



Study of Challenges Faced by Six Towns of Uttarakhand

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

Report

HALDWANI TOWN

September, 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 - Haldwani cum Kathgodam Town

Prepared by:

Department of Housing,
School of Planning and Architecture (SPA), New Delhi

Supported by:

State Institute of Urban Development (SIUD),
Dr. R. S. Tolia Uttarakhand Academy of Administration (ATI),
Ardwell Camp, Mallital, Nainital, Uttarakhand-263001

B. P. Pandey (I.A.S.)
Director General



Dr. R. S. Tolia
Uttarakhand Academy of Administration,
Nainital (Uttarakhand), Pin -263001

Phone : 233477, 235203

STD : 05942

E-Mail : directoracademy@hotmail.com

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



**Urban Development
& Information Technology**
4 Subhash Road, Dehradun
Ph.: 0135-2655867

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)

Prof.Dr.P.S.N.Rao
Dean



**School of Planning and Architecture,
New Delhi**

4, Block B, Beside State Bank Of India,
Indraprashta Marg, IP Estate, New Delhi,
Delhi 110002

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 of 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 25th April 2024, meeting on 15th May 2024 and post study workshop on 30th August 2024, the valuable suggestions made have been duly incorporated.

13th September 2024

Prof. Dr. P. S. N. Rao
Principal Researcher,
Dean, SPA New Delhi

STUDY TEAM

Prof. Dr. P. S. N. Rao	Dean, SPA, New Delhi
Dr. Ruchita Gupta	HOD (Housing), SPA, New Delhi
Smt. Anjul Bhatt	RA, SPA New Delhi
Smt. Surbhi Kakani	RA, SPA New Delhi
Smt. Kiran Bala	RA, SPA New Delhi

**State Institute of Urban Development (SIUD),
Dr. R. S. Tolia Uttarakhand Academy of Administration (ATI), Nainital**

STUDY TEAM

Sh. B. P. Pandey, IAS (Retd.)

Director General, Dr. R.S.T. UAoA & CEO-SIUD

Sh. Mohammad Nasir, PCS

Joint Director (Administration)

Dr. R.S.T UAoA, Nainital

Dr. Mahesh Kumar, PDS

Joint Director, Dr. R.S.T. UAoA & Secretary-SIUD

Sh. Manoj Pande

Programme Director, SIUD, Dr. R.S.T. UAoA

Sh. Manwar Singh

Deputy Director, SIUD, Dr. R.S.T. UAoA

Ms. Ragini Tiwari

Consultant, KRC, DRSTUAoA

Ms. Kruti Barpete

Assistant Programme Director, SIUD, Dr. R.S.T. UAoA

Ms. Shreshtha Sachdeva

Research Officer, SIUD, Dr. R.S.T. UAoA

Smt. Asha Joshi

Training Manager, SIUD, Dr. R.S.T. UAoA

Sh. Pooran Pandey

Account Manager, SIUD, Dr. R.S.T. UAoA

CONTENTS

CONTENTS	1
LIST OF IMAGES.....	3
LIST OF TABLES	4
LIST OF FIGURES.....	6
LIST OF MAPS.....	8
ABBREVIATIONS USED.....	9
CHAPTER 1. INTRODUCTION	11
CHAPTER 2. OBJECTIVES OF THE RESEARCH PROJECT	13
CHAPTER 3. SCOPE OF WORK	15
CHAPTER 4. METHODOLOGY	17
4.1. DATA COLLECTION TOOLS.....	19
4.2. DATA ANALYSIS PLAN.....	19
CHAPTER 5. UTTARAKHAND – A PROFILE	21
5.1. OVERVIEW	21
5.2. PHYSICAL FEATURES AND TOPOGRAPHY	27
5.3. DEMOGRAPHY AND SOCIO-ECONOMIC PROFILE.....	32
5.3.1. <i>Demography</i>	32
5.3.2. <i>Social and Cultural Aspects</i>	33
5.3.3. <i>Economic Profile</i>	33
CHAPTER 6. HALDWANI CUM KATHGODAM CITY	36
6.1. OVERVIEW	36
6.2. PHYSICAL FEATURES AND TOPOGRAPHY	38
6.3. DEMOGRAPHY AND SOCIO-ECONOMIC PROFILE.....	41
6.3.1. <i>Demography</i>	41
6.3.2. <i>Social and Cultural Aspect</i>	42
6.3.3. <i>Economic Profile</i>	42
6.4. DISCUSSIONS AND THE DATA PROVIDED BY THE OFFICIALS MET DURING FIELD VISIT AND STAