr. R. S. Tolia Uttarakhand Academy of Administration, Nainital, and Shri Manoj Pande, Programme Director, State Institute or Urban Development (SIUD), Dr. R. S. Tolia Uttarakhand Academy of Administration, Nainital, for their support. We are also thankful to Smt. Ragini Tiwari, Consultant, KRC, DRSTUAoA and Smt. Asha Joshi, Training Manager, SIUD from DRSTUAoA for their support. We also thank all the officers of various organizations for providing us with valuable data and actively participating in the consultations.

Further to the Stakeholder's meeting on 31st August 2024, the valuable suggestions made have been duly incorporated.

Subsequently a Post Study Workshop was held at Nainital on 10th December, 2024 and valuable suggestions given have also been incorporated.

24th December 2024

(Prof. Dr. P. S. N. Rao)
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Abbreviations Used

ADB	Asian Development Bank
BPL	Below Poverty Line
CPHEEO	Central Public Health and Environmental Engineering Organization
DCHB	District Census Handbook
GoI	Government of India
GIS	Geographic Information Systems
HH	Household
IoT	Internet of Thing
kL	Kilo Litre
Km	Kilo Meter
MLD	Million Litres per Day
MSWM	Municipal Solid Waste Management
MTPD	Metric Tonnes Per Day
NA	Not Available
NH	National Highway
NP	Nagar Panchayat
NN	Nagar Nigam
OHT	Over Head Tank
PJNU	Pey Jal Nigam Uttarakhand
PPH	Person Per Hectare
PPP	Public Private Partnership
PWD	Public Works Department
SC	Schedule Caste
ST	Schedule Tribe
SWM	Solid Waste Management
TCPO	Town and Country Planning Organization
ToR	Terms of Reference
UCOST	Uttarakhand State Council for Science & Technology
UJS	Uttarakhand Jal Sansthan
ULB	Urban Local Body
URDPFI	Urban and Rural Development Plan Formulation and Implementation Guidelines 2014, MOHUA, GOI
MOHUA	Ministry of Housing and Urban Affairs

Chapter 1.

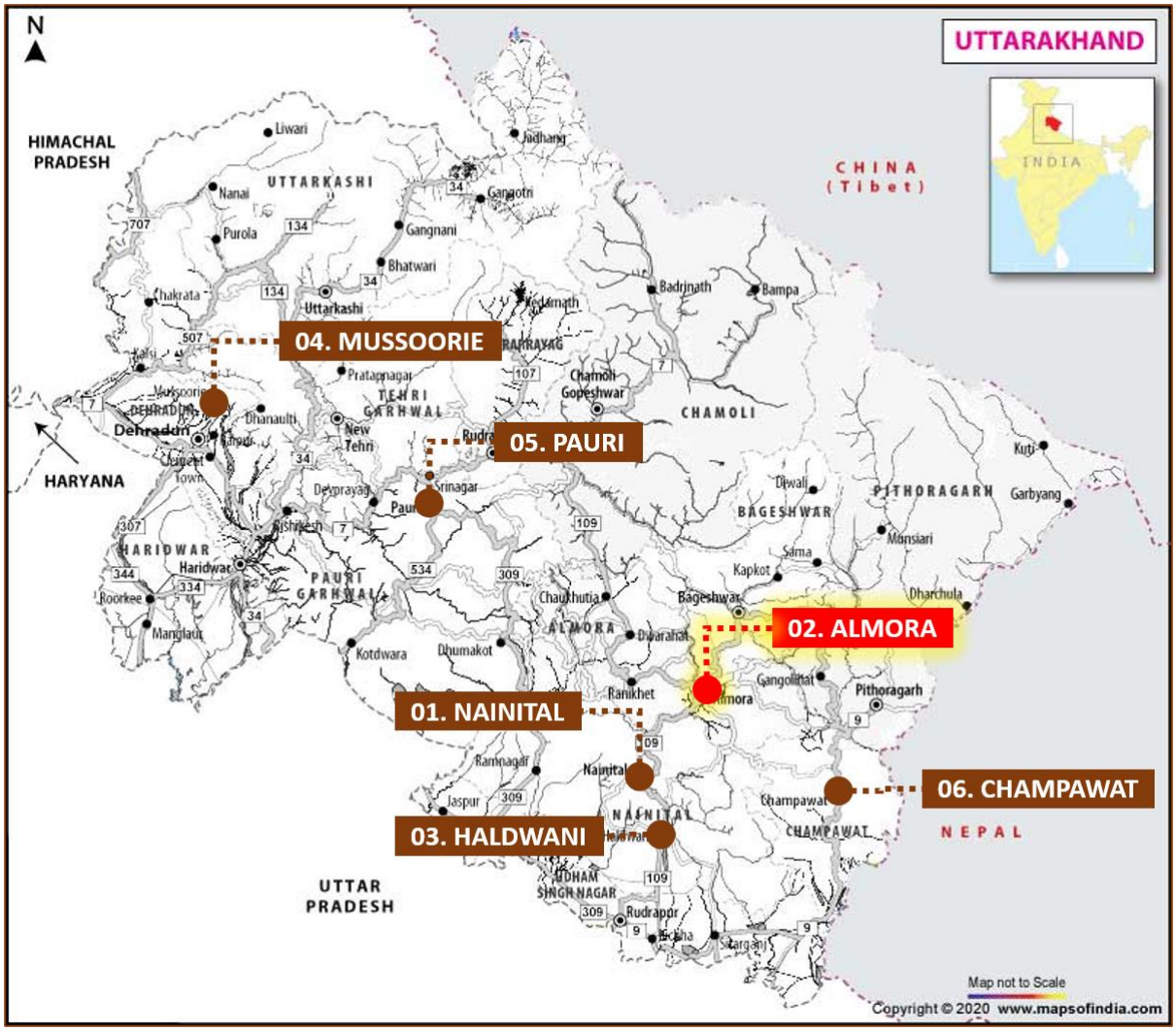
Introduction

Chapter 1. Introduction

This Final Report is for Almora Town as required in the Terms of Reference (ToR). It contains the proposed Scope of Work under each of the three activities i.e. a) Solid Waste Management b) Urban Transport and Parking and c) Water Availability and Supply, Methodology, detailed Plan of Action, Timeframe for completing the tasks, State Profile, and Town Profile.

The Map 1 below shows the location of the study-area i.e. all the six towns namely: Nainital, Almora, Haldwani, Mussoorie, Pauri and Champawat in the state of Uttarakhand.

Map 1: Location Map of all the Six Towns Highlighted on the Thematic Map of the State of Uttarakhand



Source: Base Map: (Maps of India, 2024)

From all the above-mentioned areas this report is for Almora Town.

Chapter 2.

Objectives of Research Project

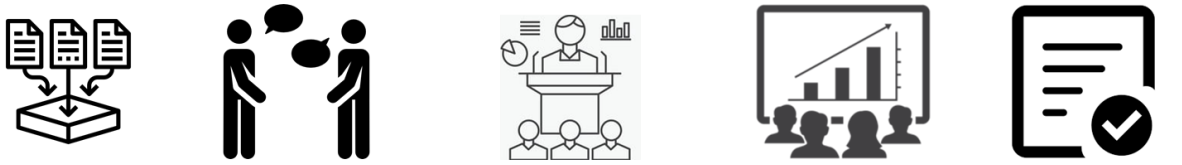
Chapter 2. Objectives of Research Project

The broad focus of the research study is to analyse and understand the current situation and the issues related to the Municipal Solid Waste Management (MSWM), the Urban Transportation and Parking and Water Availability and Supply in selected towns of Uttarakhand Viz. Nainital, Almora, Haldwani, Mussoorie, Pauri and Dehradun. The SPA Delhi shall conduct a comprehensive study to provide actionable recommendations to improve the sectoral areas.

The objectives of the Research Project are:

1. To collect the baseline secondary data on the identified sectorial issues.
2. To conduct field visits in various areas of the town.
3. To identify, classify and characterize the stakeholders, carry out consultation with the stakeholders to understand issues and challenges better, and collect opinions and suggestions on countermeasures to mitigate challenges.
4. To assess the urban problems and suggest appropriate regulations.
5. To carry out consultation with the leveraging of the latest technology and seeking smart solutions.

Figure 1: Objectives of the Research Project



01.	02.	03.	04.	05.
To **collect** the baseline **secondary data** on the identified sectorial issues.	To conduct **Field Visits** in various areas of the town .	To identify, classify and characterize the stakeholders, **carry out consultation with the stakeholders** to understand issues and challenges better, and collect opinions and suggestions on countermeasures to mitigate challenges.	To **assess** the urban problems and suggest appropriate regulations.	To carry out consultation with the leveraging of the latest technology and seeking smart **solutions**.

Chapter 3.
Scope of Work

Chapter 3. Scope of Work

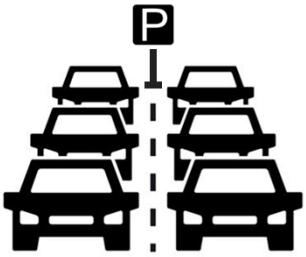
In this report Almora Town will be covered for following parameters as mentioned in ToR.

a) Solid Waste Management.

b) Urban Transport and Parking.

c) Water Availability and Supply.

A.
Solid Waste Management



B.
Urban Transport and Parking

C.
Water Availability and Supply

The present issues related to the above-mentioned parameters in Almora Town are identified in this report. Along with this a Stakeholder Consultation Meeting was also conducted on 31st August, 2024. After the brainstorming sessions in the Stakeholder Consultation Meeting appropriate possible solutions and suggestions for improvement are prepared and recommended in this report based on the feedback provided by the officials for Almora Town.

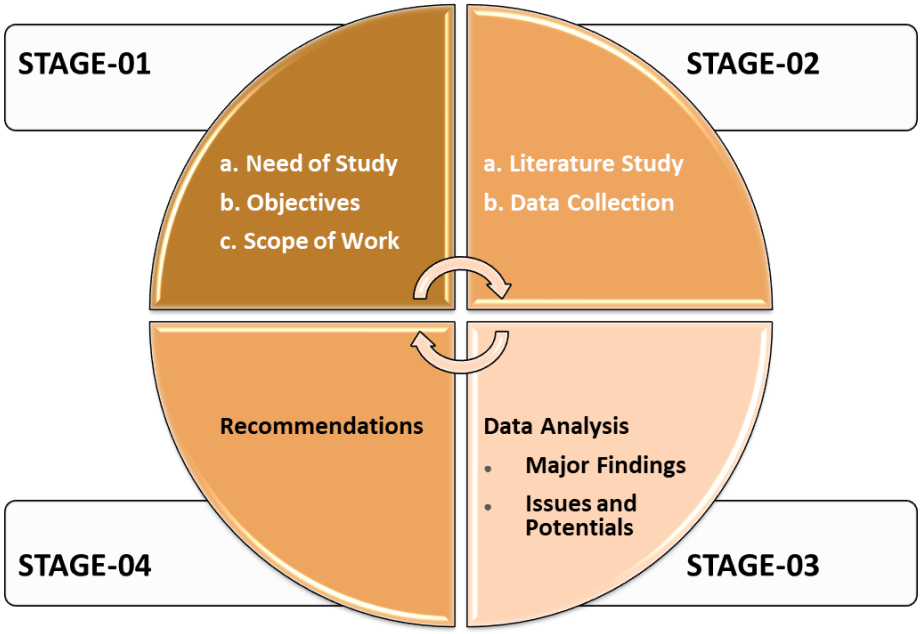
Chapter 4.

Methodology

Chapter 4. Methodology

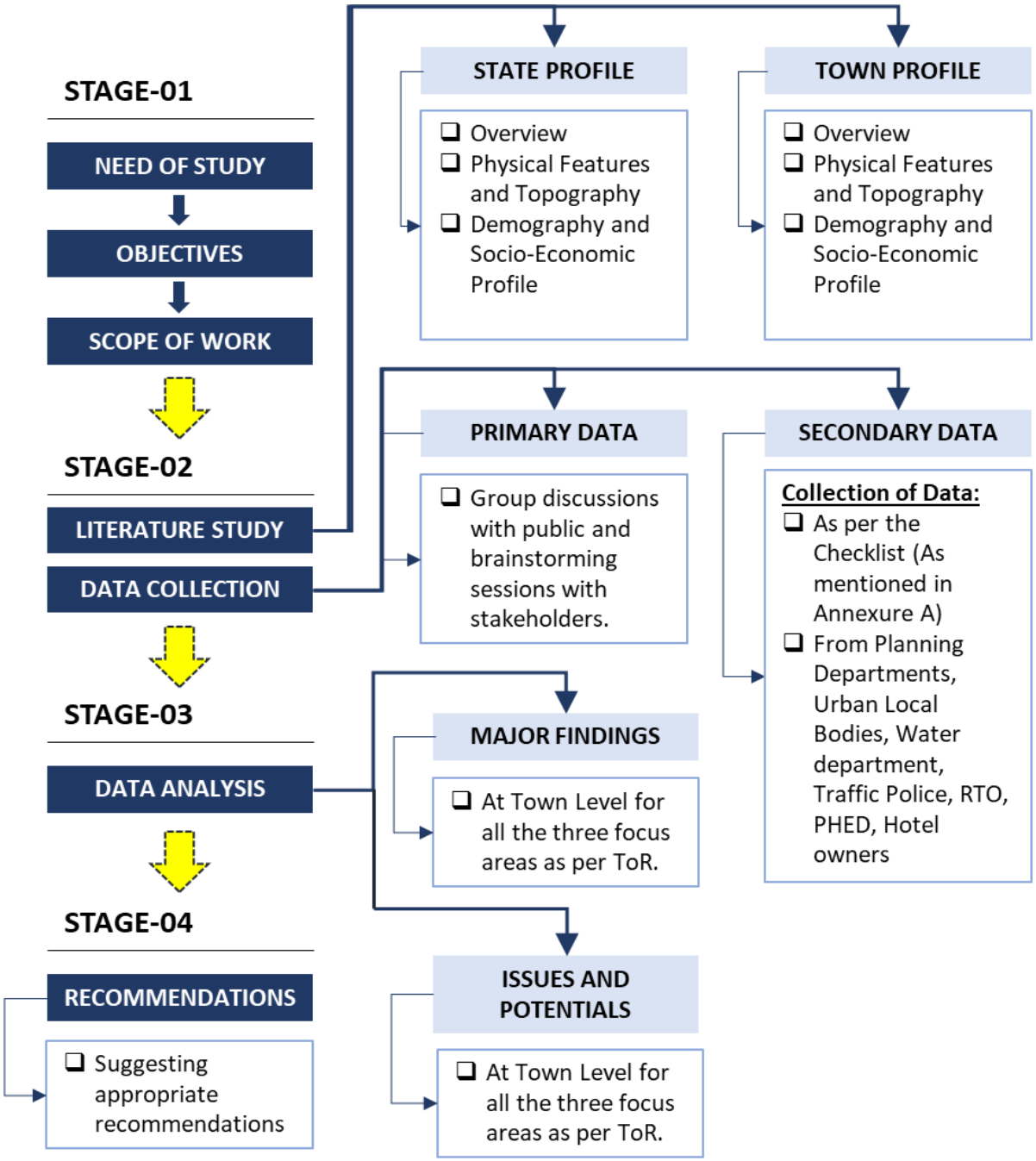
The Research Project Methodology is divided into four stages namely Stage-01, Stage-02, Stage-03 and Stage-04, as shown in Figure 2. Stage-01 consists of: the Need of Study, the Objectives defined and the Scope of Work as mentioned in the ToR. Stage-02 consists of Literature Study and Data Collection for the Research Project for the parameters mentioned in the Scope of Work. Stage-03 consists of the Data Analysis based on the Major Findings and Issues and Potentials Identified and the final Stage-04 consists of the possible solutions and suggestions for improvement along with appropriate recommendations based on the previous stages and brainstorming sessions with the stakeholders in stakeholder consultation meeting, held on 31st August 2024 for Almora Town.

Figure 2: Methodology Stage Chart



The detailed work-flow for the above-mentioned Methodology Stage Chart is described in Figure 3 below.

Figure 3: Methodology Flow Chart



4.1. Data collection tools

Table 1: Data Collection Tools

Primary Data	• Group discussions with public and brainstorming sessions with stakeholders.
Secondary Data	• Collection of data from TCPO, Uttarakhand, Nagar Nigam, PWD, Traffic Police, Police Department, RTO, Uttarakhand Jal Sansthan, Uttarakhand Pey Jal Nigam, Hotel owners, Tourism Department, NGOs and other Government offices Identified. • Government Websites and Reports available.

4.2. Data Analysis Plan

The data analysis is further divided into three parts:

First stage:

- Detailed analysis of all the data collected for each town.
- Comparative data analysis for each town for the three focus areas as per ToR.
- Providing inferences as per the above study.

Second stage:

- Identifying the major findings driven from the inferences of the first stage
- Identifying Issues and potential

Third stage:

- Prepare implementable action plans
- To assess the identified issues and potential and suggest appropriate recommendation.

Chapter 5.

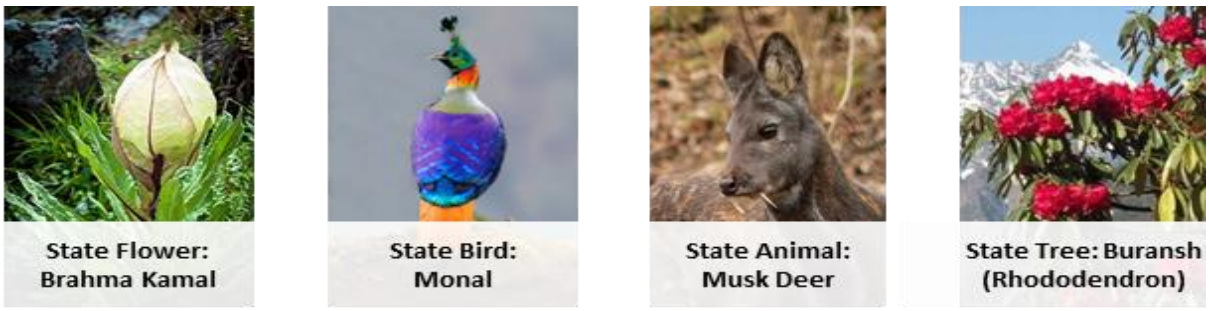
Uttarakhand – A Profile

Chapter 5. Uttarakhand – A Profile

5.1. Overview

Formerly called Uttaranchal, Uttarakhand at present is the 27th State of India. It was formed on 9th November 2000 out of the Hills Districts of Uttar Pradesh and is the 19th largest State of India with respect to its geographical area. It is also known as the "Devbhoomi" (The Land of Gods) because of its various holy places and shrines. It is popular for its scenic beauty, cultural heritage and simplicity of its people. A great tourist destination because of its religious significance and natural beauty. It pilgrimages to the sacred Char Dhams of Uttarakhand: Sri Gangotri, Sri Yamunotri, Sri Badrinath and Sri Kedarnath. The State flower is Brahma Kamal, State Bird is Monal, State Animal is Musk Deer and State Tree is Buransh (Rhododendron) as shown in Image 1.

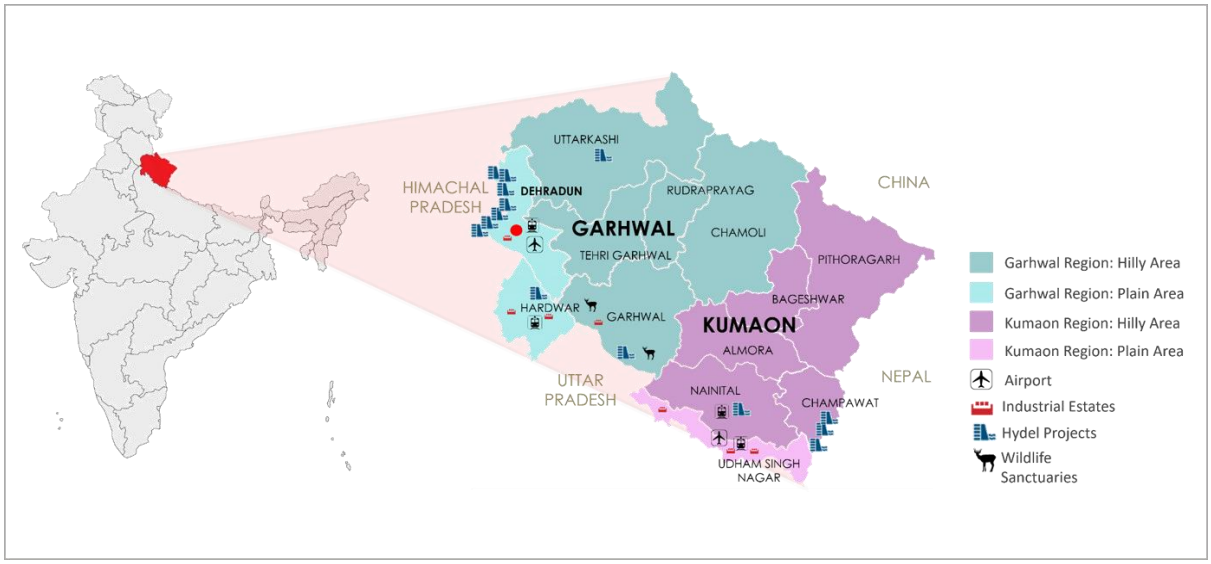
Image 1: Uttarakhand State Flower, Bird, Animal and Tree Image



Source: (Google Images, 2024)

As shown in Map 2, Uttarakhand is situated on the Northern part of India and located on the foothills of the Himalayan Mountain ranges. The state lies in between 28°43' – 31° 27' N Latitudes and 77°34' – 81° 02' E Longitudes. It has a land spread over an area of around 53,483 sq. km. Uttarakhand is at a distance of 355 km from Delhi, NCT of India.

Map 2: Thematic Map of India Highlighting the Location of the State of Uttarakhand and its Administrative Division, Location of: Airport, Industrial Estates, Hydel Projects and Wildlife Sanctuaries



Source: Base Map: (Google Images, 2024) and (Thematic Map Library, Uttarakhand.org, 2024)

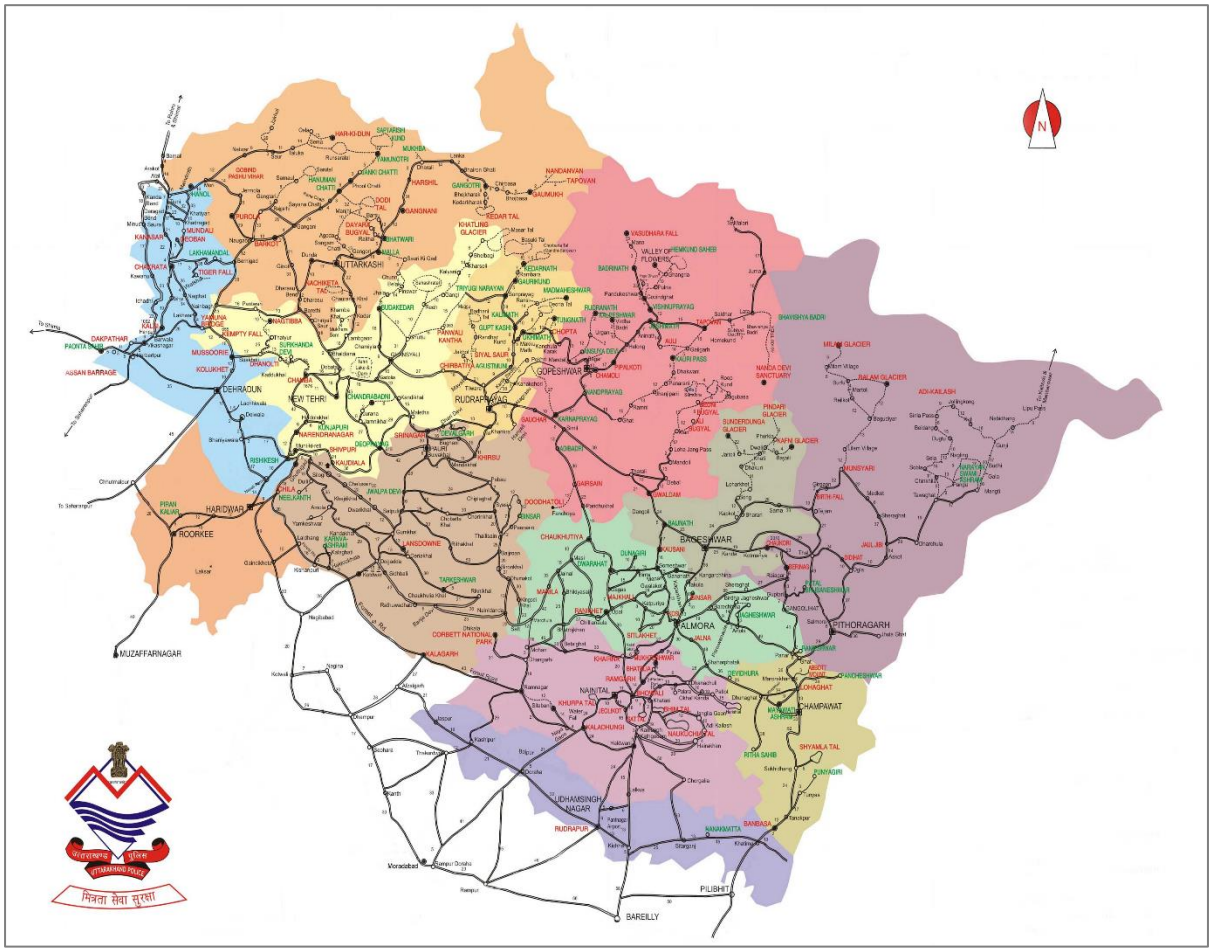
As shown in Map 3, the State of Uttarakhand shares international and inter-state boundaries. It shares its boundaries with China in the North, Nepal in the East, Himachal Pradesh in the West and Uttar Pradesh in the South. The state is broadly divided into two main regions known as Garhwal and Kumaon. It further comprises 13 districts namely Dehradun (State Capital), Haridwar, Udham Singh Nagar, Uttarkashi, Tehri Garhwal, Pauri Garhwal, Nainital, Champawat, Rudraprayag, Chamoli, Almora, Bageshwar and Pithoragarh.

Map 3: Thematic Map of the State of Uttarakhand's Administrative Division

Source: Base Map: (Thematic Map Library, Uttarakhand.org, 2024)

As shown in Map 4, the State provides major connectivity through its road network. As per the (Public Works Department, Government of Uttarakhand, 2024), the State exhibits a huge network of roads consisting National Highways of 2,091.34 km road length, State Highways of 4,516.91 km road length, Major District Roads of 2,113.17 km road length, Other District Roads of 2,714.60 km road length, Village Roads of 23,953.58 km road length, Light Vehicle Road of 536.68 km road length and Bridle Roads/ Border Tracks of 3,580.25 km road length. There are more than 1000 major bridges in the State. Uttarakhand Transport Corporation (UTC) is the public sector passenger road transport corporation that provides bus services in the State.

Map 4: Road Network Map of Uttarakhand

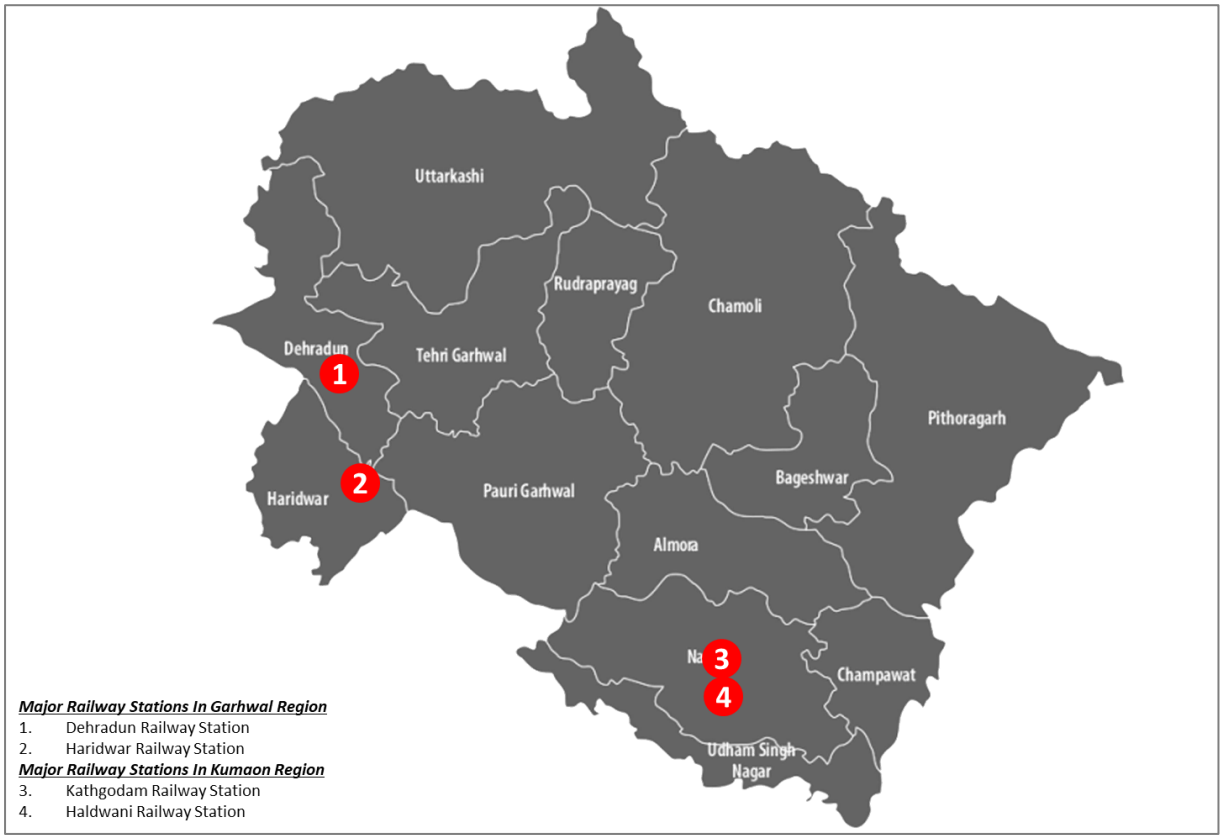


Source: (Traffic Directorate Uttarakhand Police, 2024)

As per (Traffic Directorate Uttarakhand Police, Government of Uttarakhand, 2024), approximately 86% of the geographical area of the State consists of hills due to this the State has a very limited railway network (345 km), largely confined to the plains.

As shown in Map 5, major railway station in the Garhwal Region is situated in Dehradun (one of the main heads of the Northern Railway region) and Haridwar. While major railway station in the Kumaon Region is at Kathgodam (the last terminus of the broad-gauge line of the North East Railways) and Tanakpur. Other railway junctions include Pantnagar, Lalkuan, Haldwani, Roorkee, Rishikesh, Kotdwara, Ramnagar and Rudrapur.

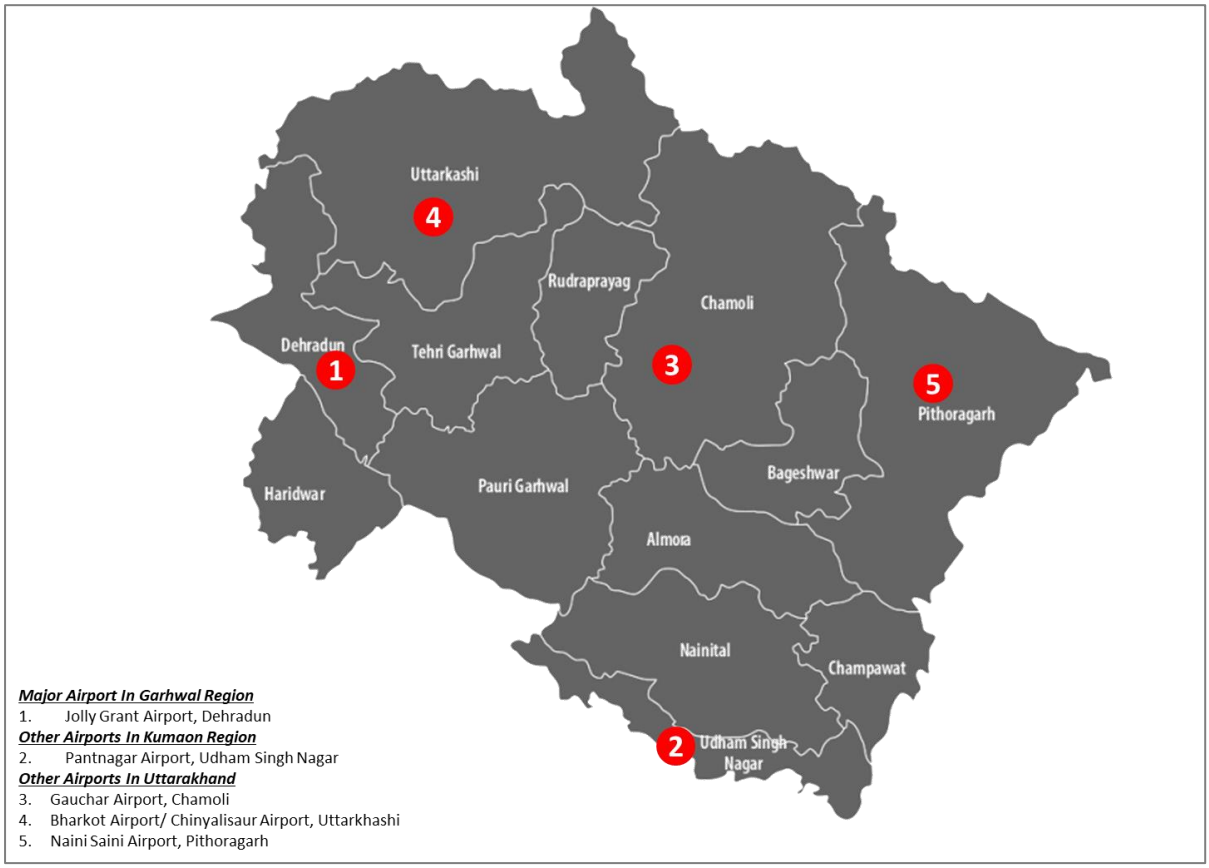
Map 5: Major Railway Stations in the Garhwal and Kumaon Region of Uttarakhand



Source: Basemap: (Google Images, 2024), Author

As per the (euttaranchal, 2011), the State has a total of five airports. Out of these five, two are major domestic airports, namely: Jolly Grant Airport (primary airport) in Dehradun District and Pant Nagar airport in Udham Singh Nagar District. The Gauchar Airport in Chamoli District is operated by the Indian Army and provides helicopter services for the Char Dham Yatra. The Bharkot Airport or the Chinyalisaur Airport in Uttarkashi District is presently used as an Advanced Landing Ground (ALG) by the Indian Airforce. The Naini Saini Airport in Pithoragarh District is used for authoritative utilize. The primary airport (Jolly Grant Airport) of the State is located at a distance of 35 km from Dehradun town. The Map 6 below shows the location of all the five airports in Uttarakhand.

Map 6: Major Airports in Uttarakhand



Source: Basemap: (Google Images, 2024), Author

The following Table 2, shows the detailed overview for the State of Uttarakhand.

Table 2: Overview of the State of Uttarakhand, India (Census 2011)

GEOGRAPHICAL LOCATION	
Country	India
Situated on	Northern part of India on the foothills of Himalayan Mountain Range
State	Uttarakhand
State Capital City	Dehradun
Latitude	28°43' – 31° 27' N
Longitude	77°34' – 81° 02' E
Geographical Area (Total) Geographical Area (Urban) Geographical Area (Rural)	53,483 sq. km.
Total Forest Area	38,000 sq. km.
Average elevation (ASL)	1,938 m
Surrounded by	North: China East: Nepal West: Himachal Pradesh South: Uttar Pradesh
POPULATION DATA	
Total Population Total Urban Population Total Rural Population	100, 86,292 (100%) 30, 49,338 (30%) 70, 36,954 (70%)
Male Population (Total) Male Population (Urban) Male Population (Rural)	51, 37,773 (100%) 16, 18,731 (32%) 35, 19,042 (68%)
Female Population (Total) Female Population (Urban) Female Population (Rural)	49, 48,519 (100%) 14, 30,607 (29%) 35, 17,912 (71%)
Population Density (Overall) Population Density (Urban) Population Density (Rural)	189 per sq. km.
Population Growth-Rate (2011) (%)	18.81
Average Literacy Rate (%) (Overall) Average Literacy Rate (%) (Urban) Average Literacy Rate (%) (Rural)	78.82 84.45 76.31
Male Literacy Rate (%) (Overall) Male Literacy Rate (%) (Urban) Male Literacy Rate (%) (Rural)	87.40 89.05 86.62
Female Literacy Rate (%) (Overall) Female Literacy Rate (%) (Urban) Female Literacy Rate (%) (Rural)	70.01 79.25 66.18
Sex-Ratio (female per thousand male) (Overall) Sex-Ratio (female per thousand male) (Urban) Sex-Ratio (female per thousand male) (Rural)	963 884 1,000

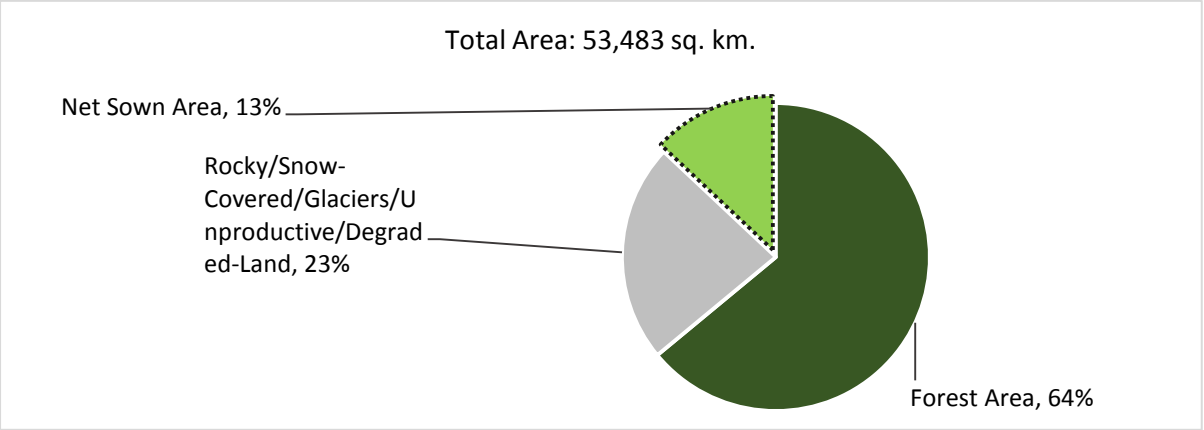
ADMINISTRATIVE SET UP	
Number of Divisions	2 Garhwal Division Kumaon Division
Number of Districts	13
Number of Tehsils	110
Number of Sub-Tehsils	18
Number of Development Blocks	95
Number of Nyaya Panchayats	662
Number of Gram Panchayats	7796
Number of Census Villages	16,793
Number of Nagar Nigam	9
Number of Nagar Nigam	42
Number of Nagar Panchayats	52
Number of Cantonment Board	9
Number of Census Towns	41
Number of Industrial Townships	02
Number of Development Authority	14
Number of Lok Sabha Constituency	05
Number of Rajya Sabha Constituency	03
Number of Vidhan Sabha Constituency	70

Source: (Census India, 2011), (State Disaster Management Plan, Volume-1, 2020-21) and (Uttarakhand At A Glance , 2021-22)

5.2. Physical Features and Topography

The State is rich in natural resources like water and forests with many glaciers, rivers, dense forests land, snow-clad mountain peaks and 175 rare species of aromatic and medicinal plants. As shown in Figure 4, out of the total geographical area (53,483 sq.km.) of the State, almost 64% of the total geographical area of the state is under forests, 23% is under permanent snow cover, glaciers and steep slopes and only 13% area is available under the net sown area in the State.

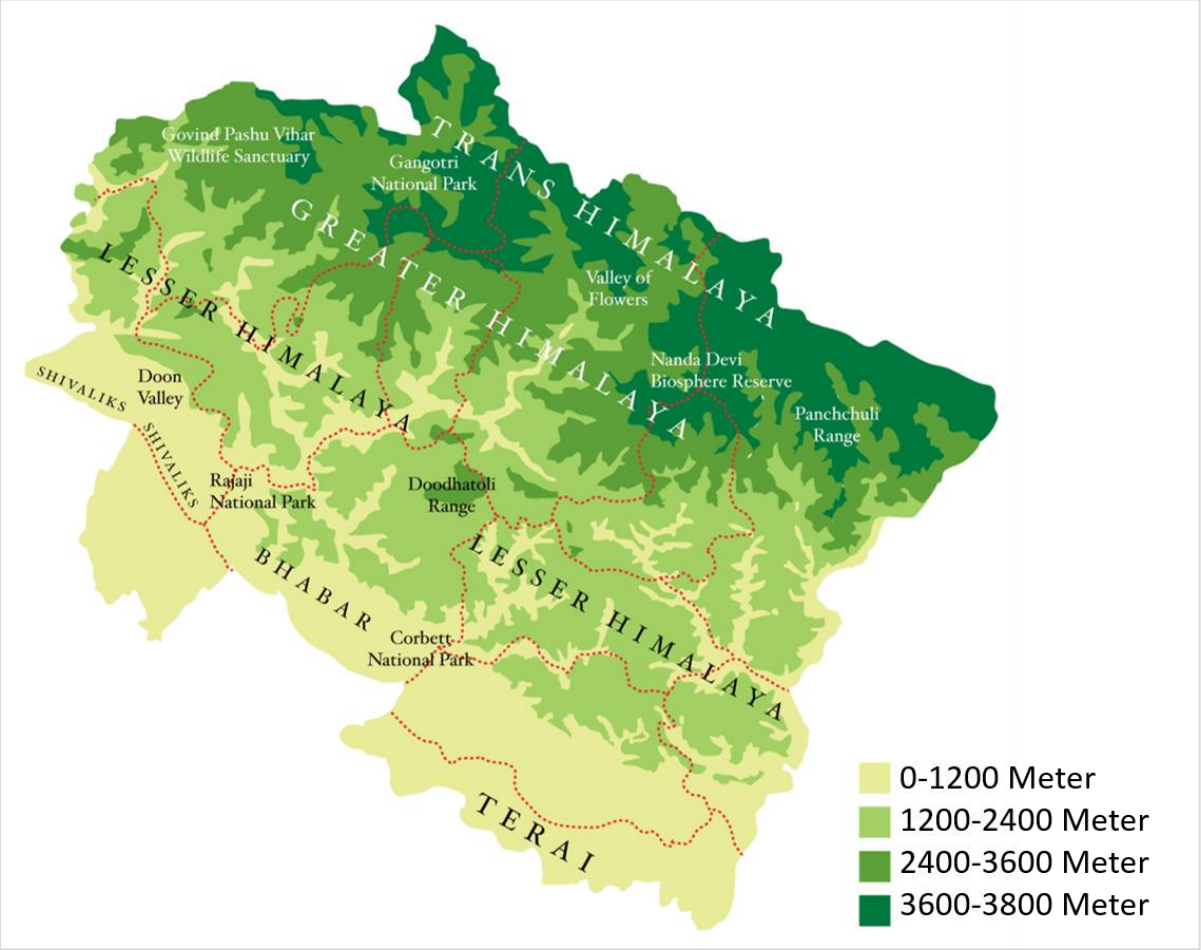
Figure 4: Percentage of Area Distribution of Uttarakhand (Census 2011)



Source: (District Census Handbook, 2011)

As shown in Map 7, being a part of the Western Himalayas, Uttarakhand's terrain is categorised into four altitudes namely: 0-1200 meters (Terai, Bhabar and Shivalik), 1200-2400 meters (Lesser Himalaya), 2400-3600 meters (Greater Himalaya) and 3600-3800 meters (Trans Himalaya). There is a huge geographical range within the State which sometimes acts as a major constraint for the overall development of the state as around 86% of the State is hilly terrain. As per the (Government of Uttarakhand: State Profile), the State is rich in mineral deposits like limestone, marble, rock phosphate, dolomite, magnesite, copper, gypsum, etc.

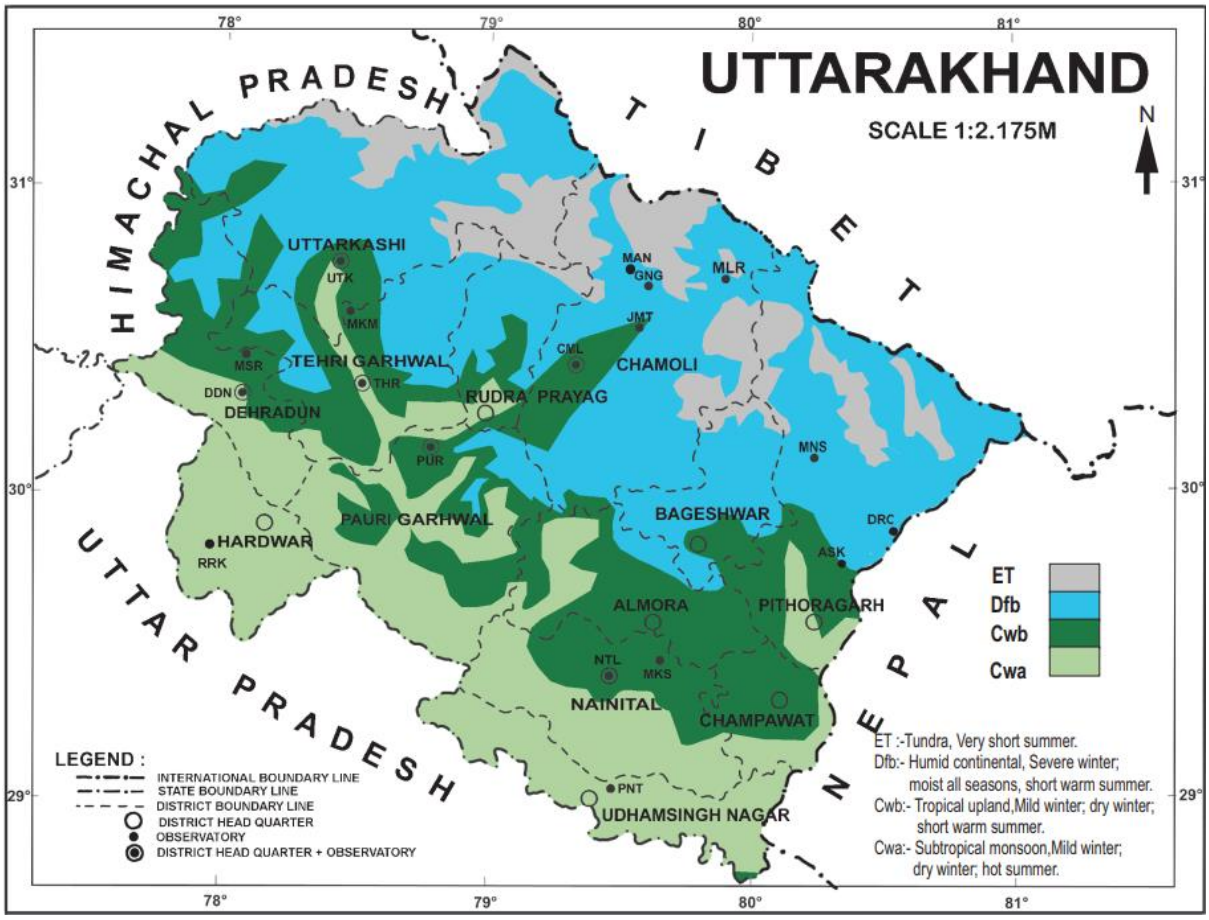
Map 7: Terrain Map of Uttarakhand



Source: (Thematic Map Library, Uttarakhand.org, 2024)

As shown in Map 8, the State has all the major climatic zones varying from hot and sub-tropical at the lower elevations to cold alpine climate (summers are cool and winters are harsh) at higher elevations. Warm and cool temperate climate persists over the areas in between. Due to this vivid range of climatic conditions the State has a variety of horticulture, floriculture and agriculture.

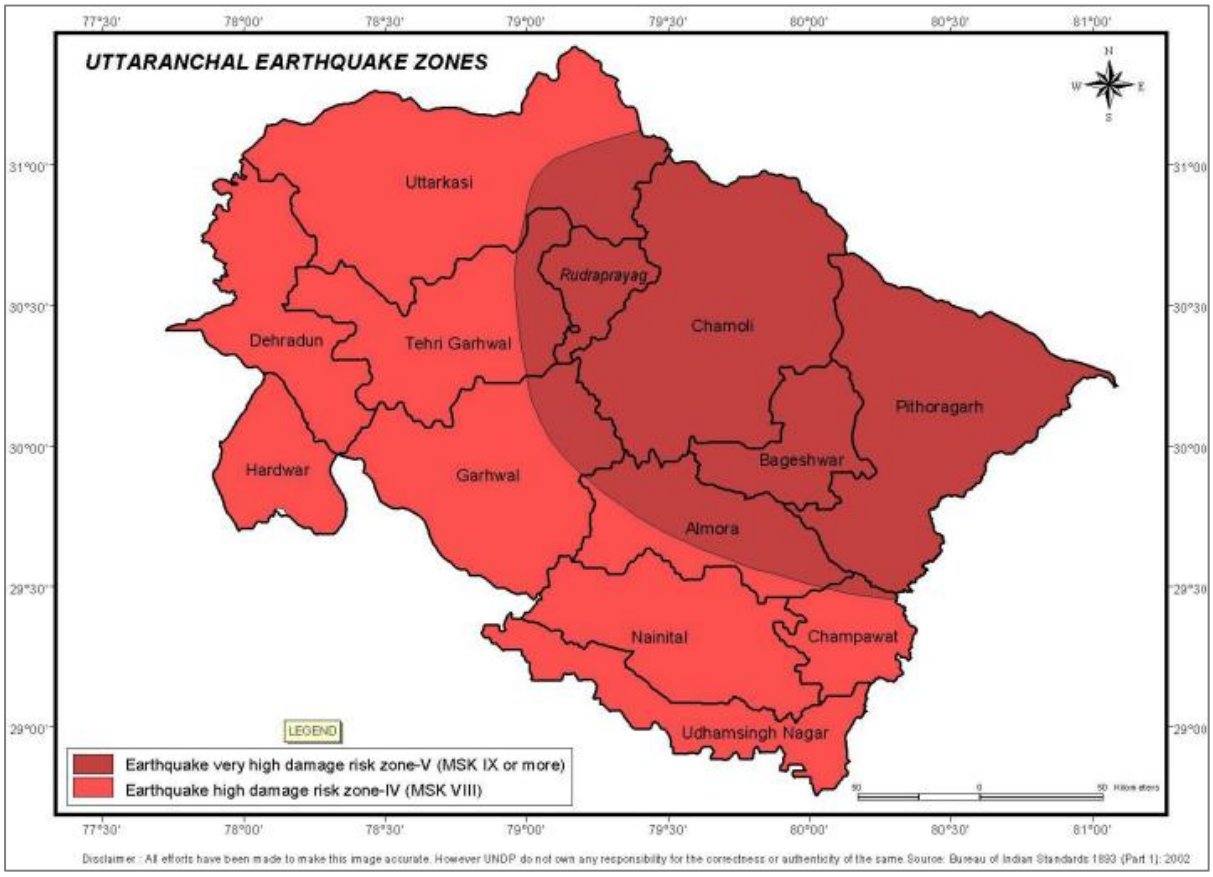
Map 8: Climate Classification of Uttarakhand



Source: (Climate of Uttarakhand, 2014)

As per (State Disaster Management Plan, Volume-1, 2020-21), as the State falls under the Zone IV and V of Earthquake Zonation Map, Uttarakhand is prone to natural disasters. It frequently faces natural disasters like earthquakes, landslides, cloudburst, flash floods, floods, avalanches, droughts, lightening, forest fires, cold waves and hailstorms. Apart from these man-made disasters like Industrial Disasters and weather hazards like Western Disturbances (during winters) also affects the State. Map 9 below, depicts the Earthquake Zonation Map for the State of Uttarakhand.

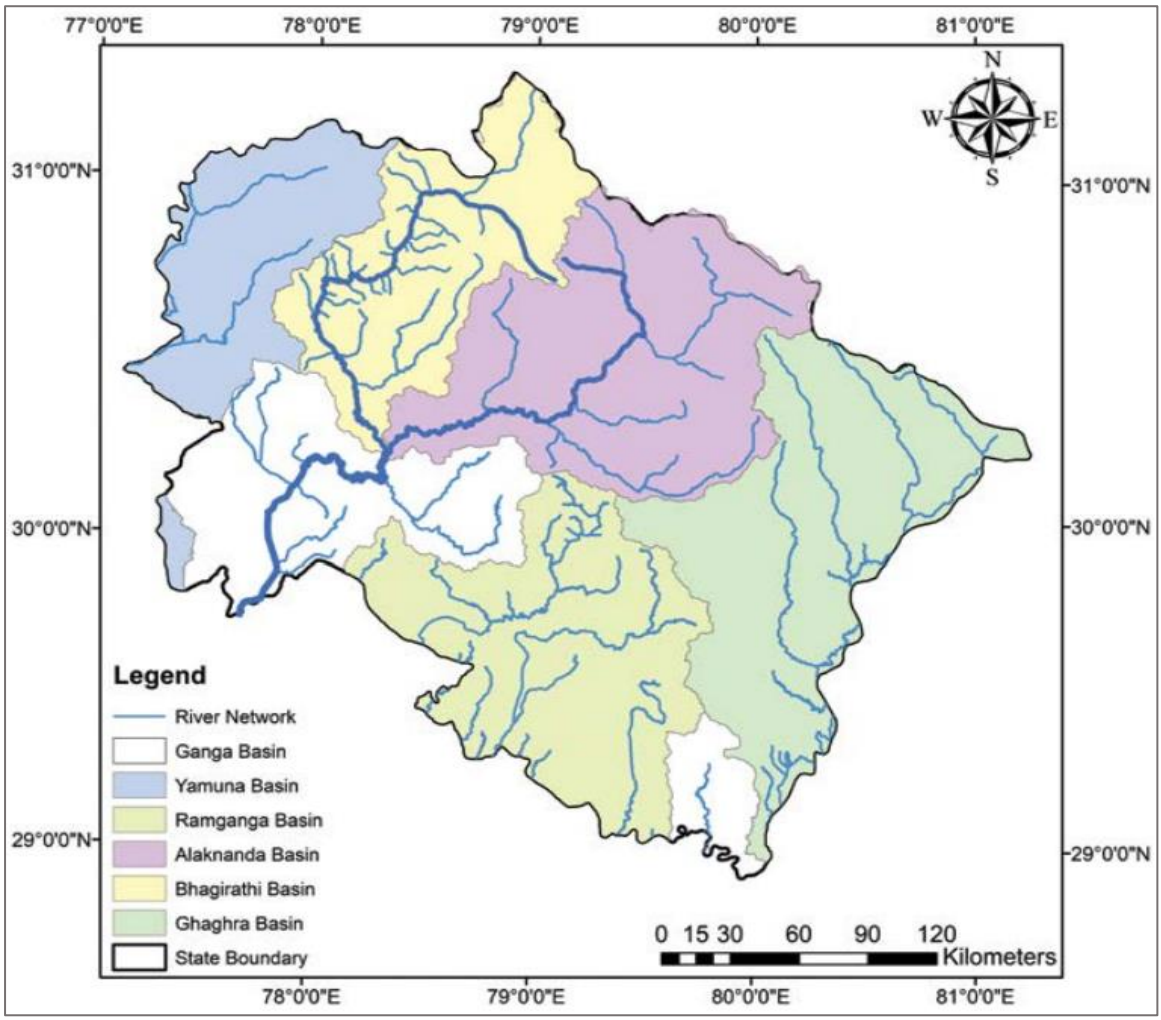
Map 9: Earthquake Zonation Map for the State of Uttarakhand



Source: (Disaster Mitigation & Management Centre, Uttarakhand Secretariat)

As shown in Map 10, the State has 6 major river basins namely: Alaknanda basin, Bhagirathi basin, Sharda basin, Ramganga basin, Ganga basin and Yamuna basin.

Map 10: Uttarakhand State: Major River Basins



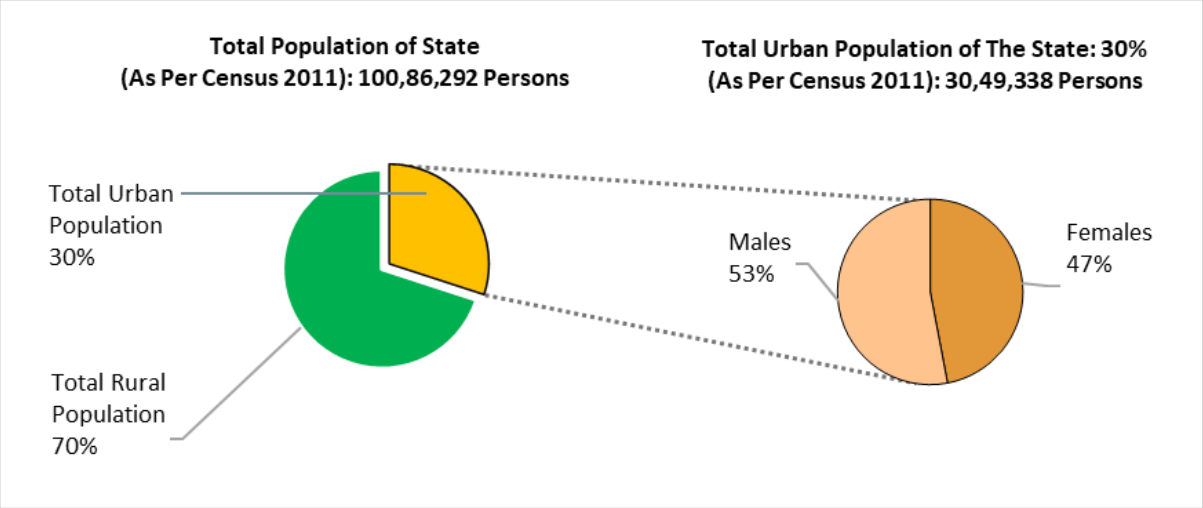
Source: (Uttarakhand River Atlas, National Mission for Clean Ganga, Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Government of India, 2021)

5.3. Demography and Socio-Economic Profile

5.3.1. Demography

As shown in figure below according to the (Census India, 2011) approx. 30% (30,49,338) of the total population (100,86,292) of the State resides in the urban area. Out of the total urban population (30,49,338), 53% (16,18,731) is the male population and 47% (14,30,607) is the female population.

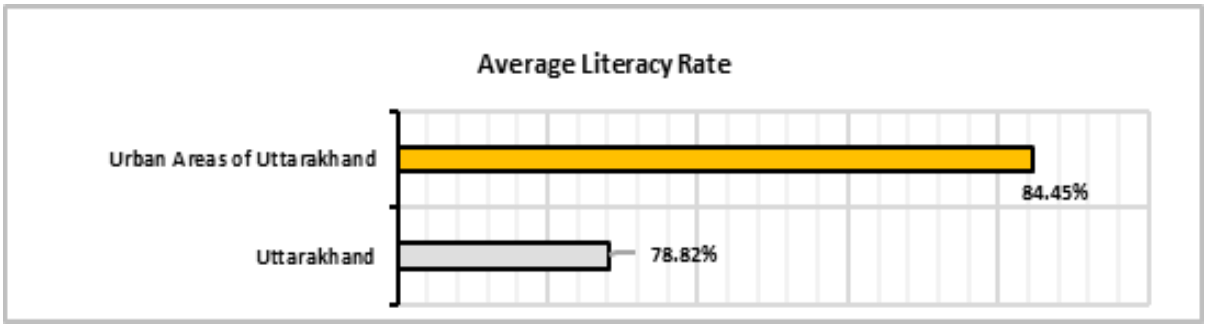
Figure 5: Population-Split of Uttarakhand (Census 2011)



Source: (Census India, 2011), Author

As shown in Figure 6, according to the (Census India, 2011), the Urban Area of Uttarakhand has an Average Literacy Rate of 84.45% which is higher than the Average Literacy Rate of the State i.e. 78.82%.

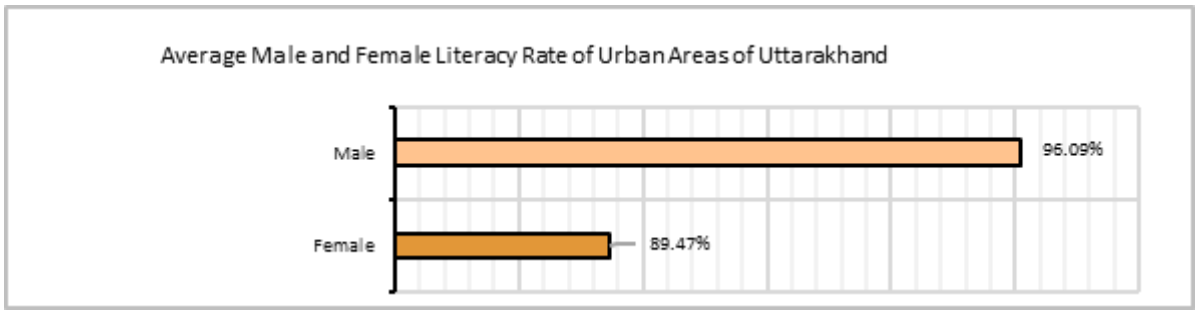
Figure 6: Comparative Analysis of the Average Literacy Rate of Uttarakhand and the Urban Areas of Uttarakhand (Census 2011)



Source: (Census India, 2011), Author

As shown in Figure 7, according to the (Census India, 2011), the Urban Areas of Uttarakhand has higher Average Male Literacy Rate (96.09%) than the Average Female Literacy Rate (89.47%).

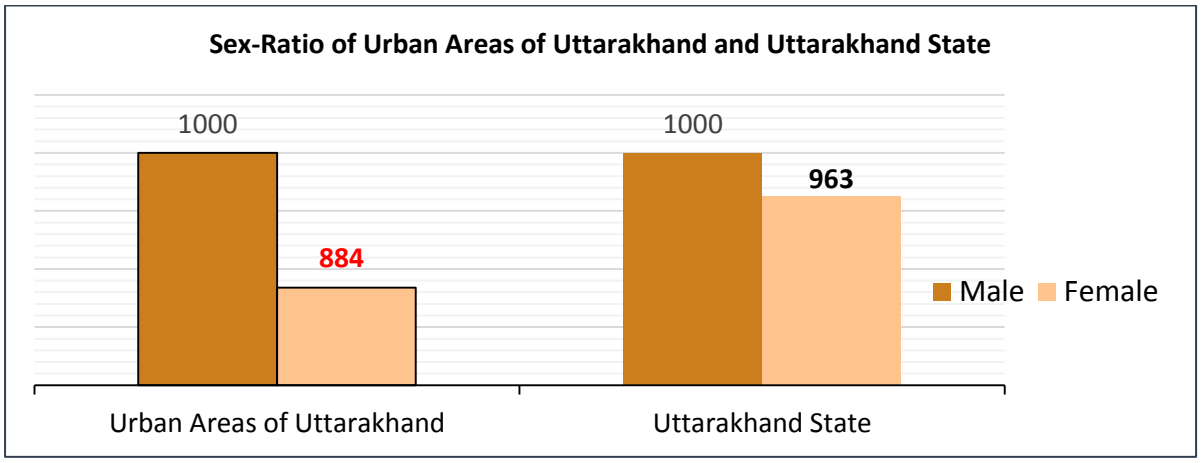
Figure 7: Comparative Analysis of the Average Male and Female Literacy-Rate of Urban Areas of Uttarakhand (Census 2011)



Source: (Census India, 2011), Author

As shown in Figure 8, the urban area has an average sex-ratio of 884 females over 1000 males which is lower than the average sex-ratio of the State i.e. 963 females per 1000 males.

Figure 8: Comparative Analysis of the Sex-Ratio of Urban Areas of Uttarakhand and the State of Uttarakhand (Census 2011)



Source: (Census India, 2011), Author

5.3.2. Social and Cultural Aspects

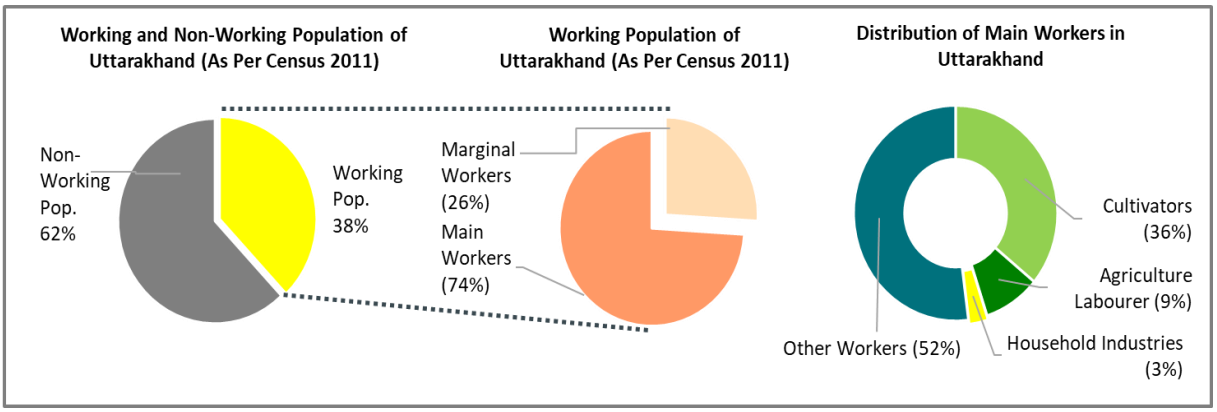
As per the (Census India, 2011), Uttarakhand has a Hindu majority with 82.97% of Hindu population followed by 13.95% of Muslim population, 2.34% Sikh population, 0.37% of Christian population, 0.15% of Buddhist population, 0.09% of Jain population, 0.01% of Other Religions population and 0.12% of population with No Religion Stated. Major languages spoken in the State are Hindi and Sanskrit with Hindi being the official language of the State.

5.3.3. Economic Profile

As shown in Figure 9, according to the (Census India, 2011), around 38% (38, 72,275) of the total population of the State (i.e. 100,86,292) is working population. Out of the total working population (38,72,275) around 74% (28,70,624) are Main Workers (of which 72% are males while only 28% are females) and 26% (10,01,651) are Marginal Workers. Out of the total Main Workers, 36% are Cultivators, 9% are Agriculture Labourer, 3% works in the Household Industries and 52% are engaged as Other Workers. While 62% (62,14,017) of the total population of the State is the Non-Working

Population. As per the (State Horticulture Mission, Govt. of Uttarakhand , 2024), agriculture is a predominant sector in the state economy and it contributes around 23.4% in the State Domestic Product (GDP).

Figure 9: Working Population Split and Distribution of Main Workers in Uttarakhand (Census 2011)



Source: (Census India, 2011), Author

Chapter 6.

Almora Town

Chapter 6. Almora Town

6.1. Overview

As shown in Map 11, Almora Town is Located in the Kumaon Division of Uttarakhand, India. It falls in the Almora Tehsil of the Almora District in the State of Uttarakhand, India. Almora sits on a ridge resembling a horse saddle, on the southern edge of the Kumaon Hills in the Himalayas, India. The name "Almora" Comes from "Kilmora" a local plant historically used for cleaning utensils at the Katarmal Temple.

Map 11: Location Map of Nagar Nigam, Almora in Almora District, Uttarakhand, India

Source: (Google Images, 2024)

As shown in Map 12, historically, before Almora was established, it was ruled by Katyuri King Bhaichaldeo. He then donated the land to Shri Chand Tiwari. During the reign of Chand kingdom Almora was known as Rajapur. King Kalyan Chand established Almora in 1568, strategically chosen for its central location. It was later developed and further maintained by the British regime and became the administrative headquarters of Kumaon District. Then Kumaon District excluding the Terai district with its headquarters at Kashipur. During the 1960s, Pithoragarh District was carved out the Almora District and during 1997's Bageshwar District and Champawat District were also carved out of it.

Map 12: Administrative History of Almora District

Source: (Government of Uttarakhand, 2024)

The natural beauty is enhanced by the Koshi (Kaushiki) and Suyal (Salmale) rivers flowing alongside the city, with the majestic snow-capped Himalayas providing a stunning backdrop. Some major attraction places in Almora due to its rich heritage and culture are Gairad Golu Dev Temple, Nandna Devi Temple, Banri Devi Temple, Katarmal Sun Temple, Gana Nath Temple, Binsar Mahadev Temple, Jageshwar Dham Temples, Jhoola Devi Temple, Chitai Golu Temple, Kasar Devi, Pandit Govind Ballabh Pant Government Museum, Deer Park, Bright End Corner, etc.

The following Table 3 shows a comprehensive overview of Almora Town as per the Census of India 2011.

Table 3: Overview of Almora Town as per the Census of India 2011

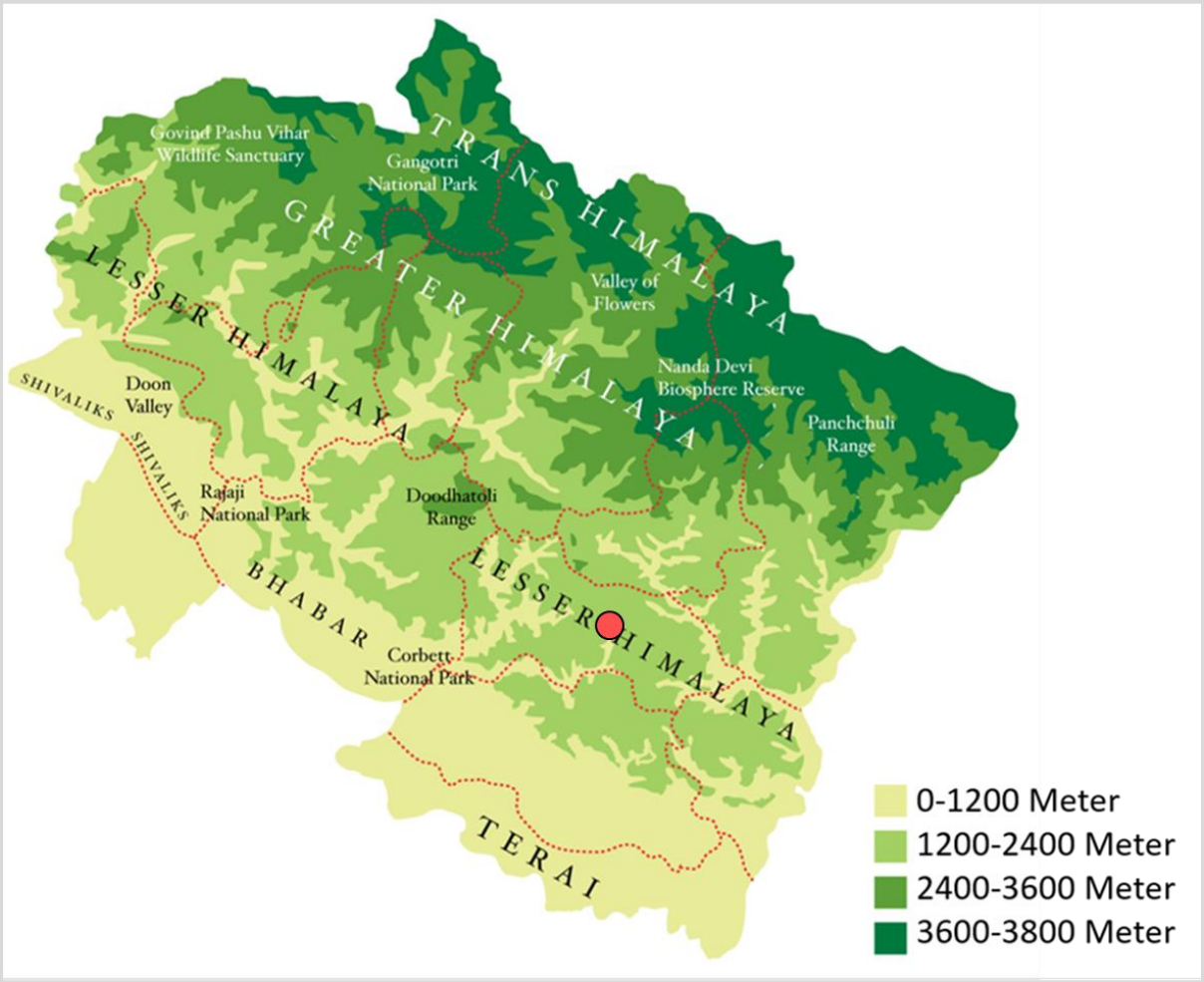
GEOGRAPHICAL LOCATION	
District	Almora
Tehsil	Almora
Town	Almora
Latitude	29.62° N
Longitude	79.67° E
Geographical Area of Almora Nagar Nigam	7.35 sq. km.
Average elevation of district headquarters (ASL)	1,651 m
POPULATION DATA (2011 CENSUS)	
Total Population of Almora Nagar Nigam	**34,122**
Male Population of Almora Nagar Nigam	17,358
Female Population of Almora Nagar Nigam	16,764
Population Density of Almora Nagar Nigam (persons per km^2)	4642
Average Literacy Rate of Almora Nagar Nigam (%)	94.50%
Male Literacy Rate of Almora Nagar Nigam (%)	96.84%
Female Literacy Rate of Nagar Nigam, Almora (%)	92.13%
Sex-Ratio of Nagar Nigam, Almora (female per thousand male)	966
ULB	
Nagar Nigam, Almora	11 Wards

Source: (Census India, 2011)

6.2. Physical Features and Topography

As shown in Map 13, as per the (District Census Handbook, 2011), geographically Almora Town falls in the Lesser Himalayas region (1200-2400m) and sub-micro region of Almora-Siwalik region. It has a long chain of low hills. Entirely built of Siwalik sediments. The high ranges have dense mixed jungles mainly of banj. While pine and sal (shorea robusta) can be seen on the low ranges. Flowing alongside the city are the Koshi (Kaushiki) and Suyal (Salmale) river with Kosi being the main river.

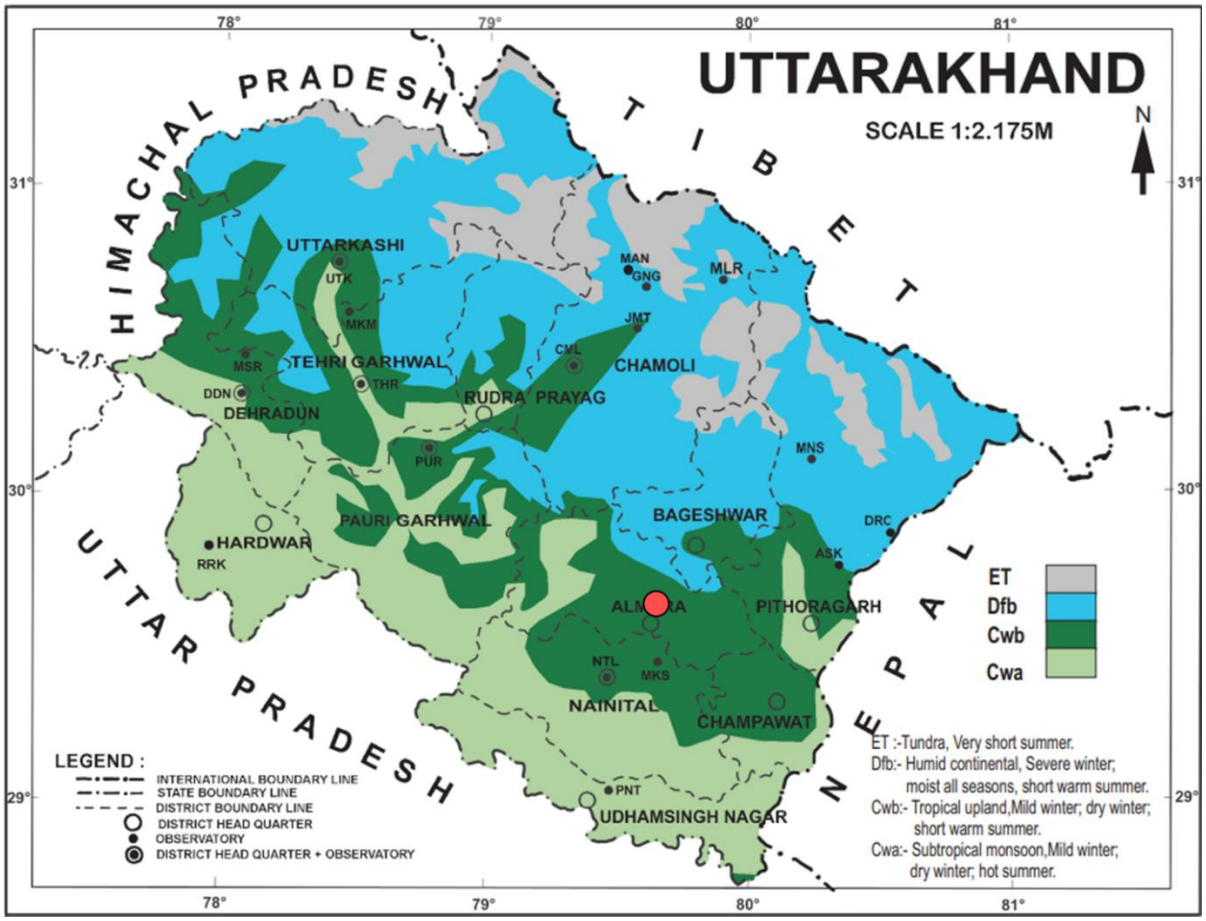
Map 13: Geographical Location of Almora Town in Uttarakhand



Source: (Thematic Map Library, Uttarakhand.org, 2024), Author

As shown in Map 14, as per the (District Census Handbook, 2011), the high altitude affects local climatic conditions of Almora. Almora experiences temperatures ranging from 28°C to -3°C. It is colder than the rest of the hilly areas of the Kumaon Division. It receives heavy rainfalls due to the prolonged and early onset of monsoon than the plain areas of the region. The average amount of precipitation for the year in Almora is 1,132 millimetres or 44.59 inches.

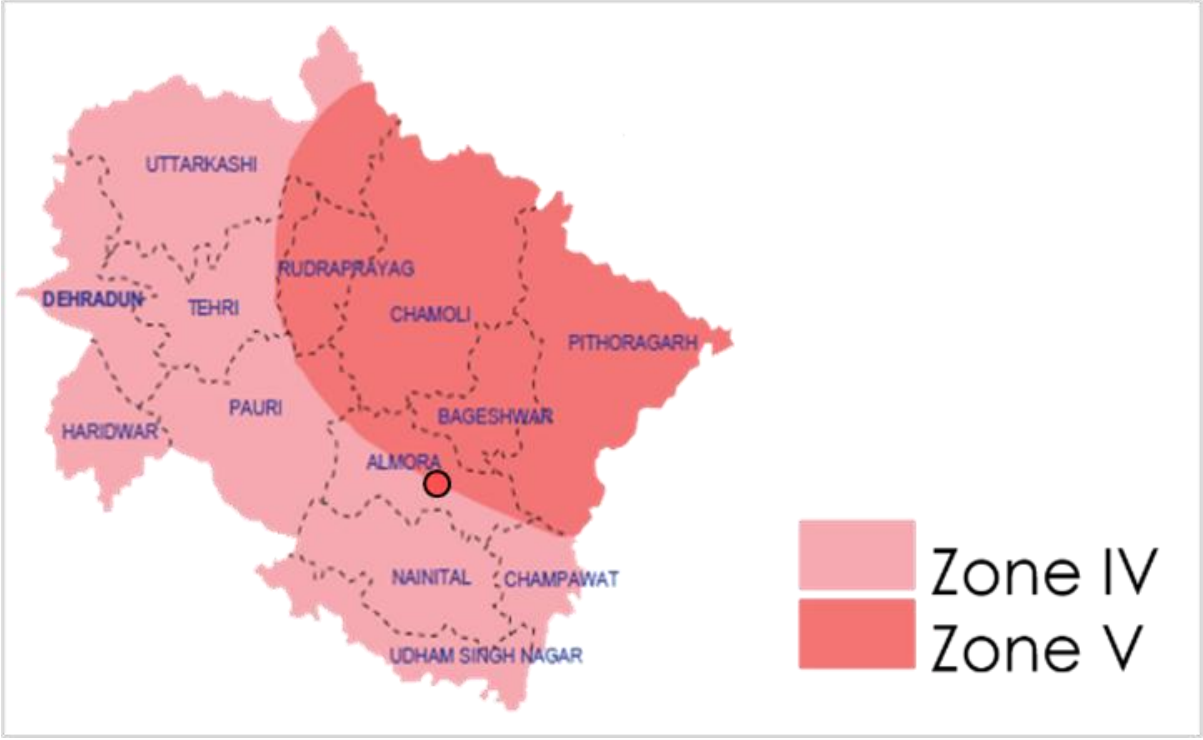
Map 14: Climatic Classification Map of Uttarakhand Highlighting the Climatic Conditions of Almora Town



Source: Basemap: (GoI), Author

As shown in Map 15, Almora Town falls in the Zone IV of the Earthquake prone zone i.e. the second most vulnerable zone prone to earthquakes and disasters.

Map 15: Location of Almora Town in Earthquake Zonation Map of Uttarakhand



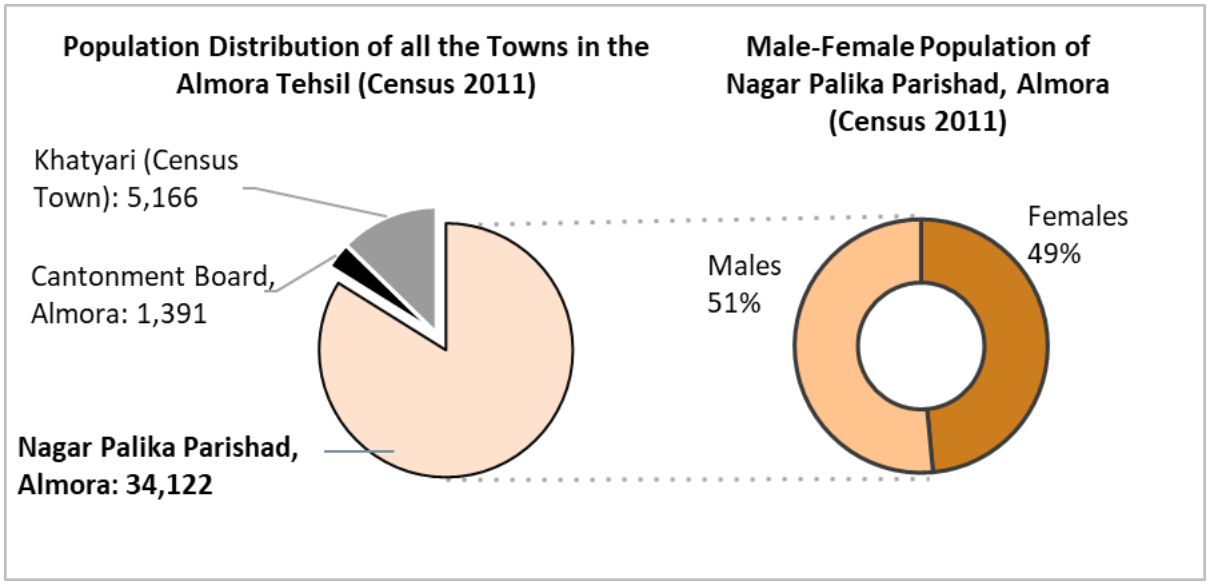
Source: (Thematic Map Library, Uttarakhand.org, 2024), Author

6.3. Demography and Socio-Economic Profile

6.3.1. Demography

As shown in Table 12, as per the (Census India, 2011), Nagar Nigam (NN), Almora has a total population of 34,122 persons. Out of which, 51% (17,358) is the male population and 49% (16,764) is the female population in the Town.

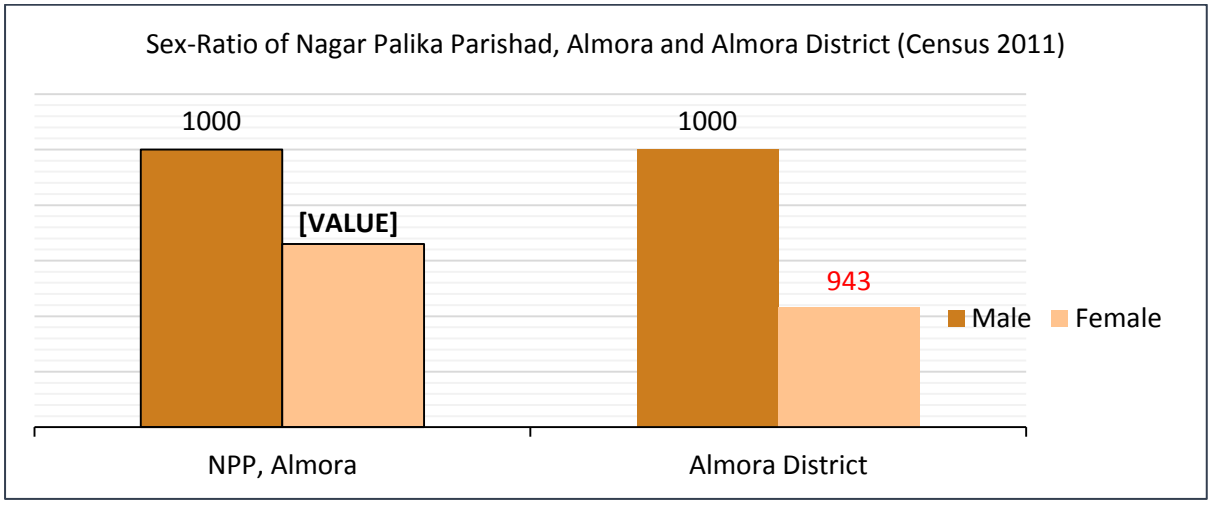
Figure 10: Population distribution of all the Towns in Almora Tehsil and the Male-Female Population of Nagar Nigam, Almora as per Census 2011



Source: (Census India, 2011), Author

As shown in Figure 11, Almora Town 966 females per 1000 males. Thus, making the sex-ratio of Almora Town to be higher than the sex-ratio of Almora District i.e. i.e. 943 females per 1000 males.

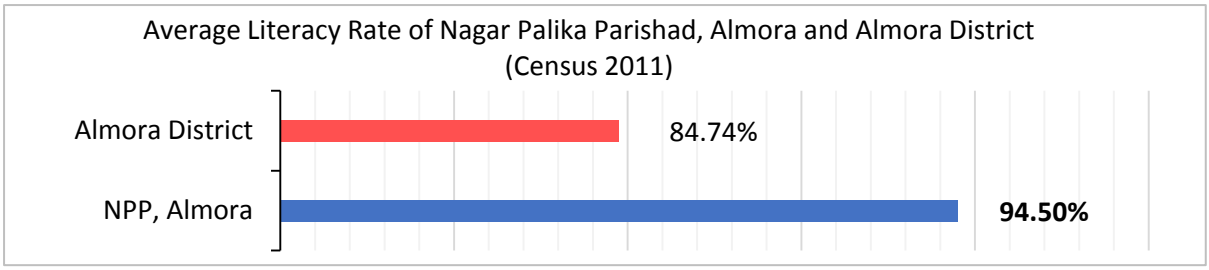
Figure 11: Comparative Analysis of Sex-Ratio of Nagar Nigam, Almora and Almora District as per Census 2011



Source: (Census India, 2011)

As shown in Figure 12, the average literacy rate of Almora Town (94.50%) is higher than the average literacy rate of Almora District (84.74%).

Figure 12: Comparative Analysis of Average Literacy Rate of Nagar Nigam, Almora and Almora District as per Census 2011



Source: (Census India, 2011)

6.3.2. Social and Cultural Aspects

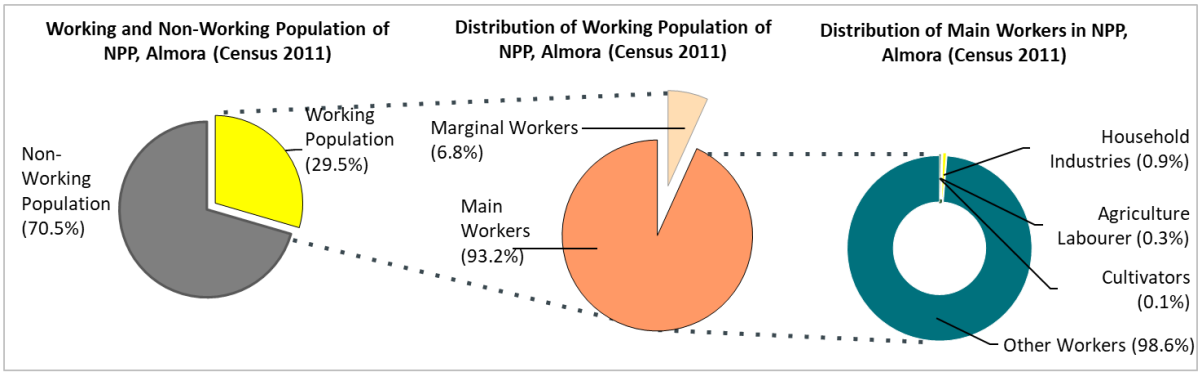
As per (Census India, 2011), in NN, Almora out of the total population (34,122) of the town 16.4% (5,589) of population is Schedule Caste (SC) and 1% (341) of population is Schedule Tribe (ST).

As per the (Census India, 2011), NN, Almora has a Hindu majority with 90.84% of Hindu population followed by 7.54% of Muslim population, 1.29% of Christian population, 0.23% Sikh population, 0.06% of Buddhist population, 0% of Jain population, 0% of Other Religions population and 0.03% of population with No Religion Specified.

6.3.3. Economic Profile

As shown in Figure 13, according to the (Census India, 2011) around 29.5% of the total population of NN, Almora is the engaged in working activities. Thus, making the total working population to be 10,057 persons. Out of this total working population, 93.2% of the population are Main Workers (employed or earning more than 6 months) i.e. 9,378 persons (79.3% males and 20.7% females) and the remaining 6.8% of the total working population are Marginal Workers (working for less than 6 months) i.e. 679 persons (67.3% males and 32.7% females). Out of the total Main Workers, 0.1% are Cultivators, 0.3% are Agriculture Labourer, 0.9% works in the Household Industries and 98.6% are engaged as Other Workers. While the remaining 70.5% of the total population of the NN, Almora is the Non-Working Population i.e. 24,065 persons.

Figure 13: Demography of Working Population of NN, Almora (Census 2011)



Source: (Census India, 2011)

6.4. Discussions and the Data provided by the Officials Met during the Field Visit and Stakeholder Consultation Meeting held on 31st August 2024 in Almora

As shown in Image 2 below, a Stakeholder Consultation Meeting was held on 31st August 2024 in Almora. This meeting was attended by **14** stakeholders/participants as mentioned in the list attached in Annexure C.

Image 2: Images of Stakeholder Consultation Meeting Held on 31st August 2024 in Almora

Source: (Stakeholder Consultattion Meeting, 2024)

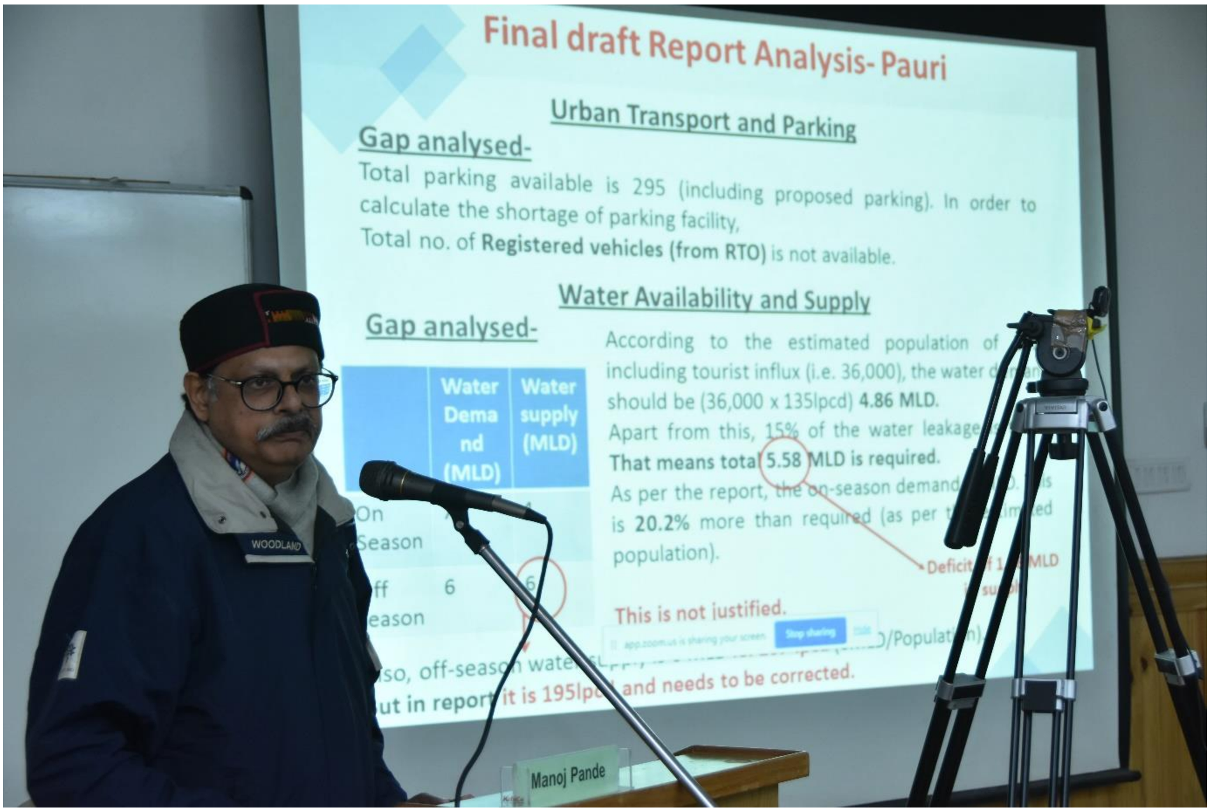
Based on the feedback provided by the Officials during the brain storming session of the Stakeholder Consultation Meeting, possible solutions and suggested projects are recommended in this final report for improvement of each parameter i.e. a) Solid Waste Management, b) Urban Transport and Parking and c) Water Availability and Supply in Almora Town.

6.5. Post Study Workshop – 10 Dec. 2024

A post study workshop was held at the Dr. R.S. Tolia Academy of Administration Nainital on 10th December 2024. Representatives of all the three towns of Mussoorie, Almora and Pauri participated in the meeting and the findings of the research work were discussed. Some suggestions for further improvement of the draft Final Report were given. Some data gaps were also noticed. All these data gaps and suggestions have been incorporated. The list of participants is given in the Annexure C. Photographs of the workshop are shown below:

Image 3: Some images of the Post Study Workshop -10th Dec. 2024, Nainital


Gap analysed-
Water Dema nd (MLD)
Water supply (MLD)
On
7
4
6
6
off-season
report
Manoj


Final draft Report Analysis- Pauri
Urban Transport and Parking
Gap analysed-
Total parking available is 295 (including proposed parking). In order to calculate the shortage of parking facility,
Total no. of Registered vehicles (from RTO) is not available.
Water Availability and Supply
Gap analysed-
Water Dema nd (MLD)
Water supply (MLD)
On Season
6
According to the estimated population of
including tourist influx (i.e. 36,000), the water
should be (36,000 x 135lpcd) 4.86 MLD.
Apart from this, 15% of the water leakage
That means total 5.58 MLD is required.
As per the report, the on-season demand
is 20.2% more than required
population).
This is not justified.
and needs to be corrected.
Manoj Pande


Kruti Ranjote
Ragini Tewari
Manwar Singh
KIRAN BALA

Source: (Dr. R. S. Tolia Uttarakhand Academy of Administration (ATI))

6.6. Current Situation as per the Data provided by the Officials Met During Field Visit

As per (Census India, 2011), the Almora Municipal Board was formally constituted in the year 1864. At present, Almora Town has 40 wards. As per the discussion with the officials of NN, Almora and the data collected as attached in Annexure A, at present the total area of the town has not increased since 2011 which is 9.75 sq. km. (Census India, 2011). While the total number of wards have increased from 11 to 40. The Map 16 below shows the boundary map of NN, Almora.

Map 16: Nagar Nigam (NN), Almora Boundary Map

Source: (Nagar Palika Parishad, Almora, 2024)

As per the discussions with the officials met (attached in Annexure C, at present, the total number of households (HHs) in NN, Almora has increased from 8,014 (Census India, 2011) to 10,445 HHs (Nagar Palika Parishad, Almora, 2024) with an increase in the average household (HH) size from 4.3 to 4.5. Thus, the calculated Total Population Density of NN, Almora has increased from 35PPH to 40.95PPH (17% increase).

As shown in Table 4, at present the 40 wards of NN, Almora are names as Hanuman Mandir (Ward 01), Selakhola (Ward 02), Dubakiya (Ward 03), Ramshila (Ward 04), Bardeshwar (Ward 05), and Champanaola (Ward 06), Dhooni Mandir (Ward 07), Narmdeshwar (Ward 08), Heeradungari (Ward 09), N. T. D (Ward 10), and Jhijhad (Ward 11), Tripurasundari (Ward 12), Mission Compound (Ward 13), Luxmeshwar (Ward 14), and Paniyaudiyaar (Ward 15), Pandekhola (Ward 16), New Collectorate Pandekhola (Ward 17), Murlimanohar (Ward 18), Vamankhola (Ward 19), and Narshinghwadi (Ward 20), Shispur (Ward 21), Baleshwar (Ward 22), Makadi (Ward 23), Cheenakhan (Ward 24), Awas Vikas (Ward 25), Gandhi Parki (Ward 26), Tala Joshikhola (Ward 27), Vivekanandpuri (Ward 28), Bhayaarkhola (Ward 29), Tala Oddkhola (Ward 30), Rajpur (Ward 31), Mala Rajpur (Ward 32),

Nandadevi (Ward 33), Lala Bazaar (Ward 34), Niyaanganj (Ward 35), Dharalaula (Ward 36), Railapali (Ward 37), New Indira Colony (Ward 38), Dugaalkhola (Ward 39), and Khagamrokot (Ward 40).

Table 4: Overview of Almora Town

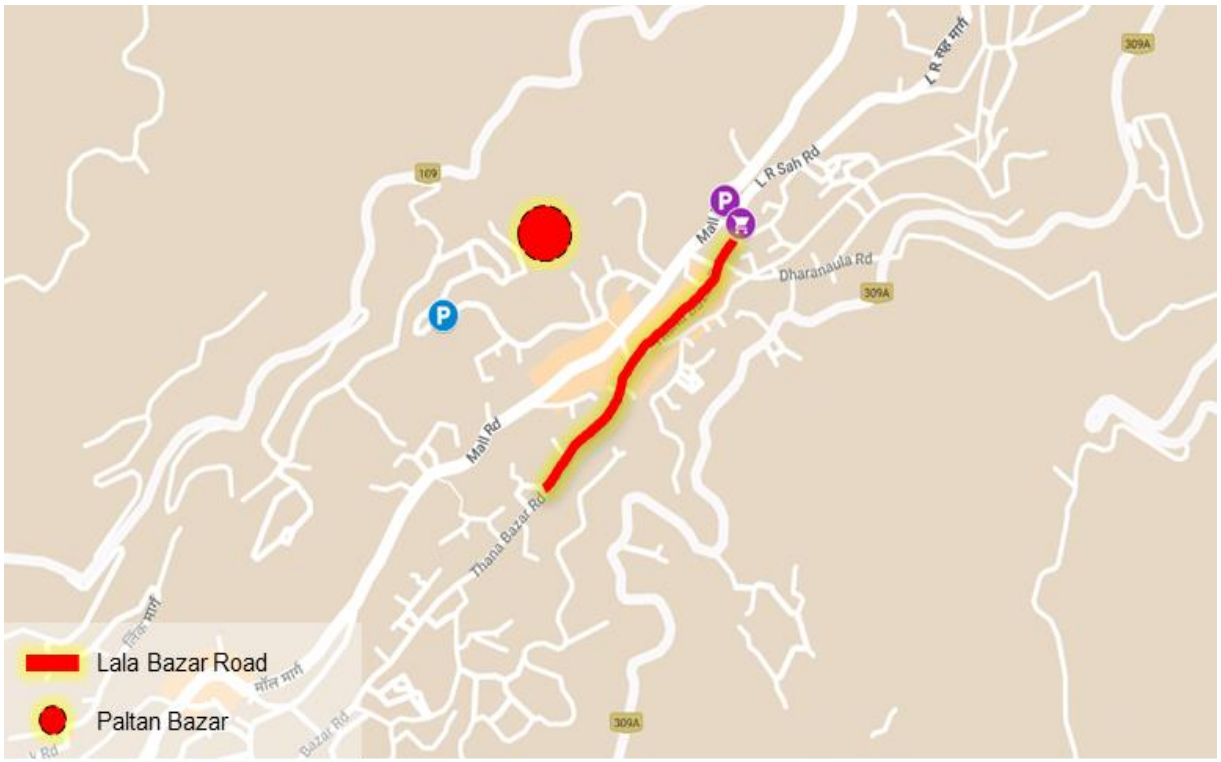
Overview of Almora Town	
Area of Almora Town (as per Census 2011) (in sq. km.)	**9.75 sq. km.**
Total number of wards in Almora Town (as per Census 2011)	**11**
Population in each ward of Almora Town (as per Census 2011):	
Ward 01	1,443
Ward 02	2,259
Ward 03	3,469
Ward 04	3,472
Ward 05	2,459
Ward 06	3,307
Ward 07	2,949
Ward 08	4,619
Ward 09	2,402
Ward 10	3,904
Ward 11	3,839
Total population in Almora Town (Census 2011) (persons)	**34,122**
Ward 01	341
Ward 02	506
Ward 03	829
Ward 04	955
Ward 05	592
Ward 06	825
Ward 07	690
Ward 08	1,088
Ward 09	514
Ward 10	812
Ward 11	862
Total number of HHs in Almora Town (Census 2011)	**8,014**
Average HH Size (Census 2011)	**4.3**
Area of Almora Town (2024) (in sq. km.)	**9.75 sq. km.**
Total number of wards in Almora Town (2024)	**40**
Ward 01	Hamuman Mandir
Ward 02	Selakhola
Ward 03	Dubakiya
Ward 04	Ramshila
Ward 05	Bardeshwar
Ward 06	Champanaola
Ward 07	Dhooni Mandir
Ward 08	Narmdeshwar
Ward 09	Heeradungari
Ward 10	N. T. D
Ward 11	Jhijhad
Ward 12	Tripurasundari

Ward 13	Mission Compound
Ward 14	Luxmeshwar
Ward 15	Paniyaudiyaar
Ward 16	Pandekhola
Ward 17	New Collectorate Pandekhola
Ward 18	Murlimanohar
Ward 19	Vamankhola
Ward 20	Narshinghwadi
Ward 21	Shispur
Ward 22	Baleshwar
Ward 23	Makadi
Ward 24	Cheenakhan
Ward 25	Awas Vikas
Ward 26	Gandhi Parki
Ward 27	Tala Joshikhola
Ward 28	Vivekanandpuri
Ward 29	Bhayaarkhola
Ward 30	Tala Oddkhola
Ward 31	Rajpur
Ward 32	Mala Rajpur
Ward 33	Nandadevi
Ward 34	Lala Bazaar
Ward 35	Niyaanganj
Ward 36	Dharalaula
Ward 37	Railapali
Ward 38	New Indira Colony
Ward 39	Dugaalkhola
Ward 40	khagamrokot
Total population in Almora Town (2024) (persons)	**47,000**
Total number of HHs in Almora Town (2024)	**10,445**
Average HH Size (NN, 2024)	**4.5**
Floating Population of Almora Town (2024)	**Approx. 600 persons per day**
Name of department responsible for Solid Waste Management in Almora Town	Nagar Nigam (NN), Almora
Name of department responsible for Water Supply in Almora Town	Uttarakhand Jal Sansthan (UJS), Almora
Name of department responsible for Construction and Maintenance of Water Distribution Network Pipeline in Almora Town	Pey Jal Nigam Uttarakhand (PJNU), Almora
Name of department responsible for Construction and Maintenance of Road Network in Almora Town	Public Works Department (PWD), Almora

Source: (Nagar Palika Parishad, Almora, 2024), (District Census Handbook Almora, 2011), (Pey Jal Nigam Uttarakhand, Almora, 2024), (Uttarakhand Jal Sansthan, Almora, 2024), (Tourism Department, Almora, 2024), (PWD, Almora, 2024), (Traffic Police, Almora, 2024), (Police Department, Almora, 2024), (Census India, 2011), (Primary Survey, 2024)

As mentioned in Map 17, there are two major market areas in Almora Town i.e. Lal Bazar Road and Paltan Bazar in the main city centre.

Map 17: Location of Main Market Areas in Almora Town



Source: (Google My Maps, 2024), Author

The following Image 4 below shows the all the five major market areas of Almora Town.

Image 4: Images of Major Market Areas of Almora Town

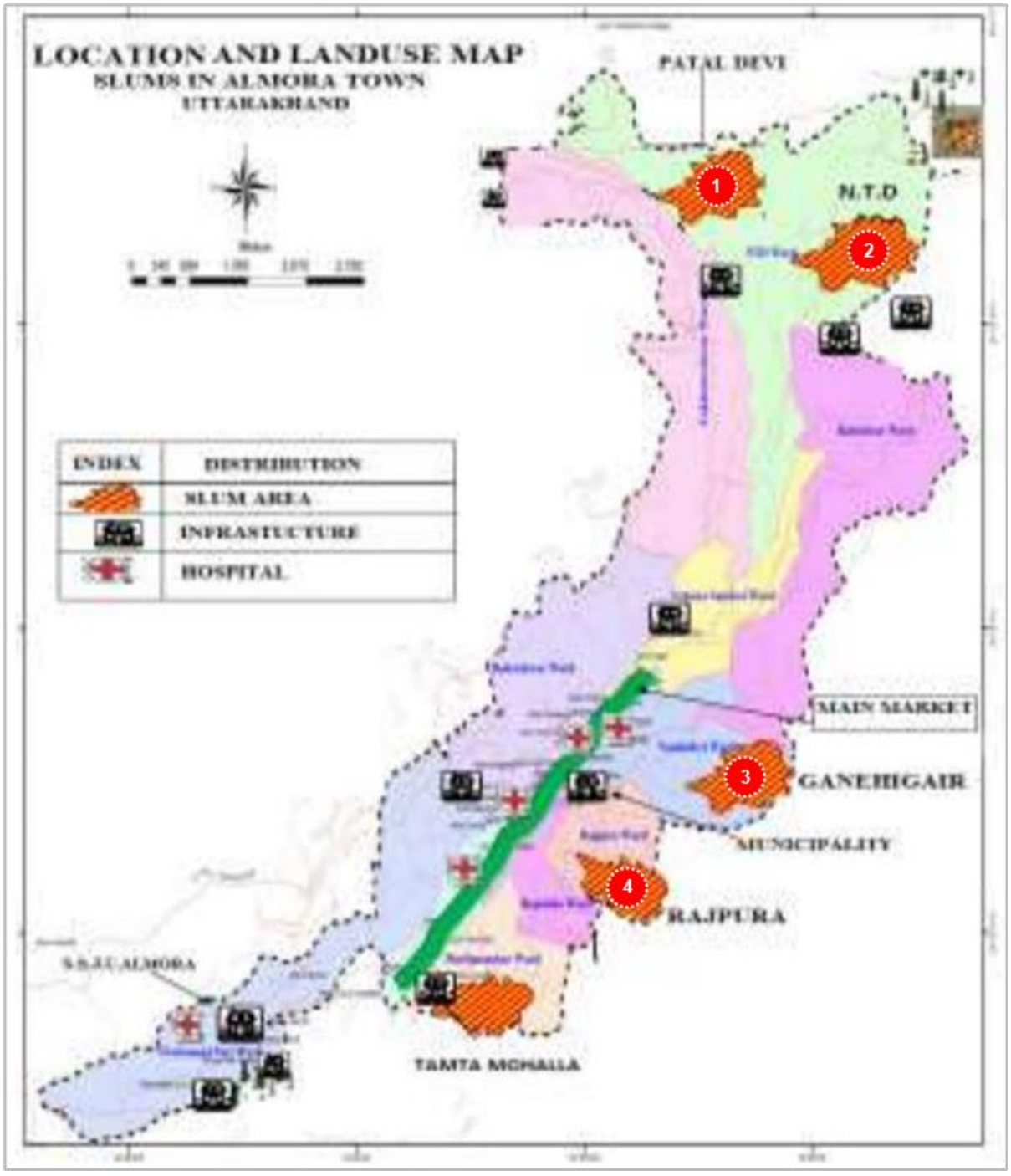
01. Lala Bazar Road

02. Paltan Bazar

Source: (Primary Survey, 2024)

As shown in Map 18, according to the "A case study of Almora Town in Uttarakhand by Prema Kaira, Jyoti Joshi & Sweta Pant" there are total four slums in the Town namely, Pataldevi, N.T.D., Ganeshigair and Rajapura.

Map 18: Location Map of Slums in Nagar Nigam, Almora



Source: (Census India, 2011), A case study of Almora town in Uttarakhand by Prema Kaira, Jyoti Joshi & Sweta Pant

As shown in Table 5Table 5: Location and Population of Slums of Nagar Nigam, Almora (as per Census 2011)

S.No.	Slum Name	Geographical Location	No. of HHs	Population	Area (sq.km.)	Population Density	Residential Land Type
01.	Pataldevi	N.T.D. Ward	46	276	0.01036	26,640.926	Revenue Municipal Body
02.	N.T.D.	N.T.D. Ward	23	115	0.00257	44,747.081	Revenue
03.	Ganeshigair	Nanda Devi Ward	27	162	0.00196	82,653.061	Revenue
04.	Rajpura	Rajpura Ward	48	288	0.00063	4,57142.850	Municipal Body
	Total		**144**	**841**	**0.01552**	**54,188.144**	

Source: A case study of Almora town in Uttarakhand by Prema Kaira, Jyoti Joshi & Sweta Pant

6.7. Comparative Analysis of Nagar Palika Parishad, Almora (as per Census 2011) and NN, Almora (at present, 2024), as per the Data provided by the Officials Met

Table 6 shows the comparative Analysis of NN, Almora (as per Census 2011) and NN, Almora (at present, 2024), as per the Data Provided by the Officials Met (as attached in Annexure C) during Field Visit in the Month of August 2024 and the Discussions during the brainstorming session of Stakeholder Consultation Meeting Held on 31st August 2024.

Table 6: Comparative Analysis of Nagar Palika Parishad, Almora (as per Census) and Nagar Nigam, Almora (at present, 2024) as per the Discussions and the Data provided be the Officials Met.

Present Scenario as per the Discussion and the Data Provided by the Officials Met During Field Visit and Stakeholder Consultation Meeting			
Overview	**As Per Census (2011)**	**As Per NN, Almora, 2024**	**Inferences**
Area of NN, Almora	9.75 sq. km.	9.75 sq. km.	• There **has been no increase in the town's area**, but **in August 2024, NPP Almora became Nagar Nigam Almora,** and the **Number of Wards increased** from **11 to 40.**
No. of Wards in NN, Almora	11	40	
Total Population of NN, Almora	34,122 Persons	47,000 Persons (as per Census)	• The projected total population of the NN, Almora is 47,000 (as per Census). • Therefore, there has been an increase of 37.74% in the total population of NN, Almora.
Total Number of Households (HHs)	8,014	10,445	• There has been 30.33% of increase in the total number of Households (HHs).
Average HH Size	4.3	4.5	• The Average HH size has increased from 4.3 to 4.5.

Population Density of NN, Almora	35 PPH	40.95 PPH	• There has been approx. 17% of increase in the population density i.e. from 35 person/hectare to 40.95 person/hectare.
Tourists Visiting Almora Town	-	Maximum number of tourists per day: **626 person/day** Average number of tourists per day: 55 person/day	• Almora Town is generally seen as an overnight stop rather than a primary tourist destination, mainly because of the distance from the main tourist attractions. Consequently, NN, Almora, serves more as a transit route. This limits the number of tourists spending time in the town itself. • From 2019-2023, the town has experienced a total annual tourist number varying from a low of 38,198 in 2021 (due to COVID-19) to a peak of 228,611 in 2023. Therefore, a range of 105 to 626 number of tourists visit Almora Town per day. • Since 2019 to 2023, annually on an average the maximum number of tourists visiting the Town ranges from a minimum average of 3,183 tourists in the year 2021 (due to the impact of COVID19) to a maximum average of 19,884 tourists in the year 2023. Thus, making an average of 09 to 55 persons per day. • The number of tourists visiting the town are increasing exponentially after COVID-19 and might be even more in the near future due to the implementation of "Manas Khad Yatra" project.

Source: (Nagar Palika Parishad, Almora, 2024), (Tourism Department, Almora, 2024), (Traffic Police, Almora, 2024), (Police Department, Almora, 2024), (Census India, 2011), (Primary Survey, 2024)

6.8. Tourist Footfall of Almora Town

According to the discussions with the officials met as mentioned in Annexure C, to promote the spiritual tourism in Uttarakhand, the Prime Minister of India, Shri Narendra Modi has officially launched the "Manas Khad Yatra" project on 22nd April 2024 with the first batch of pilgrims departing from Pune to Tanakpur. This project aims to facilitate a 7 days spiritual journey that allows pilgrims to explore significant temples in the Kumaon Region of Uttarakhand. The itinerary includes visits to several notable temples such as the Jageswar and Golu Devta in Chitai, Nanda Devi, Kasar Devi, and Katarmal in Almora, Baleswar, Maneswar, and Mayawati in Champawat and the Hat Kalika and Patal Bhubaneswar in Pithoragarh. This project is believed to have a positive impact on the present

tourism of Almora, Uttarakhand and significantly increase the number of tourists visiting Almora Town.

As shown in Table 7, according to the data provided by the Tourism Department, Almora, Uttarakhand, at present, the town is treated as an overnight stay location rather than a dedicated tourist destination due to the considerable distance of the main tourist's attraction from the Town. Thus, making Nagar Nigam, Almora to be as a pass-through route. Therefore, this results in limiting the number of tourists visiting the town. Since 2019 to 2023 the town has experienced a range of 38,198 to 2,28,611 number of tourists passing through on an annual basis.

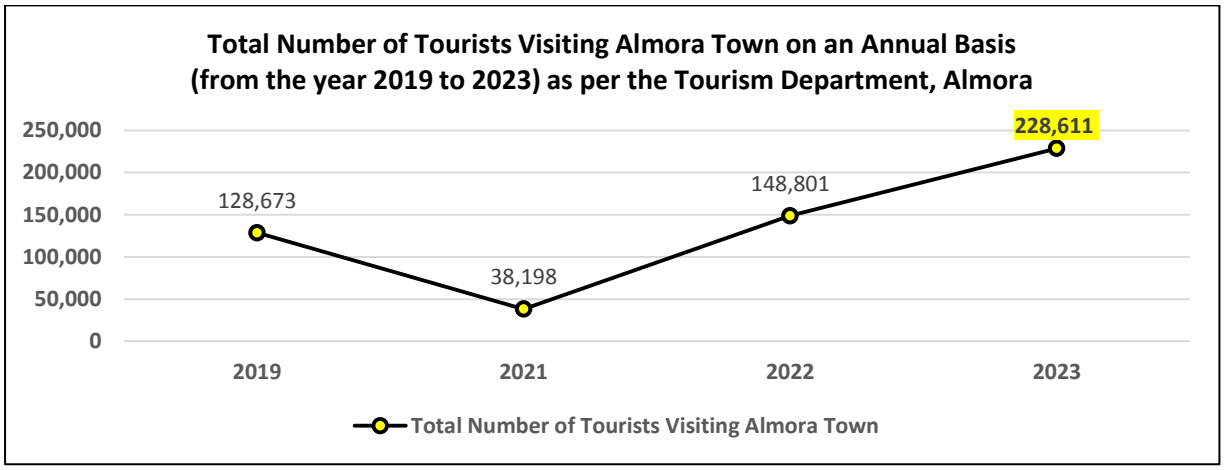
Table 7: Annual Tourist Footfall of Almora Town from the Year 2019 to 2023 as per the Tourism Department of Almora, Uttarakhand

Annual Tourist Footfall of NN, Almora from the year 2019 to 2023 as per the Tourism Department Almora, Uttarakhand	
Year	**Total Number of Tourists Visiting Almora Town**
2019	1,28,673
2021	38,198
2022	1,48,801
2023	2,28,611

Source: (Tourism Department, Almora, Uttarakhand, 2024)

As shown in Figure 14, a considerable dip in the number of tourists has been experienced in the year 2021 (i.e. 38,198 number of tourists) because of COVID19 and no data is available for the year 2020 due to the same. After COVID19 a considerable rise has been experienced in the total number of tourists in Almora from 38,198 in the year 2021 to 1,48,801 in the year 2022. Since then, the number of tourists has been increasing and the maximum number of tourists experienced in the Town was noted to be in the year 2023 i.e. 2,28,611. Therefore, it can be concluded that the annual number of tourists experienced by the Town has increased exponentially. If not taken into consideration this number might even cross the highest number of tourists experienced in the past.

Figure 14: Annual Tourist Footfall of NN, Almora from the Year 2019 to 2023 as per the Tourism Department of Almora, Uttarakhand



Source: (Tourism Department, Almora, Uttarakhand, 2024)

As shown in Table 8, according to the data provided by the Tourism Department of Almora, Uttarakhand, a notable number of tourists have been experienced since the year 2019 to 2023 in Nagar Nigam, Almora. Since 2019 to 2023, the town has experienced maximum number of tourists in the months of June (i.e. 23,716 number of tourists on an average) and December (i.e. 17,830 number of tourists on an average) and minimum number of tourists in the month of January (i.e. 4,985 tourists on an average). Thus, making June and December to be the peak tourist season.

Table 8: Monthly Tourist Footfall of Almora Town from the year 2011 to 2023 as per the Tourism Department Almora, Uttarakhand

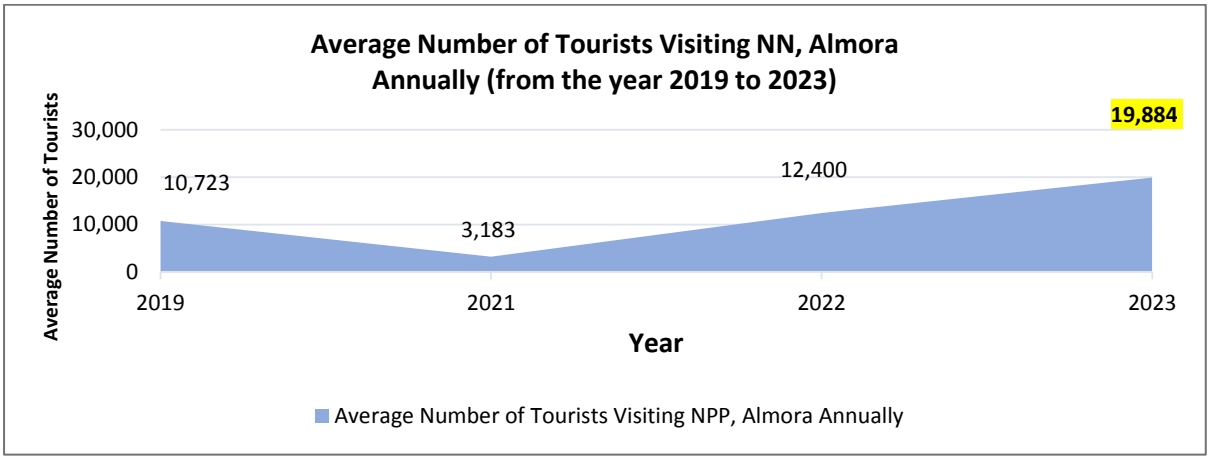
Monthly Tourist Footfall of Almora Town from the year 2019 to 2023 (as per the Tourism Department Almora, Uttarakhand)													**Average Number of Tourists Visiting Annually**
Year	**Month**												
	Jan.	**Feb.**	**Mar.**	**Apr.**	**May**	**June**	**Jul.**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	
2019	4,986	5,812	8,028	9,293	**18,752**	**23,289**	8,267	7,349	9,260	10,299	10,876	**12,462**	***10,723***
2021	884	950	994	23	13	1,077	1,298	822	6,128	7,363	9,258	**9,388**	***3,183***
2022	4,705	5,255	8,812	12,473	16,056	22,319	16,873	10,798	10,304	10,852	10,012	**20,342**	***12,400***
2023	9,363	8,065	8,606	13,358	22,300	48,177	16,482	10,483	24,091	25,895	22,663	**29,128**	***19,884***
Avg.	***4,985***	*5,021*	*6,610*	*8,787*	*14,280*	***23,716***	*10,730*	*7,363*	*12,446*	*13,602*	*13,202*	***17,830***	

Source: (Tourism Department, Almora, Uttarakhand, 2024)

As shown in Figure 15, from year 2019 to 2023 a dip in the average number of tourists has been experienced in Nagar Nigam, Almora for the year 2021 (i.e. 3,183 number of tourists on an average) due to the effect of COVID19. Since then, a gradual increase in the average number of tourists can be seen in the town i.e. 12,400 tourists on an average in the year 2022 and 19,884 number of tourists

on an average in the year 2023. Thus, displaying the exponential increase in the average number of tourists visiting the town annually.

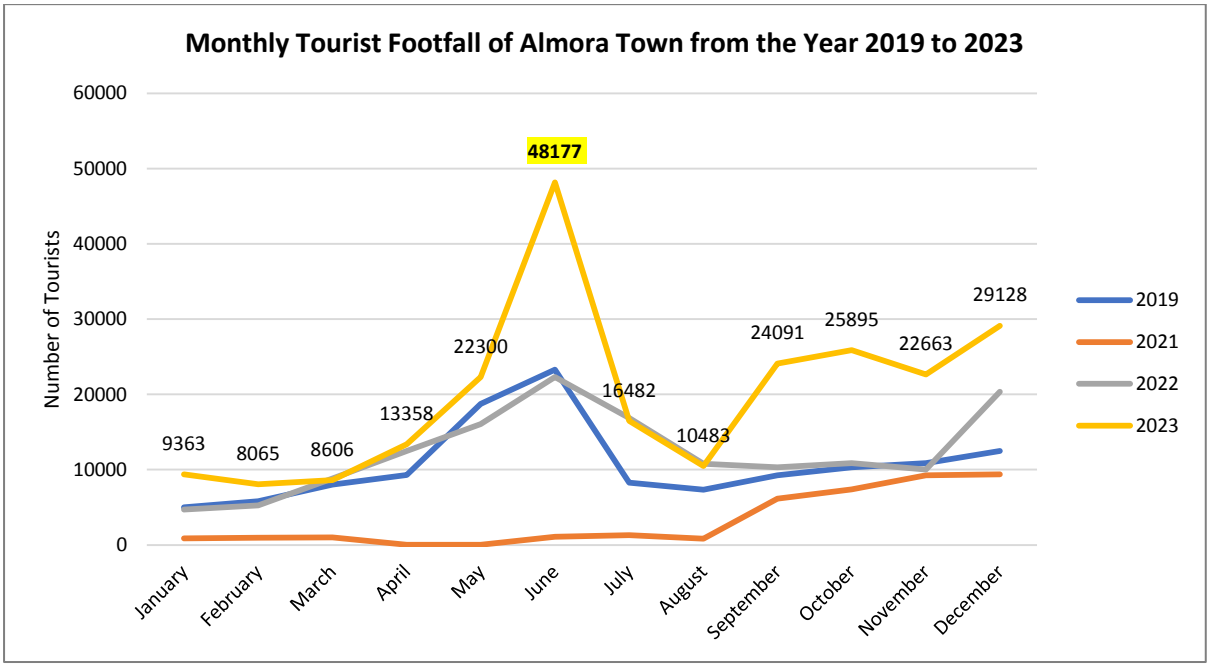
Figure 15: Average Number of Tourists Visiting NN, Almora Annually (from the year 2019 to 2023) as per the Tourism Department of Nagar Nigam, Almora



Source: (Tourism Department, Almora, Uttarakhand, 2024)

As shown in Figure 16, maximum number of tourists visiting Almora Town in the month of June (i.e. 48,177 tourists) and December (i.e. 29,128 tourists) for the year 2023. All the calculations made further for the analysis of the data are based on the data available for the same.

Figure 16: Monthly Tourist Footfall of Almora Town from the year 2011 to 2023 as per the Tourism Department Almora, Uttarakhand



Source: (Tourism Department, Almora, Uttarakhand, 2024)

As shown in Table 9, according to the data provided by the Tourism Department, Almora, Uttarakhand, during the peak tourist season in Almora Town the maximum number of tourists experienced are in the month of June and December i.e. in the range of almost 1.5 to 2.2 times the number of tourists in the month of May and November. Therefore, it can be concluded that the

authorities can predict the maximum number of tourists visiting the town according to the number of tourists visited in the month of May and November and formulate suitable action plans to manage the tourist influx accordingly.

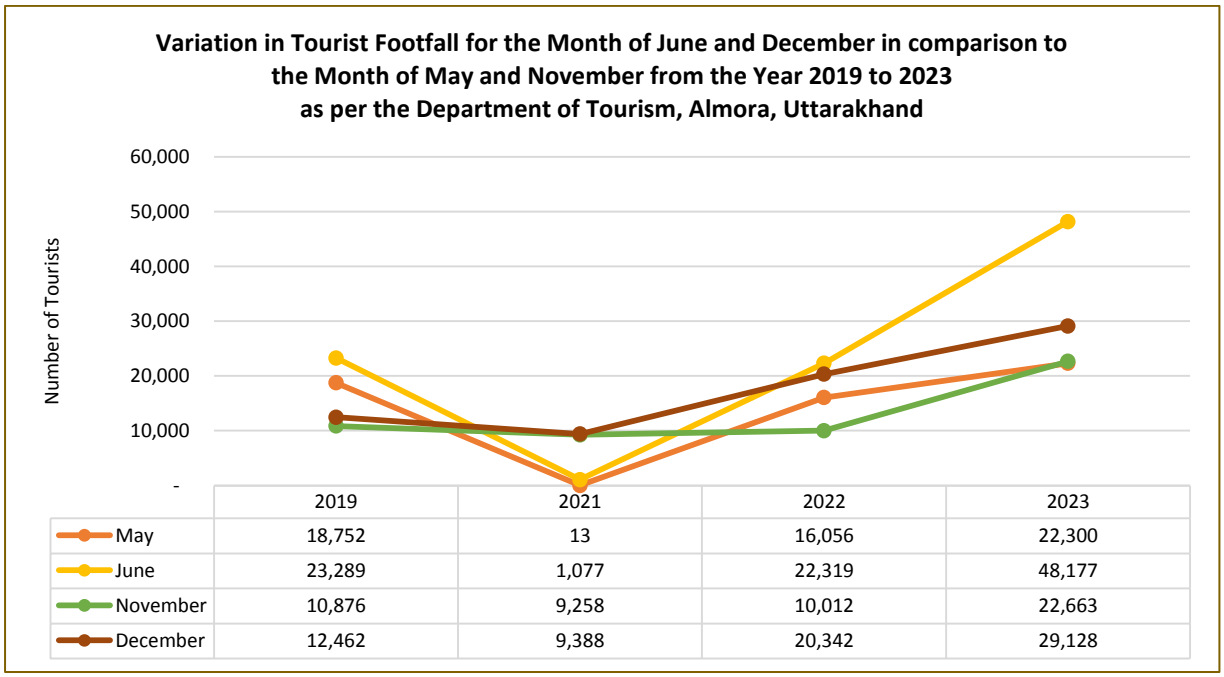
Table 9: Variations in Tourist Footfall of Almora Town for the Month of May, June, November and December from the Year 2019 to 2023 as per the Tourism Department Almora, Uttarakhand

Variations in Tourist Footfall of Almora Town for the Month of May and June from the Year 2019 to 2023 as per the Tourism Department Almora, Uttarakhand				
Year	**Month**			
	May	**June**	**November**	**December**
2019	18,752	23,289	10,876	12,462
2021	13	1,077	9,258	9,388
2022	16,056	22,319	10,012	20,342
2023	22,300	48,177	22,663	29,128

Source: (Tourism Department, Almora, Uttarakhand, 2024)

The Figure 17 below shows the comparative analysis of the tourist footfall for the peak tourist season i.e. for the month of June and December in comparison to the tourist footfall for the month of May and November from 2019 to 2023 as per the Tourism Department, Almora, Uttarakhand.

Figure 17: Variations in Tourist Footfall of Almora Town for the Month of June and December in comparison to the Tourist Footfall for the month of May and November from the Year 2019 to 2024 as per the Tourism Department Almora, Uttarakhand



Source: (Tourism Department, Almora, Uttarakhand, 2024)

6.9. Final Population Calculation as of 2024

The final population of Almora in the year 2024 has been worked out as follows:

Sr. No.	Categories	Population
01.	Population as per 2011 Census	34,122
02.	Population as per 2024 (Projected by Census)	**47,000**
03.	Tourist Population	**600 per day (On Season)**
04.	Boarding Schools/ Institutes (please see detailed Annexure)	**18,399**
05.	Cantonment Area	**1,950**
06.	Hospitals	**770**
07.	Floating Population	**4,000**
08.	Tenants	**15,000**
	Total Population	**87,719 (On Season)**
		87,119 (Off Season)

Source: (Nagar Palika Parishad, Almora, 2024), (Tourism Department, Almora, 2024), (Traffic Police, Almora, 2024), (Police Department, Almora, 2024), (Census India, 2011), (Primary Survey, 2024)

Chapter 7.

Almora Town:

Solid Waste Management (SWM)

Chapter 7. Almora Town: Solid Waste Management

7.1. System Infrastructure

The Solid Waste Management (SWM) in Almora Town is the responsibility of the ULB: Nagar Nigam, Almora. As per the discussions with the officials met (as mentioned in Annexure C) the Table 10 below, shows the existing system infrastructure for the SWM in NN, Almora.

Table 10: Existing infrastructure for Solid Waste Management (SWM) in NN Almora Town

System Infrastructure Provided by NN, Almora	
Community Bins Provided by NN, Almora	
Total Number of Dustbins	**62**
Total Number of Surface Cement Bins	47
Total Underground Bins • Total Number of Underground Bins with 300 kg capacity - 08 • Total Number of Underground Bins with 500 kg capacity - 07	15
Staff Appointed by NN, Almora	
Total Number of Sanitation Workers Appointed for Cleaning of Roads and Streets	**160**
Wards Wise Number of Sanitation Workers Appointed for Cleaning of Roads and Streets (on an average)	12
Frequency of Cleaning of Roads and Streets for Commercial and Residential Areas by the Staff Appointed by NN, Almora	
During Off-Season	Three times a day (Morning, Afternoon and at Night) • Morning: 04:00 am to 07:00 am • Afternoon: 10:00 am to 02:00 pm • Night: 05:00 pm to 08:00 pm
During Tourist-Season	Three times a day (Morning, Afternoon and at Night) • Morning: 04:00 am to 07:00 am • Afternoon: 10:00 am to 02:00 pm • Night: 05:00 pm to 08:00 pm
Garbage Pick-Up Vehicles Provided by the NN, Almora to the Private Agency for Solid Waste Collection and Transportation	
Total Number of Vehicles	**11**
Dumper Trucks (with 9 m^3 capacity each)	4 numbers =4X9 =36 m^3 capacity
Dumper Placer Truck (with 9 m^3 capacity each)	2 numbers =2X9 =18 m^3 capacity
Underground Dustbin Collection Vehicle (with 9m^3 capacity each)	1 number =1X9 =9 m^3 capacity
Side Bin Lifter (with 4 m^3 capacity each)	1 number =1X4 =4 m^3 capacity
Pickup Vehicle (with 4m^3 Capacity each)	1 number =1X4 =4 m^3 capacity
Twin Partitioned Auto-Tippers (with 4 m^3 capacity each)	1 number =1X4 =4 m^3 capacity

JCB	1 number
Staff Appointed by Private Agency	
Total Number of Workers (Door-To-Door Collection)	**10+**

Source: (Nagar Palika Parishad, Almora, 2024)

As shown in Table 10, there are total 62 dustbins in the Town. Out of these 47 are surface cement bins. While the remaining 15 are underground bins. A total number of 2,000 dustbins have been distributed by the NN, Almora in the major market area of the Town to promote sanitation awareness among the people. Majority of the garbage bins are semi-covered or completely covered (i.e. has lid on them). Image 5 below shows the existing condition of dustbins in the Town.

Image 5: Existing Condition of the Dustbins in Almora Town

Source: (Primary Survey, 2024)

For cleaning and sweeping of roads the NN, Almora has appointed a total number of 160 sanitation workers with an average number of 12 sanitation workers in each ward. These sanitation workers clean/sweep the streets and roads of the commercial and residential areas in the Town. The frequency of cleaning/sweeping of streets and roads during off-season and on-season in the commercial and residential areas is three times a day (i.e. from 04:00 am to 07:00 am in the morning, 10:00 am to 02:00 pm in the afternoon and 05:00 pm to 08:00 pm in the night) every day on a regular basis. Almora Town experiences peak tourist season for two months i.e. the month of June and December.

As per the discussion with the officials met (as mentioned in Annexure C) in Almora Town, the Table 11 below consists of a brief description of the activities/duties undertaken by the NN, Almora and the Private Agency as per the contract for the Solid Waste Management in between them.

Table 11: Activities/Duties Undertaken by the NN, Almora and the Private Agency as per the Solid Waste Management (SWM) Contract

S.No.	Activity	Done By/ Given To	
		NN, Almora	Private Agency
1	Door-To-Door Collection of Solid Waste from all the 15 wards (Every-day, Every Morning)	-	Yes
2	Segregation at Source of Solid Waste Collected from Door-to-Door	-	-
3	Transportation of Waste after Segregation to the Locations allocated by the NN, Almora	-	Yes
4	Storing Segregated Wet Waste at one location in Plastic Bags	-	Yes
5	Composting of organic waste	Yes	-
6	First Right on Waste Material and Fertilizer produced after composting	Yes	-
7	Selling Rights of Compost generated for generation of money	Yes	-
8	Taking care solid the solid waste is not burned in open	-	Yes
9	Hiring of workers and supervisors for collection and segregation of dry and wet waste	-	Yes
10	Providing Salary to the workers and supervisors hired for collection and segregation of dry and wet waste	-	Yes
11	Providing Equipment, Safety Masks, Uniforms, ID Cards and Insurance to the workers and supervisors hired for collection and segregation of dry and wet waste	-	Yes
12	Providing Buckets and Plastic Bags for manual door-to-door collection of solid waste	-	Yes
13	Providing Vehicles, Small Dustbins, Big Dustbins etc. for Door-To-Door Collection	Yes	-
14	Provision of fuel and vehicle repairs	-	Yes
15	User Charge collection for Solid Waste Collection	-	Yes
16	Deposition of User Charge Collected to	Yes	-
17	Public Awareness Programme for MSWM	-	Yes

Source: (Nagar Nigam, Almora, 2024)

According to the contract between the NN, Almora and the Private Agency, the Private Agency is responsible for the door-to-door collection, transportation of waste after segregation to the locations allocated by the NN, Almora, storing of segregated wet waste at one location in plastic bags , taking care that the solid waste is not burned in open, hiring of sanitation workers for for collection and

segregation of dry and wet waste, providing salary to the workers and supervisors hired for collection and segregation of dry and wet waste, providing equipment, safety masks, uniforms, ID cards and insurance to the sanitation workers and supervisors hired for collection and segregation of dry and wet waste, providing fuel and vehicle repairs and collecting the user charge for Solid Waste Management in NN, Almora and conducting public awareness programmes for Municipal Solid Waste Management (MSWM). While the NN, Almora is responsible for composting of segregated wet waste with the help provided by the Private Agency, selling the fertilizer produced after composting for generation of money, providing buckets, plastic bags, vehicles, small dustbins, big dustbins etc. for collection of solid waste to the Private Agency and deposition of the user charge collected by the Private Agency for solid waste management in Town.

7.1.1. Present Situation of Garbage Dumping in NN, Almora

As shown in Image 6, at present in NN, Almora the garbage generated is being dumped in the following six areas i.e. common garbage bins provided by the Nagar Nigam Almora, waste collection vehicles provided by the NN, Almora to the Private Agency for the collection of solid waste, vacant land parcels, openly littered around the public toilets, garbage bins. Apart from this the garbage is also dumped in the drains and along the road by the residents and the tourists visiting Almora Town. Thus, making all these locations as Garbage Vulnerable Points and developing a potential for future health hazard in the town.

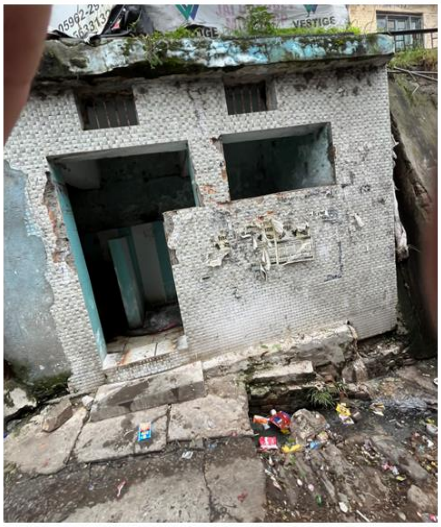
Image 6: Existing Situation of Garbage Dumping Areas in Almora Town

1. Common Garbage Bins

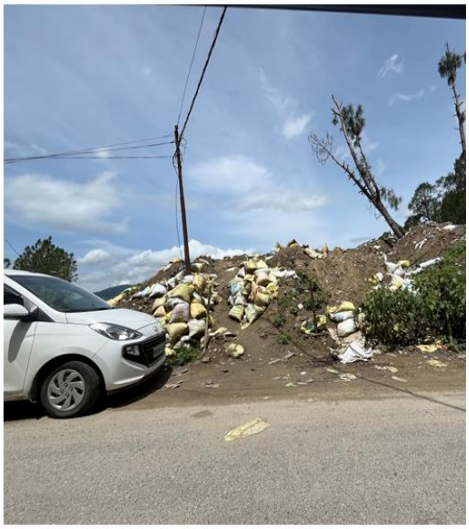
1. Common Garbage Bins

2. Waste Collection Vehicles

3. Open Drains



4. Open Littering around the Public Toilet



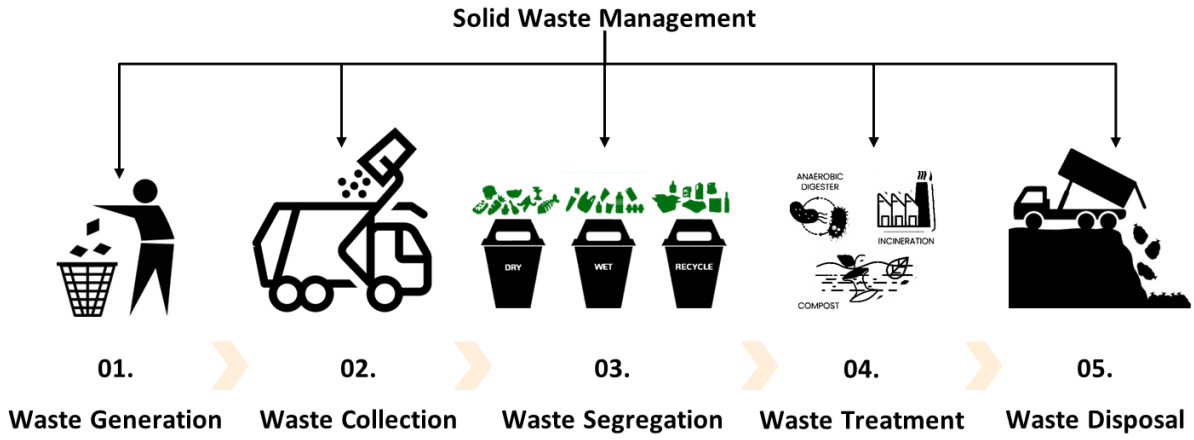
6. CND waste disposed around the road

5. Open Littering around the Garbage Bins

7. Road Side

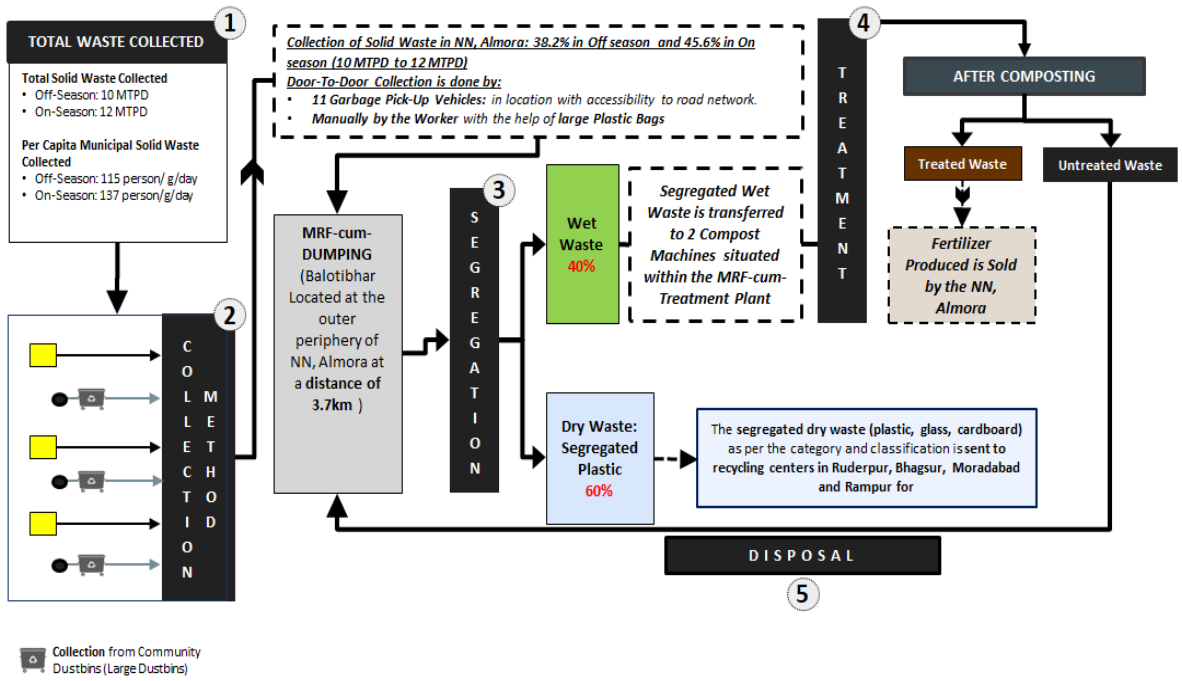
Source: (Primary Survey, 2024)

7.1.2. Process of Solid Waste Management in Almora Town



As per the discussions with the officials met (as mentioned in Annexure C), the Figure 18 below represents the flowchart for Solid Waste Management (SWM) in Almora Town.

Figure 18: Flowchart of Solid Waste Management (SWM) In NN, Almora



Source: (Nagar Palika Parishad, Almora, 2024), Author

As mentioned in the flowchart the SWM in NN, Almora can be broadly divided into five steps namely: Step-01: Waste Generation, Step-02: Waste Collection, Step-03: Waste Segregation, Step-04: Waste Treatment and Step-05: Waste Disposal.

a) Step 1- Waste Generation

As shown in Table 12, as per the discussions with the officials met (as mentioned in Annexure C), the major sources of solid waste generation in the town are the residential and commercial areas. The total volume of solid waste collected from Almora Town by the NN, Almora is 10 MTPD (during off-

season) and 12 MTP (during on-season). *The NN Almora does not have waste generation data but has only waste collection data.* Therefore, waste generation has been worked out as follows:

Norm – as per URDPFI Guidelines vol. – I, section 8.3.6 on Solid Waste Management Table 8.44, the waste generation/ capita /day is 0.3 to 0.6 kg/ capita/ day. Therefore in Almora, based on this norm, the total waste generation is estimated to be as follows:-

Table 12: Overview of waste generated in NN Almora

Solid Waste Generated in Nagar Nigam (NPP), Almora			
S.No.	**S.W. Generation as per Norm (URDPFI Guidelines)**	**S.W. Collection as per NN, Almora (2024)**	**Inferences**
1)	**On Season:-** **= 0.3 x 87,719** **= 26,315.7 kg/ day** **i.e. 300 g/ person/day (as per the URDPFI Guideline)**	**On Season:-** = 12 x 1000 = **12,000 kg/day** **45.6% collection efficiency**	• The gap between waste generation and collection is approximately **54.4%**, indicating that **14,135.7 kg/day** of waste remains uncollected during peak tourist seasons. This highlights a strain on the existing collection infrastructure due to the surge in visitors, leading to waste accumulation, littering, and environmental degradation.
2)	**Off Season :-** **= 0.3 x 87,119** **= 26,135.7 kg/ day** **i.e. 300 g/ person/day (as per the URDPFI Guideline)**	**Off Season :-** = 10 x 1000 = **10,000 kg/day** **38.2% collection efficiency**	• The gap increases to approximately 61.7**%**, leaving **16,135.7 kg/day** of waste uncollected during the off-season. This significant shortfall suggests inefficiencies in the collection system, even when waste generation is comparatively lower. It points to possible underutilization of resources or lack of optimized collection efforts during the off-peak period.

Source: (Nagar Palika Parishad, Almora, 2024),

b) **Step 2: Waste Collection**

As per the discussions with the officials met (as mentioned in Annexure C), the NN, Almora has appointed a Private Agency on contract basis (annually renewed on performance basis) for collection, transportation, segregation and disposal of solid waste generated in the Town. This private agency has further appointed a total number of 10+ sanitation workers (additional hired by the

private agency as per requirement) for door-to-door solid waste collection. These workers include supervisor, drivers and helpers.

The Table 13 below, shows the duties/responsibilities assigned to these sanitation workers for the collection and management of the solid waste generated throughout the town.

Table 13: Duties/Responsibilities of Sanitation Workers Appointed by the Private Agency for Solid Waste Management in NN, Almora.

S.No.	Sanitation Worker Appointed	Duties/Job Responsibility
01.	**Supervisors**	To **manage** the entire process of door-to-door collection throughout the Town.
02.	**Drivers**	To **drive and collect** the solid waste generated throughout the Town in the garbage pick-up vehicles provide by the NN, Almora, from the areas with proper road network accessibility.
03.	**Helpers**	To **manually collect** the solid waste from the areas with limited or zero road network accessibility in the buckets or large plastic bags provided by the NN, Almora.

Source: (Nagar Palika Parishad, Almora, 2024)

The sanitation workers (drivers and helpers) collect 100% of the solid waste (80% is collected manually and 20% through vehicles) generated in the town i.e. 10 to 12 Metric Tonnes Per Day (MTPD) twice every-day in the morning (in between 05:00 am to 06:00 am) and at night only through vehicles (after 10:00pm) on a regular basis. Door-to-door collection is done from all the households (10,445 HHs), the commercial areas and 62 community dustbins (47 surface cement bins and 15 underground bins) in the Town either by the help of vehicles (from areas with road network accessibility) provided by the NN, Almora or manually (from areas with limited or zero road network accessibility) by the help of buckets or large plastic bags provided by the NN, Almora.

As shown in Table 14, the NN, Almora has provided a total of 11 number of garbage pick-up vehicles to the Private Agency including 4 dumper trucks of 9m^3 capacity each (4X9=36m^3), 2 dumper placer trucks with 9m^3 capacity each (2X9=18m^3), 1 underground dustbin collection vehicle with 9m^3 capacity (1X9=9m^3), 1 side bin lifter with 4m^3 capacity (1X4=4m^3), 1 pickup vehicle with 4m^3 capacity each (1X4=4m^3) and 1 twin partitioned auto-tippers of 4m^3 capacity (1X4=4m^3).

Table 14: Details of Vehicles Provided by the NN, Almora to the Private Agency for Collection and Transportation of Solid Waste Generated in the Town

Type of Vehicles Provided for Transportation of Solid Waste to the Private Agency by the NN, Almora (Garbage Pick-Up Trucks)	Number of Vehicles Provided (B)	Capacity of Each Vehicle (m^3) (A)	Total Capacity (m^3) (C = AXB)
Dumper Trucks	4	9	36
Dumper Placer Truck	2	9	18
Underground Dustbin Collection Vehicle	1	9	9
Side Bin Lifter	1	4	4
Pickup Vehicle	1	4	4
Twin Partitioned Auto-Tippers	1	4	4
Total	**11**		**75**

Source: (Nagar Palika Parishad, Almora, 2024)

As mentioned in Table 15, the garbage collection vehicle collects garbage from the roadside community bins/garbage bins, major commercial areas, hotels and the kitchen wastes of hospitals and institutes. While, door-to-door collection takes place in the residential areas and major market areas. NN, Almora does not collect the waste from hospitals and institutes separately.

Table 15: Solid Waste Collection

Areas Collected-From	Collection Methods	Frequency of collection of Solid Waste
Community Bins (Surface Cement Bins and Underground Bins)	Garbage Collection Vehicles of NN, Almora	Twice Daily: Morning (05:00 am to 06:00 am) and At Night (After 10:00 pm)
Residential Areas	Door-to-door Collection	Once Every Morning (05:00 am to 06:00 am)
Major Commercial Areas	Door-to-door Collection and by the Garbage Collection Vehicles of NN, Almora	Twice Daily: Morning (05:00 am to 06:00 am) and At Night (After 10:00 pm)
Hotels	Garbage Collection Vehicles of NN, Almora	Twice Daily: Morning (05:00 am to 06:00 am) and At Night (After 10:00 pm)
Hospital Kitchen-Waste	Garbage Collection Vehicles of NN, Almora	Twice Daily: Morning (05:00 am to 06:00 am) and At Night (After 10:00 pm)
Hospital Waste (other than Kitchen-Waste)	Private agency hired by the hospitals themselves.	-
Institute Kitchen-Waste	Garbage Collection Vehicles of NN, Almora	Twice Daily: Morning (05:00 am to 06:00 am) and At Night (After 10:00 pm)

Source: (Nagar Palika Parishad, Almora, 2024)

The medical waste generated is collected, treated and disposed-off or incinerated by the respective hospital authorities by themselves within the hospital premises or by the help of another private organizations hired by themselves on contractual-basis.

As shown in the Table 16 below the NN, Almora charges ₹30/- per month for door-to-door collection of solid waste from the residential areas, ₹150/- per month from commercial areas, ₹150/- per month from the hotels without kitchen, ₹300/- per month from the hotels with kitchen, ₹300-2,000/- per month from the hospitals with kitchen and ₹300-2,000/- per month from the institutes with kitchen.

Table 16: List of User Charges Charged by NN, Almora for Door-To-Door Solid Waste Collection in the Town

List of User Charges Charged by NN, Almora for Door-To-Door Solid Waste Collection	
Area	**Charges (in INR)**
Residential	30/- Per Month
Commercial	150/- Per Month

Hotels without Kitchen	150/- Per Month
Hotels with Kitchen	300/- Per Month
Hospitals with Kitchen	300-2,000/- Per Month
Institutes with Kitchen	300-2,000/- Per Month

Source: (Nagar Palika Parishad, Almora, 2024)

As shown in Table 17, NN, Almora has established penalties for non-segregation of solid waste, i.e. ₹200-300/- for HHs, ₹5,000/- for marriage/party hall area Less than 5,000 m^2, ₹5,000/- for clubs, cinema halls and community halls having area less than 5,000 m^2, ₹4,000/- for other non-residential area less than 5,000 m^2 and ₹500/- for non-segregation of waste by fish meat sellers. But due to lack of enforcement mechanism is unable to enforce them on ground.

Table 17: Penalties Charged on Owners for Non-Segregated Solid Waste Collected in NN, Almora

Penalties on Non segregation of Solid Waste	
Area	**Penalties Charged (in INR)**
Non-segregation of waste by resident	200-300/-
Marriage/Party Hall (area Less than 5000 m^2)	5,000/-
Clubs, cinema halls and community halls (Having area less than 5000 m^2)	5,000/-
Other Non-Residential Area Less Than 5000 m^2	4,000/-
Non-segregation of waste by fish meat sellers.	500/-

Source: (Nagar Palika Parishad, Almora, 2024)

As shown in the Image 7, after the solid waste is collected from various sources it is transported to the MRF-cum-Treatment Plant (Balotibhar), located at the outer periphery of NN, Almora i.e. at a distance of 3.7 km form Almora Town.

Image 7: Existing Situation of Dumping-cum-Transfer Ground i.e. MRF-cum-Treatment Plant (Balotibhar), located at 3.7 km from NN, Almora

Source: (Primary Survey, 2024)

c) Step 3: Waste Segregation

As shown in Table 18, according to the discussions with the officials met (as mentioned in Annexure C), at present there is no practice of segregation at source level, only central level segregation of dry waste (plastic, plastic bags and plastic bottles) and wet waste is done by the sanitation workers hired by the Private Agency at MRF-cum-Treatment Plant. This practice of no source level segregation of waste reduces the overall efficiency of waste management in the Town. Moreover, the ULB has installed twin bins along the mall road to promote wet waste and dry waste segregation. But due to lack of awareness it is not being enforced and leads to the mixing of generated solid waste.

Table 18: Overview of Solid Waste Segregation Practises in NN, Almora for SWM

Overview of Solid Waste Segregation in NN, Almora		
Segregation at Source Level	• Central level segregation and Zero source level segregation in NN, Almora.	• NN Almora relies on centralized facilities for waste sorting this approach is less efficient and more resource-intensive. Reduces overall effectiveness of recycling and waste management.
	• Installation of Twin-Bins along with Mall Road to promote wet and dry waste segregation by the tourists & residence in town.	• Tourists and residence do not use the Twin-Bins for segregation of dry and wet waste in the NN, Almora due to lack of knowledge. Thus, leading to no segregation of waste.
Segregation of Solid Waste after collection at the MRF-cum-Treatment Plant	• Nagar Nigam has appointed a private agency to collect, segregate, and transport and dispose the solid waste generated in NN, Almora.	• The workers appointed by the private agency segregates the Plastic (dry waste) and wet waste from the total solid waste collected in the MRF-cum-Treatment Plant.

Source: (Nagar Palika Parishad, Almora, 2024), Author

d) Step 4: Waste Treatment

The segregated dry waste (plastic, glass, cardboard, etc.) further as per the category and classification is sent to recycling centres in Rudarpur, Bhagsur, Moradabad and Rampur, where it is sold by the sanitation workers appointed by the Private Agency for door-to-door collection for generation of some monetary benefits. While the remaining segregated wet waste is then composted by the help of two composting machines situated in the MRF-cum-Treatment Plant for "waste to compost" treatment.

As shown in .

Map 19, 2 compost pits are situated in the MRF-cum-Treatment Plant (Balotibhar), NN, Almora.

Map 19: MRF-cum-Treatment Plant Consisting of 2 Compost Pits in Almora Town

Source: (Google My Maps, 2024), Author

After the completion of the composting process approximately 40% of the segregated wet waste is converted into fertilizer. Thus, reducing the waste to 60% from 100%. The fertilizer created is further sold by the NN, Almora.

e) **Step 5: Waste Disposal**

According to the discussions with the officials met (as mentioned in Annexure C), the remaining 60% of the untreatable waste is then directly disposed by dumping on the MRF-cum-Treatment Plant by the Private Agency hired for SWM.

7.1.3. Potential Health Hazards

As per the discussions with the officials met (as mentioned in Annexure C), workers in prolonged close-contact with the Solid Waste develops serious skin diseases and issues related to lungs. Apart from this there have been no other health hazards reported in the past due to the untreated solid waste in the Town. To further control the outbreak of vector borne diseases, fogging is done on a regular basis during the summers and monsoon season by the NN, Almora.

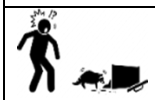
7.2. Present Government Policies for Solid Waste Management in Almora Town

Solid Waste Management Rule 2016 and Swatch Bharat Mission 2.0 are the only policies implemented in NN, Almora for SWM in the Town.

7.3. Issues/ Challenges

The Table 19 below highlights the issues/challenges identified along with the inferences for SWM in NN, Almora.

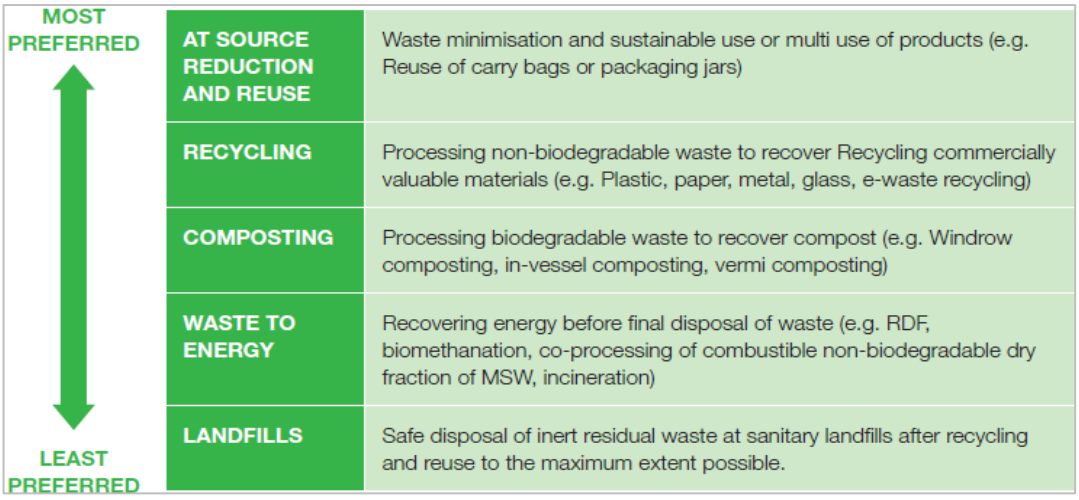
Table 19: Issues/Challenges Identified for SWM in NN Almora

S.No.	Issues/Challenges		Inferences
01.		**No Source Level Segregation/ Lack of Segregation Practices**	• In NN, Almora, inadequate awareness and lack of enforcement of waste segregation practices among residents can be seen, this result in mixing of waste. Without proper segregation at the source, recycling and composting efforts become challenging, leading to higher waste disposal rates.
02.		**Limited Solid Waste Treatment Facilities**	• NN, Almora has only 2 compost machines at present. Thus, increasing the time taken to treat the segregated solid waste. This further results in adding up to the existing legacy-waste of the town and reduces the efficiency of SWM of the Town.
03.		**Stray Animal Interference**	• Stray animals, particularly dogs, monkeys and cattle, often dig through community dustbins bins and scatter garbage across streets. This can lead to health hazards and sanitation issues.
		**Waste Contamination**	• Stray animals may consume or come into contact with harmful materials within the waste, leading to health risks for both humans and animals.
04.		**Illegal Dumping and Littering**	• Despite imposition of fine (ranging from ₹ 500/- to ₹ 5000/-) and the efforts to provide waste collection services, illegal dumping and littering is common in Almora. Improper disposal of waste in public spaces and natural areas not only detracts from the town's aesthetic appeal but also poses environmental and health hazards.
		**Public Health Concerns**	• Littering attracts pests such as rodents and insects, which can spread diseases among people and pose health risks to residents, tourists, and wildlife.
05.		**Environmental Impacts**	• Improper solid waste management practices contribute to environmental pollution, soil and water contamination. It also degrades the natural beauty.
06.		**Policy and Governance Issues**	• Weak enforcement of waste management regulations, limited funding and resources may hinder effective solid waste management in Almora.

7.4. Possible Solutions/Suggested Projects

A Stakeholder Consultation Meeting was held on 31st August 2024 with NN Almora. Based on the feedback provided by the official's possible solutions and suggested projects for improvement are proposed for Almora Town in Table 20 below.

Table 20: Possible Solutions/Suggested Projects to address the Issues/Challenges faced in Almora Town for Solid Waste Management (SWM)

S.No.	Possible Solutions/Suggested Projects
01.	**No Source Level Segregation/Lack of Segregation Practices**
	It is proposed that: a) **The NN, Almora undertakes the following:** i. **Implement and enforce** mandatory waste segregation at the source. ii. **Provide** households and businesses with separate bins for organic, recyclable, and non-recyclable waste. iii. **Conduct regular inspections** to ensure compliance. iv. **Offer incentives** to households that follow proper segregation practices. b) **NN, Almora** on **PPP model** should **collaborate** with **local NGOs, SHGs, Government Institutes,** the **Private Agency** hired for SWM (on contract basis) and **other willing volunteers to:** i. **Distribute Garbage Bags to each HH in the Town at door-to-door level** on a monthly basis. This initiative will help to **induce behavioral sensitization** among the residents of the Town for dry and wet waste **segregation at source level.** ii. **Build and Implement Awareness Campaigns and Workshops** at **Community Level**. *These **Campaigns and Workshops** should be **conducted at door-to-door** level to:* ✓ ***Promote** Waste Minimization.* ✓ *Educate people about the **importance of segregation of dry and wet waste**.* ✓ *Educate people about the **waste management hierarchy** as shown in the figure below.* Figure 19: Waste Management Hierarchy as per the Swachh Bharat Mission-Urban  *Source: (CPHEEO, MoHUA, 2018)*

02.	**Limited Solid Waste Treatment Facilities**

<u>It is proposed that:</u>

a) **The NN, Almora should undertake the following:**

i. **Install fully automatic Organic Waste Convertor (OWC) Machines especially the in-vessel and compact model for mechanical composting** as shown in the image below, to promote *"Waste to Compost"* facilities for SWM.

Image 8: Images of different models of Fully Automatic OWC Machine with in-vessel

Source: (Google Images, 2024)

<u>The fully automatic in-vessel Organic Waste Convertor (OWC) Machines:</u>

- ✓ *Have an in-vessel system (i.e. composting occurs in an enclosed environment) and treats all the waste in its treatment chamber.*
- ✓ *Provides better control over temperature, moisture and aeration.*
- ✓ *Do not require any associated equipment such as curing racks. Thus, making it compact and feasible.*
- ✓ *Produces compost that can be mixed with soil and used for various purposes like landscaping and organic farming.*
- ✓ *Do not require any skilled labour and can be easily operated by unskilled labour with minimal training as well.*
- ✓ *Have ergonomic design and built-in safety features.*
- ✓ *Are suitable for both medium and large-scale composting.*

ii. **Suggest appropriate number** of Mechanical Composting Machines, Waste Transfer Stations and MRF Centre required in the Town for MSWM.

iii. **Identify and propose suitable locations/sites in the Town** for Mechanical Composting Machines, Waste Transfer Station and MRF Centre.

iv. **Collaborate with local NGOs, SHGs, Government Institutes,** the **Private Agency** hired for SWM (on contract basis) and other **willing Volunteers** on **PPP** model to **build and implement Awareness Campaigns and Workshops** at **Community Level.**

<u>These Campaigns and Workshops should be conducted at door-to-door level to undertake the following:</u>

- ✓ *Provide information about the* ***"Waste to Compost systems"*** *as per the,* ***Swachh Bharat Mission-Urban****: Advisory on On-Site and Decentralized Composting of Municipal Organic Waste, by CPHEEO, MoHUA, 2018, for:*
  - ***Individual HHs****, Small Communities, Apartments up to 10HHs,*

Medium Sized Communities*, Apartments, RWAs for 11-300 HHs, Medium Sized Offices, medium Hotels, Resorts, medium Schools, Canteens, Marriage Halls, etc.*

	b) **NN, Almora** on **PPP model** should collaborate with **local NGOs, SHGs, Government Institutes, the Private Agency** hired for SWM (on contract basis) and other **willing volunteers** to **Build and implement** Awareness Campaigns at **Community Level** to promote the **3R Approach:** ✓ ***"Reduce":*** *Methods available to help* ***reduce the total waste generated*** *in the Town by reducing the waste generated at HH Level.* ✓ ***"Reuse":*** *Options available for* ***re-purposing or reuse*** *of items for more than once at HH level.* ✓ ***"Recycle":*** *Information about* ***recycling options available at HH level****.* *This initiative will help to responsibly manage the waste generated by the residents at HH level.*
03.	**Stray Animal Interference and Waste Contamination Caused by Them**
	It is proposed that: a) **The NN, Almora should undertake the following:** i. **Proactively implement and monitor** animal control measures, such as Sterilization Programmes. ii. **Monitor and ensure** collection of garbage on a regular basis from the community dustbins in the town. iii. **Install animal-proof waste containers** to mitigate waste contamination caused by stray animals.
04.	**Illegal Dumping /Littering of Garbage and Public Health Concerns Because of It**
	It is proposed that: a) **The NN, Almora** on **PPP model** should **collaborate** with **local NGOs, SHGs, Government Institutes,** the **Private Agency** hired for SWM (on contract basis) and **other willing volunteers** along with the **Police Department** to: i. **Increase monitoring** during tourist season to stop illegal dumping/littering of waste in the Town. Especially in the major market areas. ii. **Impose high penalties and fines** on the people (tourists or residents) identified by the monitoring teams on-ground. b) **The NN, Almora should undertake the following:** i. **Monitor** the **regular cleaning** of roads and **collection of garbage** from the community dustbins during tourist season. ii. **Maintain Digital Records** of the penalties/fines collected for illegal dumping/littering of garbage by the respective teams, on a regular basis. iii. **Implement pest control measures** to alleviate public health concerns arising from pests such as rodents and insects attracted by the littering of waste.
05.	**Environmental Impacts**
	It is proposed that: a) **The NN, Almora** on **PPP model** should **collaborate** with **local NGOs, SHGs, Government Institutes,** the **Private Agency** hired for SWM (on contract basis) and **other willing volunteers to:** i. **Promote sustainable waste management practices** to mitigate environmental impacts. ii. **Build and implement environmental awareness campaigns/workshops** like Clean-

	Up Drives in public spaces and other tourist spots to maintain cleanliness and to spread awareness among the people for better SWM practices to reduce its impact on the environment. iii. **Develop Green Infrastructure like** rain gardens, permeable pavements, bioswales, etc. to manage storm water runoff and reduce choking of drains.
06.	**Policy and Governance Issues**
	is proposed that: a) **The State Government of Uttarakhand should undertake the following:** i. **Impose strict policy norms** for the use of plastic in the State. To reduce the plastic waste produced the State Government should completely ban the sales of plastic bottles of less than 1 liter in volume. ii. **Implement Extended Producer Responsibility (EPR) Schemes** to hold producers responsible for the end-of-life management of their products, encouraging them to design sustainable products. iii. **Strengthen Regulatory Framework** by enhancing coordination among relevant stakeholders and allocating adequate resources essential for addressing the SWM challenges faced by the ULBs in the hilly State of Uttarakhand. iv. **Conduct surprise visits and inspections** to evaluate the on-ground progress of the projects by the ULBs on a regular basis. b) **The NN, Almora should undertake the following:** i. **Strengthen Awareness Programmes** by **Building and implementing respective** Programmes/campaigns/workshops required for effective SWM in Almora Town. Respectively, teams should be formed under the suggested Programmes/campaigns/workshops and a Nodal Officer should be appointed to each team by the NN, Almora. ii. **NPP should suitably increase the vehicles and other infrastructure.** *The Nodal Officer appointed should:* ✓ ***Strictly Monitor*** *the Implementation of the work assigned to their respective teams.* ✓ ***Maintain an Annual Progress Report,*** *comprising the details of the on-ground progress of the respective teams and submit them to the State Government of Uttarakhand.* iii. **Encourage volunteering participation** among the residents by awarding a "Participation Certificate" sanctioned by the State Government of Uttarakhand to all the individuals of the respective teams. iv. **Encourage School students to participate in Awareness Programmes/workshops/campaigns by organizing special-activities in schools** every day for an hour. To promote this initiative and spread awareness among other student's T-shirts should be printed and distributed to school students for the same. v. **By implementing the above, the collection efficiency can be improved.**

Chapter 8.

Urban Transport and Parking

Chapter 8. Urban Transportation and Parking in Almora Town

8.1. System Infrastructure

As shown in Table 21 below, Almora Town accommodates 2 National Highway i.e. NH-109 and NH-309A and NH-309B. Apart from this, it is also connected with other major road networks on district level from the North West and South East direction. These are the major road network present in the Town that provides inter-state and intra-state connectivity.

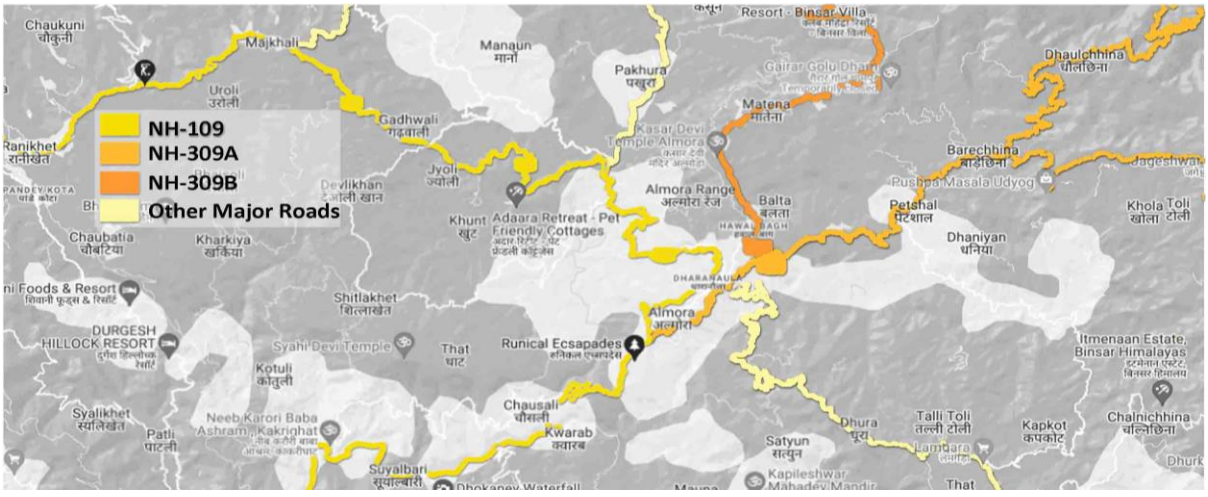
Table 21: Details of Major Road Network of Almora Town

S.No.	Road Network	Connects Almora Town with
01.	**NH-109** **(connecting from South, South-West, North-West)** Almora-Ranikheth-Kosi Road Almora-Gopeshwar Road	• Cities including: Rudrapur, Pantnagar, Haldwani, Kathgodam, Nainital, Bhowali, Ranikhet. • Other Major Districts within the Kumaon Region of Uttarakhand State of India. • With other States of India.
02.	**NH-309A** **(connecting from North, North-East)** Almora-Barechhina Road	• City of Rameshwar to Almora. • Other Districts: Pithoragarh, Bageshwar, Almora.
	NH-309B **(connecting from East direction)** Almora-Barechhina Road	

Source: (Google Maps, 2024)

The NH-109 also known as the Almora-Ranikheth-Kosi Road/Almora-Gopeshwar Road connects the South, South-West and North West direction and provides road network connectivity for Almora with several other cities including Rudrapur, Pantnagar, Haldwani, Kathgodam, Nainital, Bhowali, Ranikhet and other states of India. The NH-309A and NH-309B commonly known as the Almora-Barechhina Road are single lane highways connecting the city of Rameshwar to Almora from the North, North-East and East direction. The Map 20, below shows the connectivity through the major road network of Almora Town.

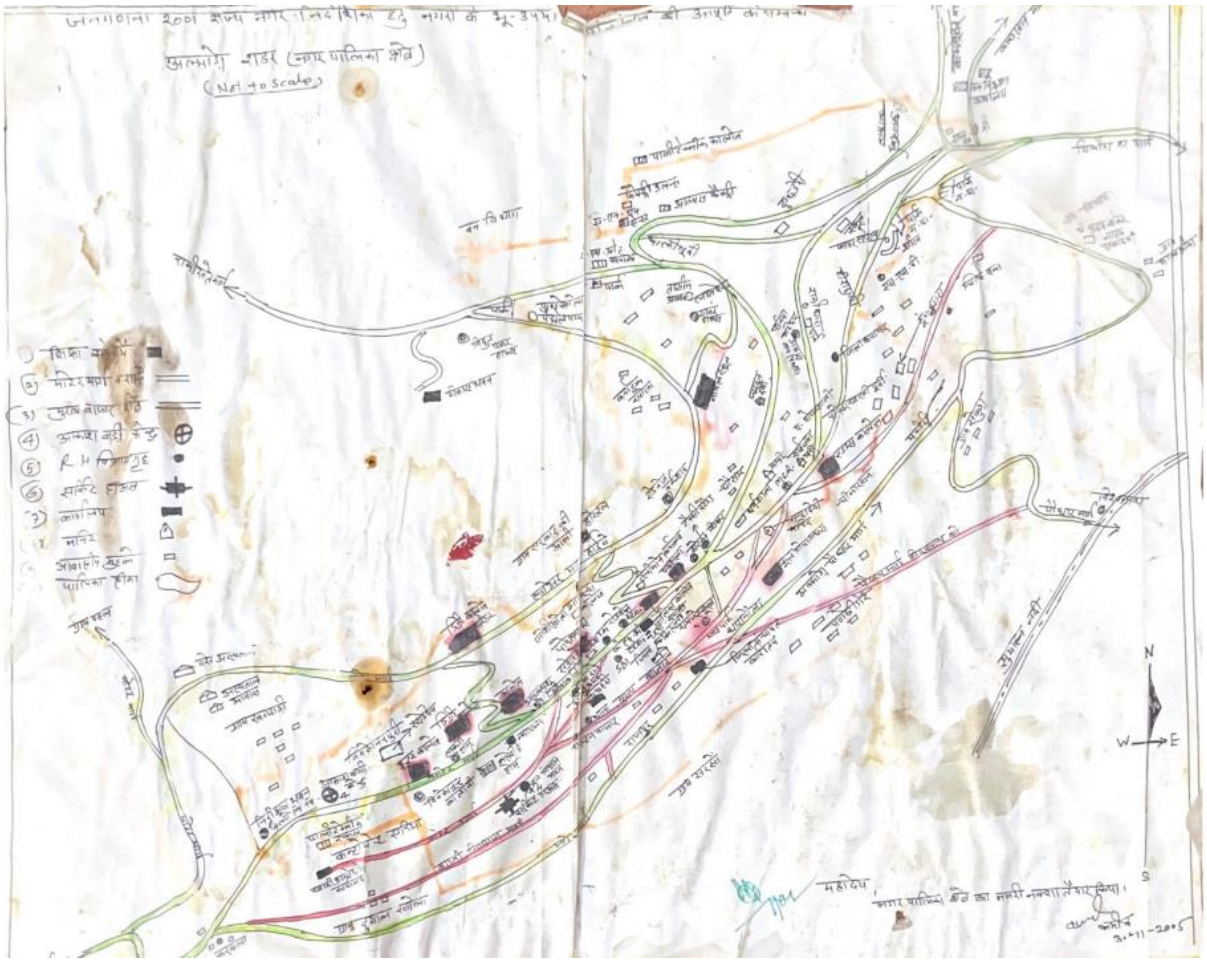
Map 20: Existing Major Road Network of Almora Town



Source: (Google Maps, 2024) and (Primary Survey, 2024)

As shown in Map 21, according to the discussions with the officials met (as mentioned in Annexure C) there is very limited hierarchy of road in the Almora Town due to geographical constraints and difficulty in maintenance of the infrastructure. The traffic carrying capacity of these roads is less due to limited widths, intense land use and encroachments. Majority of the roads have steep gradients. None of these roads have proper road geometry, proper signages and traffic signals, appropriate number of street lights, guard rails, side protection barrier, road reflectors, road markings, appropriate turning radius, etc. for easy and safer flow of traffic and pedestrian movement. Thus, making it difficult to manage free movement of traffic and even more dangerous for the pedestrian movement during the rainy season. Thus, the town require redesigning of the entire road geometry with proper signages, road signals, street lights, barrios, road side reflectors, footpaths, side protection barrier, etc. to promote easy flow of traffic and encourage pedestrian movement along the road.

Map 21: Internal Road Hierarchy of Almora Town



8.1.1. Present connectivity

To travel from the major cities of India to Almora Town, road network is the most convenient and easy to access medium. Bus, shared taxies, local cabs, personal vehicles, railways and airways are the possible modes of transportation to reach Almora Town.

As shown in Table 22, the Town has one major bus station known as Tallital Bus Station. It is located at the Thandi Sadak, Tallital near the NH-109, Almora. The nearest railway station is Kathgodam

Railway Station, situated at a distance of 36 km from the Town. While Pantnagar Airport located at a distance of 70 km from the Town is the only domestic airport in function for the entire Kumaon region of Uttarakhand State.

Table 22: Overview of Present Connectivity of NN, Almora

Road Network	Railways	Airways
• Almora Town has 3 Major Bus Station known as ISBT Almora, Almora Bus Stand and Uttarakhand Nigam Bus Stand.	• The nearest railway station for Almora Town is Kathgodam Railway Station, Kathgodam.	• The only Airport for the entire Kumaon Regions is the Pantnagar Airport in Pantnagar.
Image 9: Bus Stand in NN, Almora  *Source: (Google Images, 2024)*	Image 10: Nearest Railway Station: Kathgodam Railway Station, Kathgodam, 83km away from NN, Almora (2 hour 41 minutes away)  *Source: (Google Images, 2024)*	Image 11: Nearest Airport: Pant Nagar Airport Approx. 120 km away from NN, Almora (3 hours 21 min. away)  *Source: (Google Images, 2024)*

Source: (Nagar Palika Parishad, Almora, 2024), (Primary Survey, 2024)

8.1.2. Present Parking Situation in NN, Almora

As shown in Table 23, NN, Almora has only 3 operational parking areas and current parking infrastructure is insufficient to meet the daily vehicle influx, especially during peaks tourist seasons. Apart from this, 5 other major parking has been proposed by the NN, Almora to expand the parking facilities of the Town. The most significant issue is the prevalence of street parking due to lack of parking facilities.

Table 23: Parking Situation of NN, Almora

Parking Situation in NN, Almora				
S.No.	**Parking Name**	**Location**	**Description**	**Vehicle Capacity**
	Present Parking in Municipal Limits			
1	NN, Town Hall Parking	Near Shikhar Hotel		4-Wheeler - 400 2-Wheeler–700-800
2	Taxi Stand Parking	Near Main Market		
3	2 & 4-wheeler Parking	Abhilasha Road		
	Proposed Parking in Municipal Limit			
1	Taxi Stand	Near Truck Stand	Multi- Level (4-5 Floors)	NA
2	Bhairav Mandir Parking	Near Bhairav Mandir	2 Wheeler Parking	NA

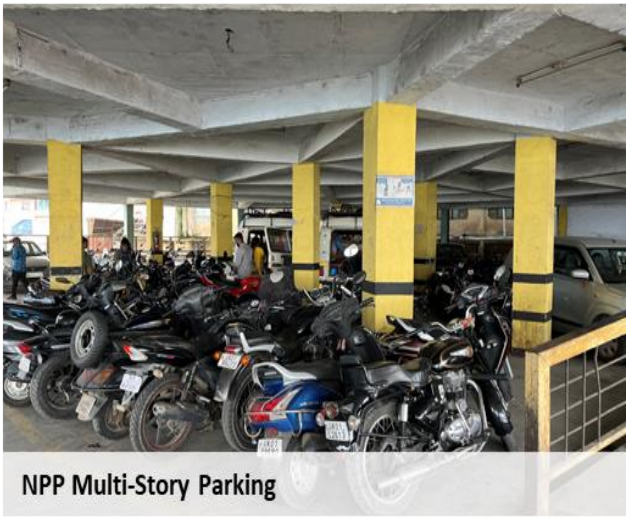
3	Kemu Parking	Kemu Parking	NA	NA
4	Girls Govt. Inter College	Taxi Stand	Parking for Taxi (Commercial)	NA
5	Girls Govt. Inter College	Girls Govt. Inter College	For 2 wheelers	NA

Source: (Traffic Police, Almora, 2024), (Nagar Palika Parishad, Almora, 2024), (Stakeholder Consultation Meeting, 2024)

Image 12: Existing Present Parking Scenario

Under construction Parking near NPP, Almora

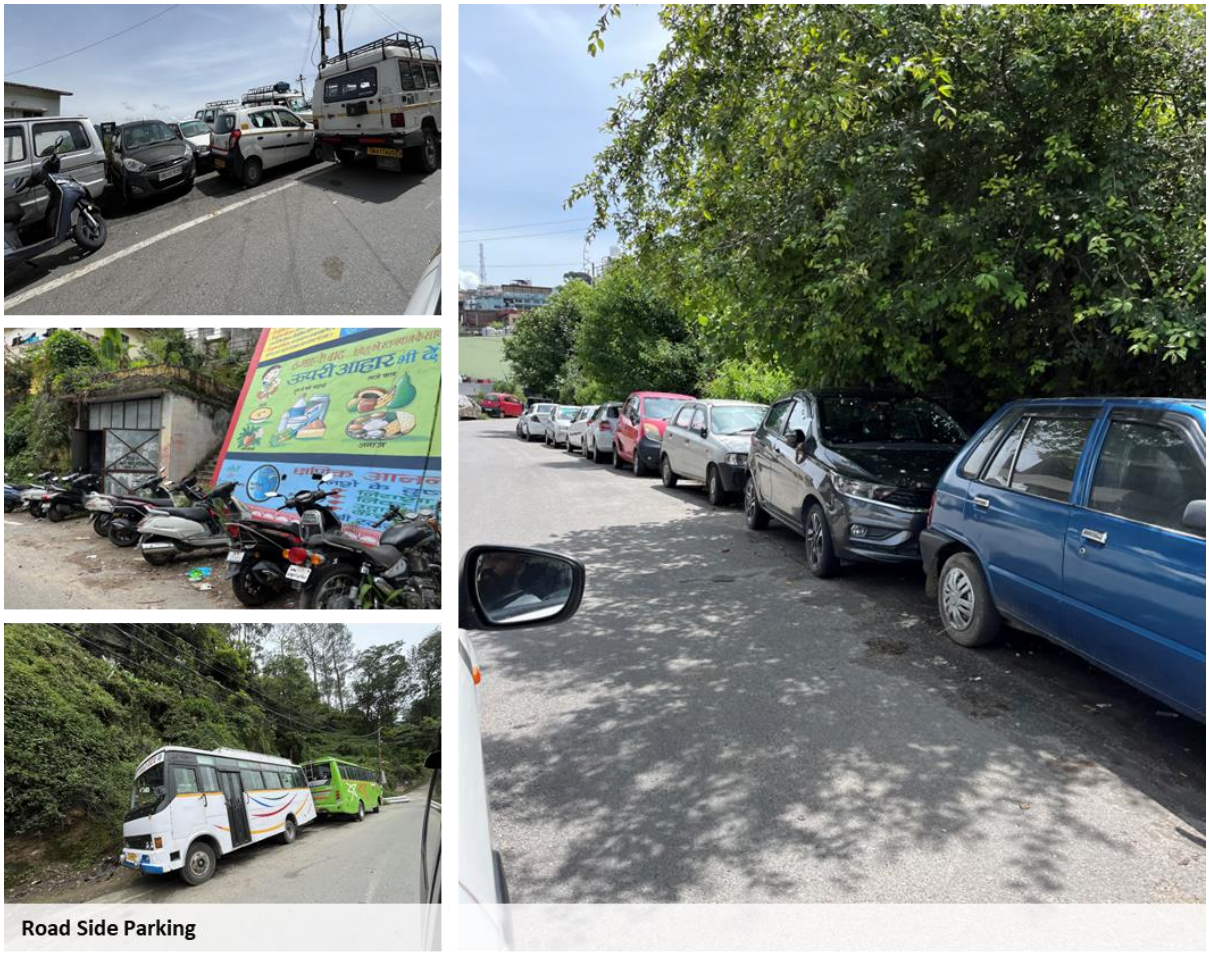
Galu Devi Parking



NPP Multi-Story Parking

Parking Near Smart Mart

Road collapsed due to landslide Near NPP



Road Side Parking

Source: *(Google Images, 2024)*, *(Primary Survey, 2024)*

a) ***Tourist Places and Congestion Points:***

As shown in Map 22, NN, Almora only has 2 temples Galu Mandir and Kasar Devi Mandir. Other main tourist destinations (Jageshwar Dam, Binsar Wildlife Sanctuary, Dunagiri etc.) of Almora that are far away, so the tourists do not stay in town, but to reach to these Destinations tourist vehicle passes through the Almora Town. This creates congestion on Mall Road, Dharanaula during Tourist season.

Almora Town serves as a major hub for approximately 25 nearby villages, attracting people due to its availability of schools, colleges, markets, and job opportunities. This influx of people significantly impacts the town's transportation infrastructure and parking facilities, leading to increased pressure on existing systems.

Map 22: Location Map of Tourist Places and Congestion Points in NN, Almora

Source: (Nagar Palika Parishad, Almora, 2024), (Tourism Department, Almora, 2024), (Police Department, Almora, 2024), (Stakeholder Consultation Meeting, 2024) (Google Maps, 2024), (Primary Survey, 2024) *and Author*

8.2. Present Government Policies for Urban Transportation and Parking in Almora Town

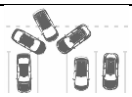
At present for urban transport and parking there is no State Level or any other specific policy being implemented in NN, Almora.

8.3. Issues/Challenges

The Table 24 below highlights the issues/challenges identified along with the inferences for urban transport and parking in NN, Almora.

Table 24: Issues/Challenges Identified for Urban Transport and Parking in NN, Almora

S.No.	Issues/Challenges		Inferences
01.		**Limited Road Infrastructure**	• Almora has narrow and winding roads due to its hilly terrain. This makes traffic congestion a common issue, especially during peak tourist seasons. The limited road capacity exacerbates the problem, leading to traffic jams and delays.
		**Infrastructure Maintenance**	• Maintaining the existing road infrastructure in hilly terrain like Almora is challenging and costly. Landslides, road erosion, and other natural factors frequently disrupt transportation routes, leading to temporary closures and detours, further complicating travel plans for locals and tourists alike.

02.		**Insufficient Parking Facilities**	• Almora currently has only 3 Operational Parking areas, which are inadequate to handle the daily influx of vehicles, especially during peak tourist seasons. • This leads to causing congestion and traffic jams on key roads like Mall Road and Dharanaula.
03.		**On-Street Parking Problems**	• The lack of designated parking space at the household level, forces the users to park on the streets, exacerbating congestion and creating safety hazards.
04.		**Traffic Congestion**	• Major Tourist destinations such as Jageshwar Dam and Binsar Wildlife Sanctuary are located far from Almora Town, resulting in tourist vehicles passing through the town. • This traffic exacerbates congestions, particularly during peak season when tourist number spick.
05.		**Impact of the Manas Khand Yatra Project**	• While the project aims to promote spiritual tourism and increase footfall, it may further strain the existing infrastructure if not adequately managed. • The influx of Pilgrims could exacerbate current congestion issues.
06.		**Regulatory Issues**	• Inadequate enforcement of parking regulations and traffic rules exacerbates the transport and parking problems in Almora. • Illegal parking, encroachments on roadsides, and lack of designated parking zones contribute to the chaos on the streets
07.		**Environmental Concerns**	• The increasing number of vehicles in Almora Town contributes to traffic congestion along with air and noise pollution. • This will have detrimental effects on the local environment and public health.

8.4. Possible Solutions

A Stakeholder Consultation Meeting was held on 31st August 2024 with NN, Almora. Based on the feedback provided by the official's possible solutions and suggested projects for improvement are proposed for Almora Town in the Table 25 below.

Table 25: Possible solutions/Suggested Projects for Urban Transport and Parking in Almora Town

S.No.	Possible Solutions/Suggested Projects
01.	**Limited Road Infrastructure and Infrastructure Maintenance**
	<u>It is proposed that:</u> a) **The NN, Almora should undertake the following:** i. **Re-design** the complete road geometry of Almora Town and **install appropriate number of** proper signages, traffic signals, street lights, guard rails, side protection barrier, road reflectors, road markings, turning radius, etc. For easy and safer flow of traffic and pedestrian movement. ii. **Develop and maintain** non-motorized transport pathways to encourage pedestrian movement. iii. **Prepare a Risk Assessment and Planning Report based on:** ✓ **Geological Survey:** to identify landslide-prone areas and assess soil stability and construct retaining walls, rock bolts and gabions to stabilize slopes. ✓ **Seismic Hazard Mapping:** to evaluate seismic risks and identify vulnerable road sections and retrofit existing road structures to withstand earthquakes. ✓ **Fire Risk Analysis:** to identify areas susceptible to forest fires, focusing on sensitive road segments and create firebreaks along roads near forest areas. iv. **Install Integrate Seismic Sensor** to detect soil movement and signs of potential landslides and provide early warning signs of earthquakes. v. **Install infrared cameras and satellite monitoring** for early detection of forest fires. vi. **Implement advanced traffic management systems** (Real time Signal Adjustment, Traffic Monitoring cameras) that monitor and manage traffic flow, especially during peak tourist seasons. b) The NN, Almora in collaboration with the Police Department, Almora and the Traffic Police Department, Almora **should regularly inspect and maintain these road structures.**
02.	**Insufficient Parking Facilities**
	<u>It is proposed that:</u> a) **The NN, Almora** should undertake the following: i. **The planned Addition of 5 new parking areas within NN, Almora, should be prioritized and expedited to alleviate street parking issues, this expectation can help accommodate the increased vehicle influx from both tourists and residents. The NN, Almora** should launch **Public Awareness campaigns** to inform residents and tourists about the New Fare Regulations and Digital System.

	ii. Construct a Multi-Level Parking facility in or near Dharanaula. This would accommodate a significant number of vehicles, reducing the need for street parking in Dharanaula. b) **The NN, Almora** should work with local businesses and tourist attractions to offer discounts and incentives for pass holders to encourage public transport in the Town.
03.	**On-Street Parking Problems**
	<u>It is proposed that:</u> a) **The NN, Almora** should undertake the following: i. Make it mandatory for every house (for new construction) to include a designated parking space as a requirement for its layout plan approval. ii. Conduct thorough inspections throughout the construction process. iii. **Implement a rule allowing each household to own only one personal four-wheeler, with a designated parking space within their property**. If a second vehicle is purchased, **a registration fee of 15% of the vehicle's cost should be applied**. This policy would encourage the use of public transportation, alleviate environmental strain, and help address parking issues. b) **The NN, Almora in collaboration with the Police Department and Traffic Police Department should undertake the following:** i. **Install single stack automated car parking wherever required in parking areas which are flat.** It will help to increase the existing parking capacity and will add up as a quick solution to the existing on-street parking issue by encouraging residents to park in dedicated parking spaces. Image 13: Image of an example of Single Stack Automated Car Parking  *Source: (Google Images, 2024)* ii. **Enforce parking restrictions in critical areas** like major tourist attractions. iii. **Identify and develop** suitable locations for constructing light structure models for additional parking infrastructure on the outskirt of the Town for peak tourist

	season with appropriate drinking water and toilet amenities. iv. **Implement Digital Parking/Smart Parking System** to provide real-time information on parking availability. v. All the hotel booking websites should be connected to a **digital/portal/electronic system** wherein along with the hotel room booking, the parking slots can also be booked and paid for this will enable better parking management. vi. **Acquire and deploy** a fleet of shuttle buses to provide regular, economical and reliable service during the tourist season from the parking to Almora Town. c) **The NN, Almora under PPP Module** should collaborate with private entities for funding and managing parking facilities. d) **The NN, Almora should promote** peripheral parking and shuttle services through signage and information campaigns. e) **Surge pricing should be introduced for parking by the NN, Almora.**
04.	**Traffic Congestion**
	<u>It is proposed that:</u> a) **The NN, Almora in collaboration with the Police Department and Traffic Police Department should undertake the following:** i. At the entry of the Mall Road, an **online camera system or any such advanced digital system should be installed** so as to correctly capture the number of incoming and outgoing vehicles so as to enable better management. ii. **Conduct detailed traffic studies and create a digital database on a daily basis** to identify maximum number of vehicles the Town can accommodate **and limit the number of vehicles** entering the Town accordingly. iii. **Conduct Traffic Surveys** to identify the peak traffic hours for all the four critical congestion areas and then further **create Traffic Diversion Plans** to implement traffic diversions during those peak traffic hours to eliminate traffic congestion. iv. **Identify and establish one-way traffic systems** in areas with bottleneck situations during traffic hours to streamline traffic movement. v. **Introduce Time-Based Restrictions on vehicular entry** in the Town to regulate traffic flow during peak hours. vi. **Create a Rapid Response Unit:** to establish dedicated teams for identification of areas with extreme traffic congestion and monitor free flow of traffic through regular patrolling on them and penalizing the defaulters entering wrong lane. vii. **Develop alternative routes** or bypass roads for tourist vehicles to reduce congestion within the Town. viii. **Introduce shuttle services** to transport tourists to major destinations, minimizing the number of vehicles passing through the town.
05.	**Impact of the Manas Khand Yatra Project**
	<u>It is proposed that:</u> a) **The NN, Almora should undertake the following:**

	i. **Implement** advanced traffic management systems (Real time Signal Adjustment, Traffic Monitoring cameras) that monitor and manage traffic flow, especially during peak tourist seasons.
06	**Regulatory Issues**
	<u>It is proposed that:</u> a) **The NN, Almora** should conduct regular inspections and periodic reviews of public transport systems and infrastructure. b) **The NN, Almora in collaboration with the Police Department and Traffic Police Department should undertake the following:** **i.** Deploy dedicated parking enforcement teams to **conduct regular patrols and issue fines.** **ii.** **Use Digital Systems** to collect and analyze data on transport usage and performance. **iii.** **Acquire and install automated ticketing and surveillance systems.** **iv.** **Integrate surveillance footage** with **enforcement actions** and traffic management systems. **v.** **Develop and launch** a mobile app with user-friendly features for reporting violations. **vi.** **Implement strict enforcement of speed limits through patrols and automated systems.** c) **The NN, Almora in collaboration with local NGOs, SHGs, Government Institutes and other willing volunteers should gather Public Feedback** from Local Residents and Tourists to assess satisfaction and identify areas for improvement.
07.	**Environmental Concerns**
	<u>It is proposed that:</u> a) **The NN, Almora should undertake the following:** i. **Promote the use of eco-friendly transportation options** such as bicycles or suitable public transport options. ii. **Offer Subsidies or Tax Incentives** for the purchase and use of hybrid vehicles to the local residents. iii. **Develop policies and incentives for eco-friendly transportation options adoption**, including reduced parking fees and tax benefits. iv. **Set up emission testing centres** and create a compliance monitoring system. v. **Develop and enforce** policies for noise control, including fines for non-compliance. vi. **Provide incentives** for residents and tourists who participate in pollution reduction activities, such as using public transport. b) **NN, Almora in collaboration with local NGOs, SHGs, Government Institutes and other willing volunteers to undertake the following:** i. Conducting Campaigns to educate local residents about the benefits of switching to electric and low-emission vehicles and the impacts of air and noise pollution and to promote eco-friendly practices. ii. Engaging the community through programs that encourage carpooling, walking, and cycling.

	The following detailed surveys/ studies need to be initiated: ✓ Volume count survey (inner and outer cordon) ✓ Desire line mapping ✓ Speed and delay survey ✓ Road inventory survey ✓ Origin Destination survey and preparation of OD matrix ✓ Household survey ✓ Goods survey ✓ Land availability/ land suitability survey for parking Lots and MLCP. **Based on the above, detailed recommendations could be worked out.**

Chapter 9.

Water Availability and Supply

Chapter 9. Water Availability and Supply in Almora Town

9.1. System Infrastructure

As shown in the Image 14 below, *"Kosi River"* also known as *"Kosila"* locally is the primary source of water for Nagar Nigam, Almora. It originates in the high-altitude region of about 2,500 m (above sea level) in Baramandal region of Almora district in Kumaon region of the State of Uttarakhand and flows through the valleys and towns of Ramnagar. After emerging Dharpani Dhar, the river flows through the valleys and towns of Ramnagar before entering the Tarai region of Uttar Pradesh, where it merges with the Ramganga River.

Image 14: Image of Kosi River

Source: (euttaranchal, 2024)

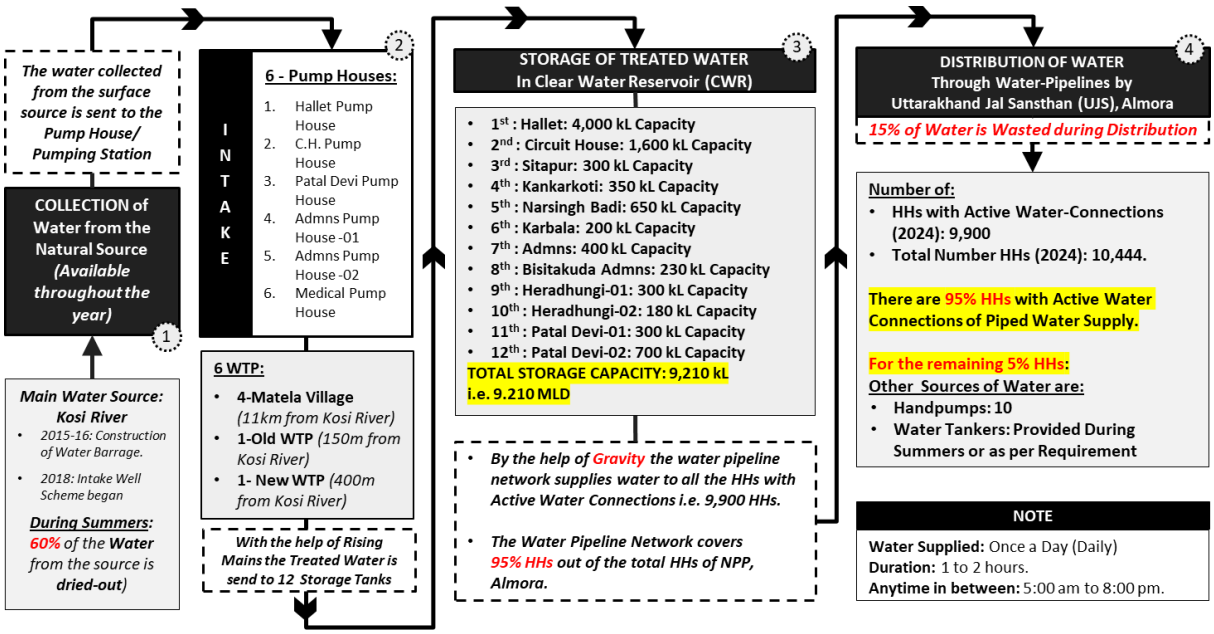
As per the (euttaranchal, 2024), Kosi River has a length of 168 km and it plays a substantial role in supporting the local ecosystem and the daily lives of the local residents of the town. It is primarily recharged by precipitation, through snowmelt form the glaciers, ground water (from nearby aquifers and spring flows), surface runoff and tributaries. The river experiences seasonal variations in the average monsoon discharges ranging from 15 m^3/s (during dry season) to 200 m^3/s (during peak monsoon season). Thus, making it crucial to plan the resource management of water in Almora Town accordingly. Apart from the community livelihood the river also plays an important role in adding to the scenic beauty and has the potential to act as a tourist attraction spot in Almora district. Thus, can serve as a stepping stone for the Eco-Tourism in Almora district.

Despite the importance the river holds, due to the rapid urbanization, improper waste disposal, soil erosion, extreme water extractions, water theft and global warming, the Kosi River has been facing crucial challenges like pollution, flooding, erosion and dries-up almost up-to 60% of its total volume (only during extreme summers). All these issues require suitable management strategies and are necessary to mitigate the risks associated to them.

9.1.1. Process of water supply in Almora Town

Figure 20 below depicts the flowchart of the process of water supply system in Almora Town. The process can broadly be divided into four steps namely step-01: collection of water, step-02: intake and treatment of water, step-03: storage of treated water and step-04: distribution of water.

Figure 20: Flowchart of Process of Water Supply System in NN, Almora



Source: (Uttarakhand Jal Sansthan, Almora, 2024), (Pey Jal Nigam Uttarakhand, Almora, 2024), (Stakeholder Consultattion Meeting, 2024), Author

a) Step-01: Collection of Water

The main source of water in the town is Kosi River i.e. surface water. It is available throughout the year. In the year 2015-16 water barrage was constructed to extract water. It was in the year 2018 that the intake well scheme came into existence. This natural source of water is available throughout the year and faces extreme pressure during the tourist season (i.e. May, June, July, August, December and January), especially in the peak tourist season i.e. the month of June and December. During summers the collection of water from these sources is affected as 60% of the water from the source is dried out.

b) Step-02: Intake and Treatment of Water

The water is collected from the surface and is transported to the pump house/pumping station located at six different locations namely, Hallet Pump House, C.H. Pump House, Patal Devi Pump House, Admns Pump House-01, Admns Pump House-02 and Medical Pump House.

After intake of water in the pump house/pumping station, for the treatment of water to make it potable, it is sent to 6 WTPs (Water Treatment Plants) located at three different locations i.e. 4 WTPs at Matela village (situated at a distance of 11km from Kosi River), 1 Old WTP (situated at a distance of 150m from Kosi River) and 1 New WTP (situated at a distance of 400m from Kosi River).

The Image 15 below, shows the image of WTP in NN, Almora

Image 15: Image of WTP in NN, Almora

Source: (Primary Survey, 2024)

c) Step-03: Storage of Treated Water

By the help of rising mains, the treated water from the six WTPs is transported to 12 storage tanks i.e. Clear Water Reservoir (CWR) located at various locations in the Town. These tanks vary from a capacity of 180 kl to 4,000 kl i.e. having a total capacity of 9,210kL i.e. 9.210 MLD.

The .

Image 16 below, shows the image of CWR in NN, Almora.

Image 16: Image of CWR in Almora Town

Source: (Primary Survey, 2024)

d) **Step-04: Distribution of Water**

As per the discussions with the officials as mentioned in Annexure C, the Pay Jal Nigam Uttarakhand (PJNU), Almora has constructed the water pipeline network of Almora Town. This water pipeline network covers almost 95% of households out of the total households of NN, Almora. While from the 12 CWRs the treated drinking water is distributed by the Uttarakhand Jal Sansthan, Almora. They distribute water in Almora Town by the help of gravity through the water pipeline network constructed by the PJN, Almora. The water pipeline network supplies water to all the HHs with active water connections in the Town i.e. 9,900HHs (95% of the total HHs of NN, Almora). Almost 15% of water is wasted during water distribution. The water is supplied for 1 to 2 hours once a day daily anytime in-between 5:00am to 8:00pm. The remaining 5% of the HHs receive water through other handpumps only.

The Image 17 below consists of some images of existing water pipeline network in Almora Town as taken in the month of March, 2024.

Image 17: Some Images of Existing Water Pipeline Network in Almora Town

Source: (Primary Survey, 2024)

9.1.2. Demand and Supply of Water

As per the discussions with the officials met (as mentioned in Annexure C) at present UJS, Almora is supplying 12.5 MLD of water in off season and 13 MLD of water is supplied on season. However, the demand is 11.78 MLD in off season and 11.84 MLD in on season. Thus, there is no gap in water supply. In Almora Town water is supplied once a day, daily anytime in between from 5:00am to 8:00pm.

The

Table 26, shows the comparative analysis of the existing situation of the water supplied in the town according to the officials met (as mentioned in Annexure C) to the benchmark as per the CPHEEO. 100% of the town has pipeline coverage.

Table 26: Comparative Analysis of Benchmark (as per CPHEEO) and Existing Situation of Water Availability and Supply (as per ULBs) in NN, Almora

NN, Almora: Water Supply: Existing Situation (As per the Discussions with the Officials Met)			
Indicator	**Benchmark (as per CPHEEO)**	**Existing (as per UJS, Almora and PJNU, Almora)**	**Inferences (based on discussions with the Officials met and the Data Provided by them)**
Per Capita Water Supply *	135 LPCD	Off-Season: 143 LPCD On-Season: 148 LPCD	• **Water Supplied** a) Off-Season: 12.5MLD b) On-Season: 13 MLD • **Water Demand** a) Off-Season: = 135 x 87,119 **= 11.78 MLD** b) On-Season: = 135 x 87,719 **= 11.84 MLD**
Gap in Water Supply	Nil	Nil	
Water Coverage (Area Covered)	100 %	100 %	• UJS, Almora covers 100% of the total area with pipeline connections (Domestics and Non-Domestic). Water served to 10,445 HHs of NN, Almora with 36 villages.
Water Supply Coverage (Population Serviced)	100 %	95% HHs	• UJS, Almora Covers almost 95% of the total HHs in Almora Town.
Continuity of Water Supply	24/7 Hours/Day	1-2 Hours/Day	• In NN, Almora water is supplied Once a Day (Daily) for 1-2 hours anytime in between 05:00 am to 08:00 pm.
Extent of metering of Water Connection	100 %	-	• To understand the extent of

Extent of Non-Revenue Water	20 %	-	metering of watering connection and non-revenue water in the Town it is important to do the metering of all the piped water connections in the Town.

Source: (Uttarakhand Jal Sansthan, Almora, 2024)

**The water supply per capita per day is an average figure of water supply. In reality, some houses get as low as 90 lpcd while some others get around 200 lpcd.*

9.1.3. Water Tariff

Throughout the State of Uttarakhand, the Uttarakhand Jal Sansthan charges fixed rates based on:

01. Annual Building Assessment used to assess building tax, or

02. As per the consumption of water supplied in buildings with water meter connections.

As shown in Table 27, the water tariff based on the annual assessment of residential building is divided into 9 slabs. Further, the amount for water consumption charged per month is according to the method of water distribution used i.e. through gravity, low head or high head. The lowest amount is charged for distribution through gravity while the highest is charged for distribution through high head due to the power consumed for distribution of water supply. The annual assessment certificate is provided by the NN, Almora i.e. ULB of the Town.

Table 27: Minimum Charges (Water Price) ₹ per Month as per the Annual Assessment of Building for Water Supply in Urban Residential Area by the UJS, Almora

Minimum Charge (Water Price) ₹ Per Month as per the Annual Assessment of Building for Water Supply in Urban Residential Area				
S.No.	**Annual Assessment of Building**	**Effective Rates as on Date 01-04-2023**		
		Gravity	**Low Head**	**High Head**
01.	Up-to ₹360	176.40	186.20	199.92
02.	₹361 to ₹2,0000	186.20	199.92	215.60
03.	₹2,0001 to ₹3,500	219.52	235.20	264.60
04.	₹3,501 to ₹6,000	327.00	357.52	407.66
05.	₹6,0001 to ₹8,000	390.22	407.66	488.32
06.	₹8,0001 to ₹10,000	455.62	488.32	521.02
07.	₹10,001 to ₹12,000	488.32	521.02	566.80
08.	₹12,001 to ₹14,000	521.02	566.80	599.50
09.	More than ₹14,001	708.50	763.00	817.50

Source: (Uttarakhand Jal Sansthan, Almora, 2024)

To register for the Annual Assessment of Building the owner needs to declare the number of floors, area of their house and the HH size. Apart from this a mandatory one-time registration fees of ₹6,000/- is also charged by UJS. For people belonging to the BPL category this mandatory fees for one-time registration are reduced from an amount of ₹6,000/- to only ₹100/- by the UJS. Further, the amount for water consumption charged per month is according to the method of water distribution used i.e. through gravity (₹10/- per kl per month), low head (₹13.75/- per kl per month) or high head (₹15.63/- per kl per month).

Table 28 shows the standard water tariff for the consumption of water supplied in residential buildings with meter connections, is charged per month based on the amount of water consumed per kilo Litres per month. The amount of water consumed by the beneficiary is based on readings recorded from the water meter installed by the UJS at the beneficiary's house. Further, the amount for water consumption charged per month is according to the method of water distribution used i.e. through gravity (₹10/- per kl per month), low head (₹13.75/- per kl per month) or high head (₹15.63/- per kl per month).

Table 28: Water Price Rates for Metered Domestic Water Connections (₹ per Kilo Litre per Month) by UJS

Water Price Rates (Domestic Metered Connections) in ₹ Per Kilo Liter Per Month				
S.No.	**Description**	**Effective Rates as on Date 01-04-2023**		
		Gravity	**Low Head**	**High Head**
01.	Urban Area	10.00	13.75	15.63

Source: (Uttarakhand Jal Sansthan, Almora, 2024)

As shown in Table 29, the water tariff for the consumption of water supplied in non-domestic buildings with meter connections, is charged per month based on the amount of water consumed per kilo Litres per month. The amount of water consumed by the beneficiary is based on readings recorded from the water meter installed by the UJS at the beneficiary's registered building with meter connection. Further, the amount for water consumption charged per month is according to the method of water distribution used i.e. through gravity, low head or high head. The lowest amount is charged for distribution through gravity while the highest is charged for distribution through high head due to the power consumed for distribution of water supply.

Table 29: Water Price Rates (Non-Domestic Metered Connections) ₹ per Kilo Litre by the UJS

Water Price Rates (Non-Domestic Metered Connections) ₹ Per Kilo Litre				
S.No.	**Description**	**Effective Rates as on Date 01-04-2023**		
		Gravity	**Low Head**	**High Head**
01.	***Nagar Nigam***			
A	Special Category and Industrial Area	31.25	39.00	46.88
B	Other Business Establishments	27.50	31.25	41.25
C	Other government and institutional Area/Cantonment Area	26.25	30.00	41.25
02.	***Nagar Panchayat***	26.25	26.25	41.25

Source: (Uttarakhand Jal Sansthan, Almora, 2024)

9.2. Tourism and Water Supply

The hotels and guest house in Almora Town, meets the additional water demand, at times, by the help of hand pumps as no additional water tankers are available at present.

9.3. Present Government Policies for Water Supply in Almora Town

At present, no government policies are being implemented in the town.

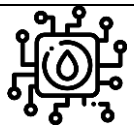
9.4. Water Sustainability

To supply water in the Town and compensate for the evaporation losses, sub-surface outflow needs to be managed through springs and nature-based solutions.

9.5. Issues/Challenges

The Table 30 below, highlights the issues/challenges identified along with the inferences for water availability and supply in NN, Almora.

Table 30: Issues/Challenges Identified for Water Availability and Supply in NN, Almora

S.No.	Issues/Challenges		Inferences
01.		**Dependency on Natural Sources**	• Almora heavily relies on natural water sources such Kosi River for its water supply. However, The Kosi River vulnerable to over-extraction, and environmental degradation, affecting both water quality and quantity. • Erratic rainfall patterns and inadequate storage capacity exacerbate these challenges, requiring efficient water management strategies. • Kosi River is replenished through features such as hillside slopes, natural spring water, natural rainfall, surface runoff, storm water drains, during monsoon season the subsurface inflow and glaciers. These limited replenishment sources add on the existing pressure to maintain the water level of Kosi River to meet the future water demand of the residents and the floating population. • Over-extraction and environmental degradation, affecting both water quality and quantity.
02.		**Infrastructure Limitations**	• Old water lines laid across town since 1992, so it is not mapped and thus when water leaks or any fault in line occurs, the error takes a lot of time to resolve. • The aging water supply infrastructure in Almora may not be able to meet the needs of its growing population if not maintained well for the future.
03.		**Geographical Constraints**	• As per the discussion with official met, the installation of water pipelines in town is very difficult due to its Geographical constraints
04.		**Contamination of Water and Water Quality Issues**	• Some of the water pipelines run through permanent cement bins and drains, which significantly increases the risk of water

			contamination and affecting water quality. • Apart from this, silt deposition due to heavy rains also adds up the pollution of the natural water resource.
05.		**Trained Professionals**	• The UJS, Almora is currently facing manpower issues, which is affecting the efficiency and maintenance of water supply services in the area. • The shortage of skilled staff is leading to delays in addressing water supply system and overall operational effectiveness.
06.		**Climate Change Impacts**	• Climate change is likely to worsen existing water challenges in Almora Town. • Increased temperatures, changing precipitation patterns, and melting glaciers in the Himalayas can further stress water resources, leading to more frequent and severe water shortages.
07.		**Water Governance and Management**	• It is important to do the metering of water connections in the Town and to generate the data on the extent of metering in the Town to understand the existing situation of the extent of non-revenue of water connection in the Town. This will help to manage the water theft (if-any) in the Town by the residents or floating population of the Town. Moreover, it will also be beneficial to implement sustainable solutions to manage the existing perishable water resource of the Town. • Effective governance and management of water resources are critical for addressing Almora's water supply challenges. • Coordination among government agencies, local authorities, community groups, and other stakeholders is necessary to develop and implement sustainable water management practices and policies.

9.6. Possible Solutions/Suggested Projects for Water Availability and Supply in NN, Almora

A Stakeholder Consultation Meeting was held on 31st August 2024with NN, Almora. Based on the feedback provided by the official's possible solutions and suggested projects for improvement are proposed for Almora Town in the Table 31 below.

Table 31: Possible solutions/Suggested Projects for Water Availability and Supply in NN, Almora

S.No.	Possible Solutions/Suggested Projects
01.	**Dependency on Natural Sources**
	<u>It is proposed that:</u> a) **The UJS, Almora and PJNU, Almora in collaboration should undertake the following:** i. Conduct a detailed assessment of all water resources in terms of capacity and quality on a periodic basis so that withdrawal and replenishment is done in a balanced manner so as to maintain sustainability. ii. **Develop a comprehensive Water Management Plan t**hat includes efficient distribution systems, real time monitoring of water levels, and predictive modelling for water demand. iii. **Implement Water Conservation Practices** such as Rainwater Harvesting in residential, commercial, public buildings, community parks, etc. iv. **Identify suitable sites for Groundwater Recharge Points** and construct recharge wells on them. v. **Invest** in increasing storage capacity by identifying suitable locations and building new reservoirs to enhance the existing water storage capacity to store surplus water during peak tourist seasons. ***<u>These practises will help to achieve the following:</u>*** ✓ Recharging the groundwater and reducing the reliance on natural source of water i.e. Kosi River and other local springs. ✓ Stop and regulate the over-extraction of water form Kosi River.
02.	**Infrastructure Limitations**
	<u>It is proposed that:</u> a) **PJNU, Almora** on an urgent basis **should prepare upgraded GIS Map** of the existing water supply pipeline network of Almora Town to easily trace and tackle any issue related to water leakages and prevent water contamination in the future. b) **PJNU, Almora** should do **regular inspections** and **regularly repair** any damages or issues in the existing pipeline network in the town to prevent water contamination and pressure drop in the piped water supply in the town. c) **PJNU, Almora** and **UJS, Almora should undertake the following:** i. **Prepare and Maintain Digital Records** of the maintenance schedule of the water supply pipeline network in the Town for easy monitoring and future expansions of the water pipeline network in the Town. ii. **Develop and Implement Emergency Water Supply Plans** for future water shortages (if any) including temporary water supply measures and distribution

	strategies.
03.	**Geographical Constraints**
	<u>It is proposed that:</u> a) **The UJS, Almora and PJNU, Almora in collaboration should undertake the following:** i. **Develop decentralized water supply systems**, such as community-based small water treatment plants or local reservoirs, to reduce the need for extensive pipeline networks. ii. **Use flexible and durable piping materials** that can adapt to the terrain and reduce the risk of damage or leaks.
04.	**Contamination of Water and Water Quality Issues**
	<u>It is proposed that:</u> a) **The UJS, Almora and PJNU, Almora in collaboration should undertake the following:** i. **Develop a Comprehensive Wastewater Treatment and Sediment Management System** that includes: ✓ Ecological Restoration of Kosi River and other local springs/gadheras. ✓ Upgradation of the Old WTP. This will help to improve water quality, restore habitats, and enhance natural filtration. ii. **Water Recycling Plants should be installed so that wastewater can be recycled and used again.** iii. **Upgrade Wastewater Treatment Plants** to ensure all sewage and wastewater undergo proper treatment before being discharged into the river or other natural springs. iv. **Implement** measures to protect and enhance natural replenishment sources like hillside slopes, natural springs and storm water drains. This includes afforestation, erosion control, and maintaining natural habitats. v. **Relocate water pipelines** that are currently running through cement bins and drains to safer locations to prevent contamination. vi. **Establish regular water quality monitoring and testing protocols** to ensure that the water supply remains safe for consumption.
05.	**Trained Professionals**
	<u>It is proposed that:</u> a) **The State Government of Uttarakhand** in collaboration with the ULBs should establish Think Tanks for on-ground technical assistance to the local authorities. b) **UJS, Almora** and **PJNU, Almora** should develop and implement: ✓ **Capacity Building and Training Programmes** among the local government employees. ✓ **Knowledge Dissemination Programmes** among the local government employees

	and the local residents.
06.	**Climate Change Impacts**
	<u>It is proposed that:</u> a) **UJS, Almora and PJNU, Almora in collaboration should undertake the following:** i. **Develop Climate-Resilient Water Supply Infrastructure** like Dual-Piping Systems to separate potable and non-potable water, allowing for efficient use of treated wastewater and harvested rainwater for non-drinking purposes. ii. **Conduct Water Usage Audits** for major water users to identify inefficiencies and recommend conservation measures. iii. **Promote** water efficiency practices to mitigate the climate change on future water availability and water supply in NN, Almora. iv. **Implement Integrated Water Resource Management (IWRM)** by: ✓ **Developing and Implementing Plans** to protect and manage the catchment areas to enhance groundwater recharge. ✓ **Preparing Hydrological Models** to predict and plan for future water availability and demand under various climate scenarios. ✓ **Establishing Water Allocation Policies** for equitable and sustainable water allocation among different users, considering future climate impacts. ✓ **Developing Early Warning Systems** for floods and water shortages using real-time data and forecasting tools.
07.	**Water Governance and Management**
	<u>It is proposed that:</u> a) **UJS, Almora and PJUNU, Almora should undertake the following:** i. **Install Smart Water Management System by:** ✓ **Installing Smart Meters** and developing a system for accurate data collection to monitor water usage and detect non-revenue water connections. ✓ **Internet of Thing (IoT) Integration devices to monitor** water pressure, flow and quality across the distribution network. ✓ **Installing Automated Leak Detection Systems** for automated detection and reporting of leaks or abnormal water usage patterns. ✓ **Develop a Monitoring System** for underground water levels. ✓ **Enforcing Strict Regulations** on training for system operation and maintenance.

ii. **Prepare Water Usage Data Analysis Report** to understand consumption patterns, detect anomalies, and support decision-making for water management.

iii. **Enhanced Stakeholder Coordination Mechanism** by establishing committees that include representative from government agencies, local authorities, community groups and other stakeholders to facilitate communication and coordination.

iv. **Enforce Strict Regulations and Penalties** on industries, businesses and households to prevent the direct discharge of untreated wastewater into the river.

b) **UJS, Almora** and **PJNU, Almora** on **PPP model** should **collaborate** with the **Police Department, local NGOs, SHGs, Government Institutes** and **other willing volunteers to:**

i. **Identify Defaulters** and **Implement Strict Fines** for littering waste in the Storm Water Drainage System of Almora Town.

ii. **Build and Implement Awareness Campaigns and Workshops** at Community Level to educate people about:

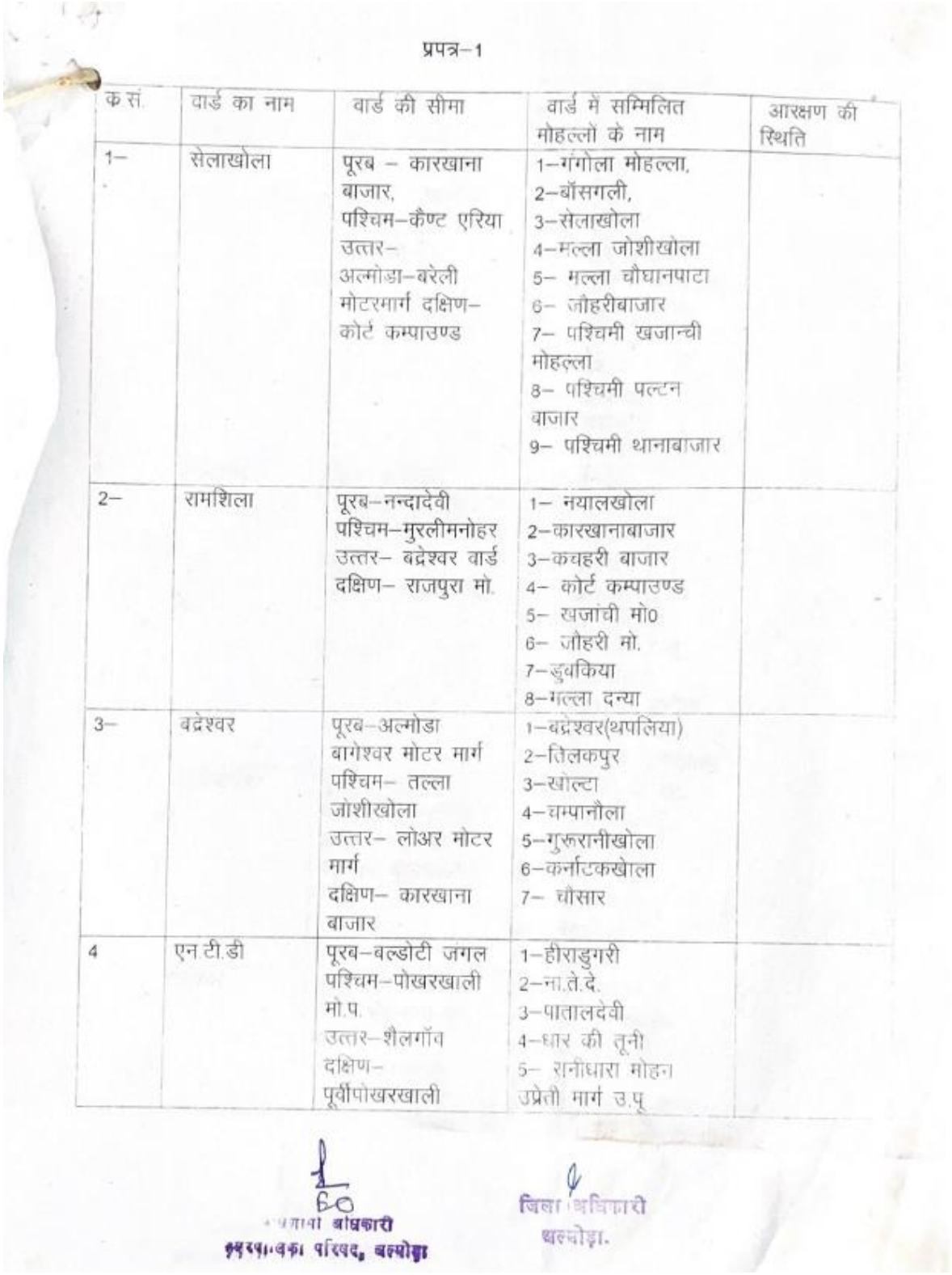
- ✓ Rainwater Harvesting System and its benefits to reduce dependency on Kosi RIver and promote conservation of water.
- ✓ Community Based Water Management Initiatives.

Annexure A

Annexure A

Details of documents collected from various departments in Almora Town

Figure 21: Ward Boundaries Details by Nagar Nigam, Almora



प्रपत्र–1

क्र.सं.	वार्ड का नाम	वार्ड की सीमा	वार्ड में सम्मिलित मोहल्लों के नाम	आरक्षण की स्थिति
1–	सेलाखोला	पूरब – कारखाना बाजार, पश्चिम–कैण्ट एरिया उत्तर– अल्मोड़ा–बरेली मोटरमार्ग दक्षिण– कोर्ट कम्पाउण्ड	1–गंगोला मोहल्ला, 2–बाँसगली, 3–सेलाखोला 4–मल्ला जोशीखोला 5– मल्ला चौघानपाटा 6– जौहरीबाजार 7– पश्चिमी खजान्ची मोहल्ला 8– पश्चिमी पल्टन बाजार 9– पश्चिमी थानाबाजार	
2–	रामशिला	पूरब–नन्दादेवी पश्चिम–मुरलीमनोहर उत्तर– बद्रेश्वर वार्ड दक्षिण– राजपुरा मो.	1– नयालखोला 2–कारखानाबाजार 3–कचहरी बाजार 4– कोर्ट कम्पाउण्ड 5– खजांची मो0 6– जौहरी मो. 7–डुबकिया 8–मल्ला दन्या	
3–	बद्रेश्वर	पूरब–अल्मोड़ा बागेश्वर मोटर मार्ग पश्चिम– तल्ला जोशीखोला उत्तर– लोअर मोटर मार्ग दक्षिण– कारखाना बाजार	1–बद्रेश्वर(थपलिया) 2–तिलकपुर 3–खोल्टा 4–चम्पानौला 5–गुरूरानीखोला 6–कर्नाटकखोला 7– चौसार	
4	एन.टी.डी	पूरब–बल्डोटी जगल पश्चिम–पोखरखाली मो.प. उत्तर–शैलगॉव दक्षिण– पूर्वीपोखरखाली	1–हीराडुगरी 2–ना.ते.दे. 3–पातालदेवी 4–धार की तूनी 5– रानीधारा मोहन उप्रेती मार्ग उ.पू.	

खण्ड विकास अधिकारी
खण्ड विकास परिषद, बल्यो

जिला अधिकारी
बल्यो.

			6–शैल 7–पश्चिम पोखरखाली 8–एन.टी.डी ग्रामीण	
5–	त्रिपुरासुन्दरी	पूरब– मकेडी पश्चिम– नन्दादेवी उत्तर– चम्पानौला दक्षिण– पूर्वी पोखरखाली	1–त्यूनरा 2–पन्तखोली 3– बांसभीडा 4– विष्टाकुडा 5– मिशन कम्पाउण्ड 6– पश्चिम पोखरखाली 7– मल्ला एवं तल्ला कसून 8–झिझार 9–बख्शीखोला 10–स्यूनराकोर्ट 11–चौधरीखोला	
6–	लक्ष्मेश्वर	पूरब–रानीधारा पश्चिम–रैलापाली उत्तर– सिटोली सैन्य भूमि दक्षिण– चौसार मो0	1–जाखनदेवी 2–कपीना 3–लक्ष्मेश्वर 4–करडीखोला 5–पाण्डेखोला 6–तल्ला रानीधारा 7–तल्ला मल्ला गली 8– पानीउडियार 9– पाण्डेखोला ग्रामीण 10– पोथ फ्री सैम्पलस्टेट 11– अथरवाडी (आंशिक)	
7–	मुरलीमनोहर	पूरब–रामशिला पश्चिम–कैण्टएरिया उत्तर– सेलाखोला दक्षिण– दुगालखोला	1–पूर्वी पल्टन बाजार 2–पूर्व थाना बाजार 3– टम्टा मोहल्ला 4– नरसिंह बाडी 5– कुवाडखोला 6– बमनखोला 7– डोबानौला	
8–	बालेश्वर	पूरब–फलसीमा एवं चितई पंत ग्रम की सीमा पश्चिम–धारानौला उत्तर– हीराडुगरी	1–तल्ला पोखरखाली 2– पूर्वी पोखरखाली 3–सेंटल स्कूल से उत्तर पूरब का भाग 4– बुद्विपुर एवं ढूँगाधारा	

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			6–शैल 7–पश्चिम पोखरखाली 8–एन.टी.डी ग्रामीण	
5–	त्रिपुरासुन्दरी	पूरब– मकेडी पश्चिम– नन्दादेवी उत्तर– चम्पानौला दक्षिण– पूर्वी पोखरखाली	1–त्यूनरा 2–पन्तखोली 3– बॉसभीडा 4– विष्टाकुडा 5– मिशन कम्पाउण्ड 6– पश्चिम पोखरखाली 7– मल्ला एवं तल्ला कसून 8–झिझार 9–बख्शीखोला 10–स्यूनराकोर्ट 11–चौधरीखोला	
6–	लक्ष्मेश्वर	पूरब–रानीधारा पश्चिम–रैलापाली उत्तर– सिटोली सैन्य भूमि दक्षिण– चौसार मो0	1–जाखनदेवी 2–कपीना 3–लक्ष्मेश्वर 4–करडीखोला 5–पाण्डेखोला 6–तल्ला रानीधारा 7–तल्ला मल्ला गली 8– पानीउडियार 9– पाण्डेखोला ग्रामीण 10– पोथ फ्री सैम्पलस्टेट 11– अथरवाडी (आंशिक)	
7–	मुरलीमनोहर	पूरब–रामशिला पश्चिम–कैण्टएरिया उत्तर– सेलाखोला दक्षिण– दुगालखोला	1–पूर्वी पल्टन बाजार 2–पूर्व थाना बाजार 3– टम्टा मोहल्ला 4– नरसिंह बाडी 5– कुवाडखोला 6– बमनखोला 7– डोबानौला	
8–	बालेश्वर	पूरब–फलसीमा एवं चितई पंत ग्रम की सीमा पश्चिम–धारानौला उत्तर– हीराडुगरी	1–तल्ला पोखरखाली 2– पूर्वी पोखरखाली 3–सेंटल स्कूल से उत्तर पूरब का भाग 4– बुद्विपुर एवं ढूँगाधारा	

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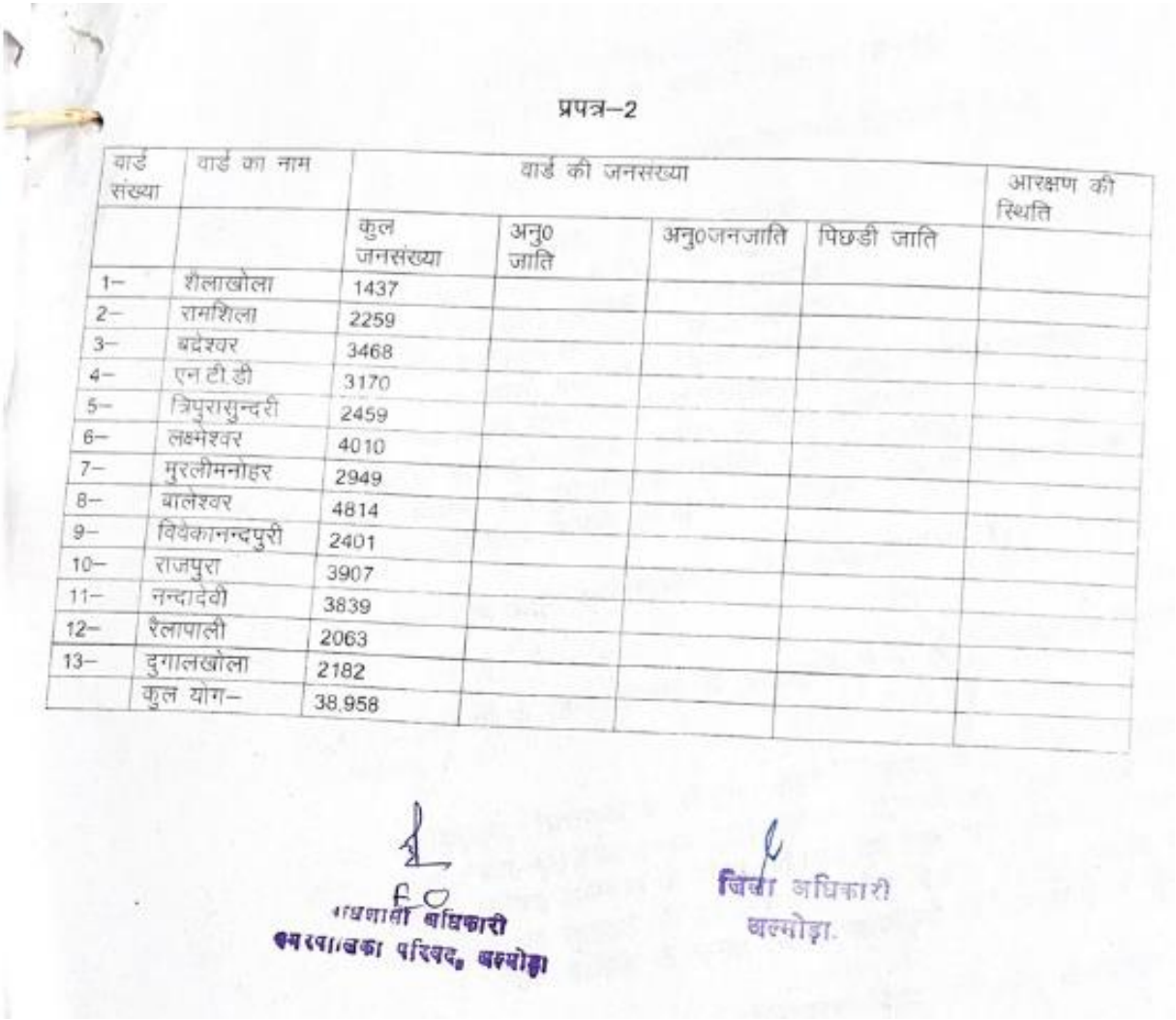
		दक्षिण– सैकुडागॉव	5–मकेडी 6–चीनाखान 7–आवास विकास कालौनी 8–शिशु सदन किशोरी सदन वसासत	
9–	विवेकानन्दपुरी	पूरब– मुरलीमनोहर पश्चिम–लोअरमालरोड उत्तर– बद्रेश्वर दक्षिण– कैन्टएरिया	1–सैनिक कल्याण ऐरिया 2–तल्ला जोशीखोला एवं कनौली 3–तल्ला चौधानपाटा(मोटर मार्ग के नीचे)	
10–	राजपुर	पूरब– तल्ला दन्या पश्चिम–रामशिला उत्तर– उ0रामशिला दक्षिण– सरसौ गॉव	1–राजपुर 2–जोशीखोला 3–ओढखोला तल्ला एवं मल्ला 4– बाडीबगीचा 5–प्यारखोला	
11	नन्दादेवी	पूरब– त्रिपुरासुन्दरी पश्चिम–रामशिला मो0 उत्तर– अल्मोडा एल. आर.साह मोटर मार्ग दक्षिण– जंगल एवं सरसो गॉव	1–नन्दा देवी मोहल्ला 2–लाला बाजार 3–नियाज गंज 4–तल्ला दन्या 5–धारानौला 6–उप्रेतीखोला	
12–	रैलापाली	पूरब– लक्ष्मेश्वर वार्ड पश्चिम–रैलात्याडी उत्तर–लक्ष्मेश्वर वार्ड की सीमा दक्षिण– सरकार की आली	1– रैलापाली 2–रोडवेज वर्कशाप 3–मालाभवन 4–न्यू इन्दिरा कालौनी 5–	
13–	दुगालखोला	पूरब– सरसो ग्राम की सीमा पश्चिम–माल एवं कैण्ट की सीमा उत्तर– कैण्ट बोर्ड की सीमा दक्षिण– ग्राम माल की सीमा	1– दुगालखोला 2– खगमराकोट 3– आफिसर्स कालौनी नरसिंह बाडी म्यू0 वाहक	

आयुक्त अधिकारी
उत्तराखण्ड परिषद, अल्मोड़ा

जिला अधिकारी
अल्मोड़ा।

Source: (Nagar Nigam, Almora, 2024)

Figure 22: Ward Population Details by Nagar Nigam, Almora



प्रपत्र–2

वार्ड संख्या	वार्ड का नाम	वार्ड की जनसंख्या				आरक्षण की स्थिति
		कुल जनसंख्या	अनु0 जाति	अनु0जनजाति	पिछडी जाति	
1–	शैलाखोला	1437				
2–	रामशिला	2259				
3–	बद्रेश्वर	3468				
4–	एन टी डी	3170				
5–	त्रिपुरासुन्दरी	2459				
6–	लक्ष्मेश्वर	4010				
7–	मुरलीमनोहर	2949				
8–	बालेश्वर	4814				
9–	विवेकानन्दपुरी	2401				
10–	राजपुरा	3907				
11–	नन्दादेवी	3839				
12–	रैलापाली	2063				
13–	दुगालखोला	2182				
	कुल योग–	38,958				

अधिशासी अधिकारी
नगर पालिका परिषद, अल्मोड़ा

जिला अधिकारी
अल्मोड़ा.

Source: (Nagar Nigam, Almora, 2024)

Figure 23 Details of Schools/ Institutes in Almora

Sr. No.	Name of Schools/Institutes	Population
01.	Holy Angel Public School, Almora	1,300
02.	Spring Dales Schools, Almora	800
03.	Koormanchal Academy, Almora	1,221
04.	Sharda Public School, Almora	1,300
05.	Army Public School, Almora	900
06.	Ashok hall Girl's Residential School, Almora	250
07.	Adams Girls Inter Collage, Almora	500
08.	Manas Public School, Almora	400
09.	Green Field Public School, Almora	300
10.	C. M Memorial School, Almora	500
11.	Grace Public Junior School, Almora	250
12.	Kendriya Vidyalaya School, Almora	471
13.	Sai International Convent Junior High School, Almora	200
14.	Sharda Public School, Junior branch, near Stadium, Vivekanandpuri , Almora	77
15.	Atal Utkrist Govt. inter College, Almora	800
16.	Minerva Rays Children academy, Almora	150
17.	Vivekanand Inter College, Almora	1,151
18.	Tav Academy, Almora	300
19.	Raja Anand singh Govt. girls School,Almora	200
20.	Junior high School, Almora	450
21.	Arya Govt. Girls School, Almora	150
22.	St. Paul School, Almora	250
23.	Beersheba Sr. Sec. School, Almora	600
24.	Holy Child Public School Golna Karadiya, Almora	89
25.	Holy Hans Public School, Almora	93
26.	Kritarth Bhawana Academy, Almora	65
27.	Almora Inter College	300
28.	Saraswati Shishu/ Vidya mandir	300
29.	GGIC, Almora	630
30.	S.S.J Campus, Almora	1,900
31.	Jai Shri College, Almora	1,000
32.	Sabon Singh Jeena University, Almora	1,00
33.	GTHM , Almora	150
34.	Govt. Nursing College, ALmora	40
35.	Sushila Trivani Ji Institute of Mary, Almora	80
36.	Govt. Girls Polytechnic, Almora	152
37.	DIET, Almora	50
39.	Jan Milap Computer Centre Almora	30
Total		**18,399**

Annexure B

Annexure B

Questionnaire for Data Collection on Solid Waste Management of Almora Town

A. Solid Waste Management	
General Information (Data Required):	
Contact Person (Designation, Department)	
Name of Town	
Area of Town (Municipal Boundary)	
Total Number of Wards in the Town	
Total Population of Town	
Population of Each Ward	
Floating Population of Town	
Total Number of Households in the Town	
Total Number of Households in each Ward	
Average Household (HH) size in Town	
Name of Department responsible of Solid Waste Management in the Town	
Current Solid Waste Management Situation:	

1. What is the estimated daily/weekly/monthly volume of Solid Waste Generated in the Town?

2. What are the Major Sources of Solid Waste Generation in the Town?

a) Residential

b) Commercial

c) Industrial

d) Medical

e) Any Other (Please Mention)

3. Are there any seasonal variations in the Solid Waste Generation patterns?

a) Yes

b) No

If YES, please specify in details.

4. What are the Garbage Dumping Areas in the Town?

a) Garbage Bins

b) Road Side

c) Open Land

d) Waste Vans

e) Any Other (Please Mention)

5. What is the frequency of Solid Waste Collection in the Town?

a) Once a Day

b) Every Alternative Day

c) Once a Week

d) Once a Month

e) Other (Please Mention)

6. What are the current methods used for Solid Waste Collection in the Town?

a) Door to Door by Department

b) Door to Door by Private Organization

c) Individual

d) Any Other (Please Mention)

7. Are there any separate Collection Systems for Recyclable and Non-Recyclable Waste?

a) Yes

b) No

If YES, please describe in details.

8. Is there any segregation of Waste at Household Level?

a) Yes

b) No

9. Are there any Methods used for Waste Segregation at Source-Level in the Town?

a) Yes

b) No

If YES, what are the methods used? Please describe in details.

10. Is the Medical Waste Collected Separately?

a) Yes

b) No

If NOT, then how is the Medical Waste or Hazardous Waste separated from the Solid

Waste Collected? Please describe in Details.

11. Is the Medical Waste Incinerated?

a) Yes

b) No

If YES, please mention the location of the Incineration Site(s) in town?

12. Which are the Major Markets in the Town? Kindly name them and mention their location(s).

13. What is the amount of Waste Generated from these Major Markets?

14. How is the Waste collected and transported from these Major Markets?

15. How the Waste from these Major Markets treated? Kindly mention in details.

16. Where is the Waste from these Major Markets disposed? Kindly mention in details.

17. What is the Total Number of Sweepers in:

a) Town

b) Each Ward

18. What is the Total Number of Garbage Bins in:

a) Town

b) Each Ward

19. Are all the Garbage Bins in the Town covered?

a) Yes

b) No

If NOT, then kindly provide the number of Uncovered Garbage Bins in:

a) Town

b) Each Ward

20. What are the Timings of Cleaning the Roads and Streets of the Town? (Please Specify the Time as Well)

a) Early Morning At _____ a.m.

b) Afternoon At _____ p.m.

c) Evening At _____ p.m.

d) Late At Night At _____ p.m.

e) If NOT, Please Specify the Reason.

21. What is the frequency of cleaning the roads and streets in the Town?

a) Once Every Day

b) Once Every Week

c) Once Every Month

d) Other (Please Mention in Details)

22. What is the Total Volume of the Solid Waste Collected from the Town?

23. How is the Solid Waste transported to the Disposal Site? Describe in details.

24. How many waste-management vehicles are used for the transportation of Solid Waste to the Disposal Site?

25. What are the types of waste-management Vehicles used for the collection and transportation of Solid Waste to the Disposal Site?

a) Garbage Trucks

b) Auto-Tippers

c) Garbage Cycle Rickshaw

d) Pushcart

e) Any Other (Please Mention)

26. What amount or percentage of Solid Waste collected from the Town is treated before its disposal?

27. What are the Treatment Facilities Available and Proposed for Solid Waste Management of the Town? Kindly mention in details.

28. Where is the Solid Waste Collected from the Town Disposed-Off? Kindly, mention the number of disposal site(s) and specify the location(s) for each site.

29. What is the Current Capacity of Solid Waste Disposal Site(s)? (*Please provide details for each Site as well)

30. Are there any methods/system adopted by the department for sorting and processing of waste before disposal?

a) Yes

b) No

If YES, please describe in details.

31. Are there any designated recycling centers or facilities for composting of the Solid Waste?

a) Yes

b) No

If YES, please specify its location.

32. What is the current condition of the existing Solid Waste Management Infrastructure in the Town? Please describe in details.

33. What are the potential health risks associated with exposure to waste, including open dumping sites or uncollected waste?

34. Are there any reported cases of vector-borne diseases or other health issues linked to inadequate waste management?

a) Yes

b) No

If YES, please mention in details.

35. Is fogging regularly done in the town?

a) Yes

b) No

36. Are there any Government Policies for Solid Waste Management in the Town?

a) Yes

b) No

If YES, please describe them in details.

37. What challenges are faced by the Department in managing Solid Waste effectively? Please describe in details.

38. What challenges are faced by the Department to ensure public participation in Solid Waste Management? Please describe in details.
39. What are the challenges faced by the Department for Solid Waste Management during the tourist season? Please describe in details.
40. Is there any additional information or feedback you would like to provide regarding solid waste management in the Town?
MAPS AND PLANS REQUIRED:
City Development Plan
Municipal Boundary Map
Treatment facilities available & proposed, their capacity & location Map
Location and Network Maps of Drains and Nallahs in the Town

Questionnaire for Data Collection on Urban Transport and Parking of Almora Town

B. Urban Transport and Parking	
Name of Town	
Area of Town (Municipal Boundary)	
Population of Town	
Floating Population of Town	
Number of Households	
Average Households Size	
Name of department responsible for Water Supply in the town	

1. **What is the length of road network in the town?**
2. **What is the coverage of road network in the town? (% Area covered)**
3. **How many bus stops are there in the town and what is their location? Please specify.**
4. **What is the location of railway station? How many stations are there for connectivity of the town?**
5. **How many city buses are registered for public transport?**

6. How many registered school buses are there?
7. How many autos and taxis are registered for public transport?
8. How many parking lots are there in the town?
9. Where do the local people of the town do parking for their personal vehicle?
10. Where do tourist vehicles get parked? Is there any common parking available to tourists?
11. What is the tourist (number) influx in peak tourism months? Please specify month wise data.
12. What is the peak tourism season? And how many vehicles enter the town limits in that season?

13. What are the major markets? Kindly name the markets.

14. How many parking are available in above stated market areas?

15. What is the most congested area during the peak tourism season in the town?

16. What is the cause of congestion in that area?

a) Increase in Vehicle

b) Increase in pedestrians

c) Any other, please specify.

17. Is there any committee formed to cater traffic needs during peak season of tourism? Please mention name.

18. Is the police force increased for the ease of traffic and mobility during peak tourism? If yes, by how many number of police officers?

19. Are there any Government registered Car Rental/ Taxi Services/ Taxi Union offices in the town? If yes, please mention the office location.
20. Please provide with Road Network Map of the town.
21. Please provide with Map of city, Municipal boundary.
22. What are the challenges faced by the department of Transport in managing the traffic and parking effectively? Please describe in details.

Questionnaire for Data Collection on Water Supply of Almora Town

C. WATER SUPPLY	
Name of Town	
Area of Town (Municipal Boundary)	
Population of Town	
Floating Population of Town	
Number of Households	
Average Households Size	
Name of department responsible for Water Supply in the town	

1. **What is the source of water in the town?**

a) Ground water resources
b) Surface Water Resources
c) Other (please specify):

2. **Is the above source of water available all throughout the year? Please mention its location and distance.**

3. **What is the demand and supply of water for the entire town as per the population? (In million litres/ day (MLD)?**

4. **What is the coverage of Water Supply (% Area covered, %population serviced)**

5. **How many Water Treatment plants are there for supplying water in town? (existing & proposed)**

6. What is the capacity of Water Treatment Plant for daily water production? (MLD)

7. What amount of water gets wasted during daily distribution of water from Water Treatment Plant? (MLD)

8. What is the source of drinking water supply in the households?

a) Wells
b) Municipal connection
c) Hand pump
d) Tanker
e) Bore well
f) Others (please specify):

9. What is the number of individual house tap connections in the town?

10. For how many hours water is supplied daily to tap connections?

11. What is the timing of water supply for household supply?

a) Morning: ___ am to ___ am
b) Evening: ___ pm to ___ pm
c) Other (please specify):

12. What is the daily frequency of water supply for household supply?

a) Once a day
b) Twice a day
c) There is no fixed supply schedule
d) Other (please specify):

13. How many households do not have access to tap water connections?

14. What is the source of water supply for household with no water connection?

15. How many community taps are there?

16. Where are those community taps located in the town?

17. How much are users in following land-use charged for water per month by municipal authority?	**Residential**	**Commercial**	**Industrial**	**Irrigation**

18. Is rainwater harvesting compulsory in residential land use?

a) Yes
b) No

19. Is rainwater harvesting compulsory in industrial/commercial land use?

a) Yes
b) No

20. How many slums are there in the town?
21. How is water supplied in the slums?
22. When tourism season is on peak, what is the additional water demand for the town?
23. How is the additional water demand fulfilled in peak tourism season in the town?
24. What is the emergency water arrangement? Like tankers for example, are there any other such arrangements?
25. Are there any water supply related Policies & Programs at urban level? If yes, please describe in detail.
26. What is the status of implementation of the policies and programs at urban level? Please describe.
27. What are the challenges faced by the department of Water Supply in managing the supply in town the effectively? Please describe in details.

28. Suggestions for Improvement:

a) More reliable supply
b) Better water quality
c) Improved infrastructure (pipes, pumps, etc.)
d) Enhanced water pressure
e) Better conservation efforts
f) Other (please specify):

29. Do you have any additional comments or suggestions related to water supply within the municipality?

30. Maps and Plan Required: Water Supply Network Plan

Annexure C

Annexure C

Officials Met in Almora Town

S.No.	Name	Designation	Department	Contact Details (Mobile No., Email ID)
1.	Shri Bharat Tripathi	Executive Officer	Nagar Nigam, Almora	8077060418 eonagarpalikaalmora@gmail.com
2.	Harsh Aggarwal			9557966138
3.	Lakshman Singh	Sanitation Inspector		9720739050
4.	Mr. Kamal	Information Regarding Roads		6396608964
5.	IPS Devendra Pincha	SSP	Police Department, Almora	9411112790 sp_alm_ua@nic.in
6.	Mr. Sunil Dhanik	SI		7900977050
7.	Dr. Gurdev Singh	R.T.O. (Adm.)	R.T.O. Division, Almora Assistant Regional Transport	05962-254009
8.	Mr. A. K. Jha	A.R.T.O.		9319948548 arto-trans-uk@nic.in
9.	Mr. Waseem	Senior Assistant		8958708088
10.	Mr. Arun Kumar	Executive Engineer	Uttarakhand Jal Sansthan, Almora	05962234049 9412042143 eealm.ujs.uk@nic.in
11.	Mr. Manjul Mehta	Assistant Engineer		9458164045
12.	Ashok Swarup	Executive Engineer	Pey Jal Nigam, Almora	7409230003 cdalmora@gmail.com
13.	Er. Deepak Malik	Superintending Engineer		9456776039 sepeyjalalmora@gmail.com
14.	Deepak Joshi	Junior Engineer		8395012460
15.	Mr. Amit Lohani	District Tourism Development Officer	Tourism Department, Almora	8057223111 regionaltouristoffice@gmail.com
16.	Mr. Vineet	DDM Officer		7983511096
17.	Prem Singh Nabiyal	Executive Engineer Planning Cell		9760228454 premsnabiyal@yahoo.com
18.	Mr. Hyanki	SE	PWD Circle office/PWD Provincial office, Almora	7055613611

List of Stakeholders/Participants attended the Stakeholder Consultation Meeting held on 31st August, 2024 in NN Almora:

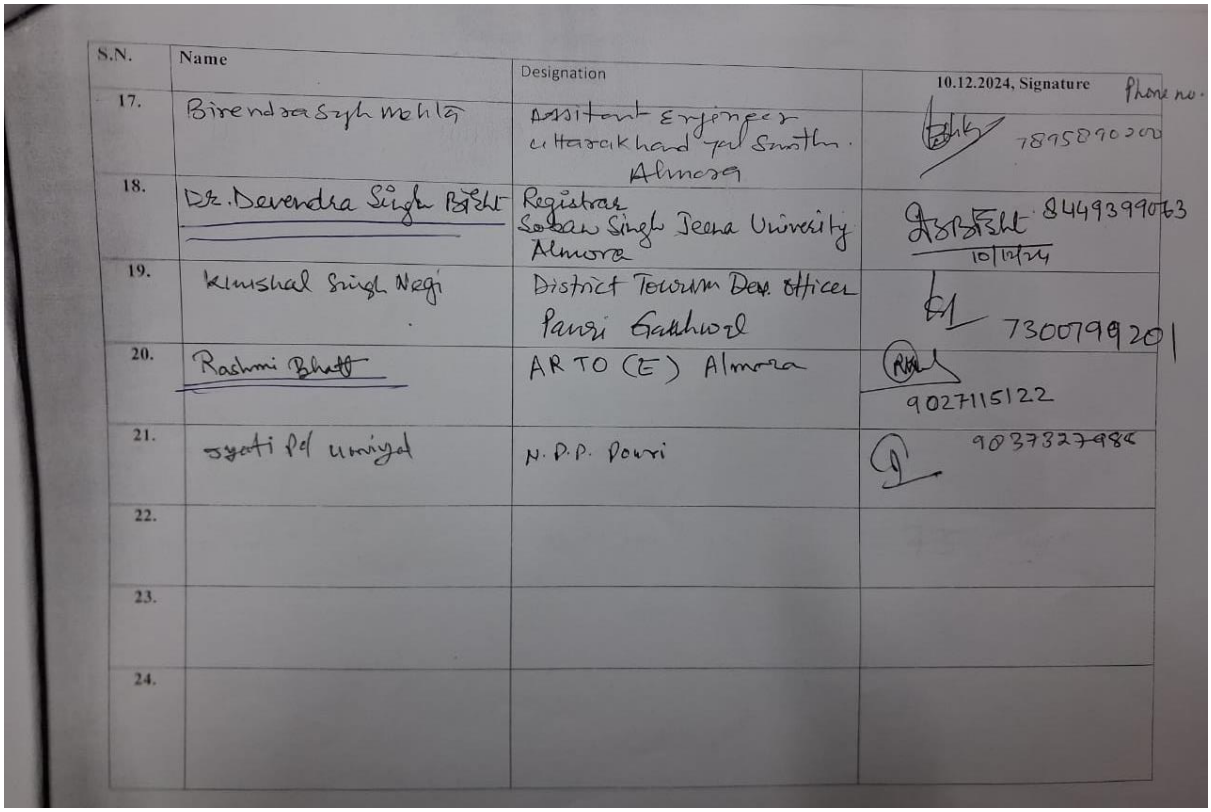
S.No.	Name	Designation	Department	Contact Details (Mobile No., Email ID)
1.	Shri Bharat Tripathi	Executive Officer	Nagar Nigam, Almora	8077060418 eonagarpalikaalmora@gmail.com
2.	Harsh Aggarwal			9557966138
3.	Lakshman Singh	Sanitation Inspector		9720739050
4.	Mr. Kamal	Information Regarding Roads		6396608964
5.	Dr. Gurdev Singh	R.T.O. (Adm.)	R.T.O. Division, Almora Assistant Regional Transport	05962-254009
6.	Mr. A. K. Jha	A.R.T.O.		9319948548 arto-trans-uk@nic.in
7.	Mr. Waseem	Senior Assistant		8958708088
8.	Mr. Manjul Mehta	Assistant Engineer	Uttarakhand Jal Sansthan, Almora	9458164045 eealm.ujs.uk@nic.in
9.	Ashok Swarup	Executive Engineer	Pey Jal Nigam, Almora	7409230003 cdalmora@gmail.com
10.	Er. Deepak Malik	Superintending Engineer		9456776039 sepeyjalalmora@gmail.com
11.	Deepak Joshi	Junior Engineer		8395012460
12.	Mr. Amit Lohani	District Tourism Development Officer	Tourism Department, Almora	8057223111 regionaltouristoffice@gmail.com
13.	Prof. Dr. P. S. N. Rao	Research Project Co-ordinator	SPA, New Delhi	7042227021 drpsnrao@hotmail.com psnrao.dr@gmail.com
14.	Miss Kiran Bala	Research Associate	SPA, New Delhi	7807720656 Kiranvashisht185@gmail.com

List of Stakeholders/Participants attended the Post Study Workshop held at the Dr. R.S. Tolia Academy of Administration Nainital on 10th December, 2024 :

State Institute of Urban Development
Dr. R. S. Tolia Uttarakhand Academy of Administration Nainital
Date: 10th December, 2024
"Post Study Workshop"
(Attendance Sheet)

S.N.	Name	Designation	10.12.2024, Signature Phone No.
1.	Heera lal	Tourist office Mussoorie A.T.O.	[signature] 80578 1165
2.	T. S. Tolia	Assistant Engineer Vik Peyjal Nigam Almora	[signature] 9412119821
3.	Mukul Singh Marwal	T.T.O Transport (R.T.O) department	[signature] 8476092315
4.	Ramesh Dutt Pathak	Tax & Revenue Superintendent	[signature] 7906653995
5.	Amit Kumar	Executive engineer (Incharge) Uttarakhand Jal Sansthan, Mussoorie	[signature] 7500005774
6.	T. S. Rawat	Assistant Engineer Uttarakhand Jal Sansthan Mussoorie	[signature] 9756202545
7.	Ajay Sah.	INSPECTOR Uttrakhand Police ALMORA.	[signature] 9412935129

S.N.	Name	Designation	10.12.2024, Signature Phone no.
8.	MARTUNJAY SHARMA	Assistant Engg. PWD-Pauri	[signature]
9.	RAVI DATTA	AAE Jal Sansthan Pauri	Ridatta 9760846307 7055032250
10.	SHUBHAM BISHT	JE Peyjal Nigam Pauri	[signature] 8172218758
11.	VIVEK PANWAR	J.E Jal Sansthan Pauri	[signature] 7351220833
12.	ASHOK RAWAT	J.E Payjal Nigam Pauri	[signature] 7906857475
13.	Harsh Aggarwal	DMM, Nagar Nigam Almora.	[signature] 9557966138
14.	Pawan Prasad Pandey	TRI Nagar Nigam Almora	[signature] 8077849608
15.	Umang Sharma	JE Jal Sansthan Almora	[signature] 7505282031
16.	Siddharth Pushkar	A.E. Irrigation, Almora	[signature] 9458305703



S.N.	Name	Designation	10.12.2024, Signature Phone no.
17.	Birendra Sgh Mehta	Assistant Engineer Uttarakhand Jal Sansthan Almora	7895870200
18.	Dr. Devendra Singh Bisht	Registrar Soban Singh Jeena University Almora	8449390763 10/12/24
19.	Kinshal Singh Negi	District Tourism Dev. Officer Pauri Garhwal	7300799201
20.	Rashmi Bhatt	ARTO (E) Almora	9027115122
21.	Jyoti Pal Uniyal	N.P.P. Pauri	9037327980
22.			
23.			
24.			

Source: (Dr. R. S. Tolia Uttarakhand Academy of Administration (ATI))

Annexure D

Annexure D

Poster of Stakeholder Consultation Meeting Held on 31st August 2024in NN, Almora

School of Planning and Architecture (SPA), New Delhi
August,2024

INVITATION TO

STAKEHOLDER CONSULTATION

31st August 2024, Saturday
11:00 Am to 03:00 PM

Venue:
Almora
Nagar Nigam

S. No	DEPARTMENTS/ORGANIZATIONS INVITED
01	Nagar Nigam, Almora
02	Uttarakhand Jal Sansthan (UJS), Almora
03	Pay Jal Nigam, Almora
04	Department of Police, Almora
05	RTO Division, Almora
06	Tourism Department, Almora

Solid Waste Management

Urban Transportation and Parking

Water Supply

Research Sponsored by
Dr. R. S Tolia Academy of Administration, Almora

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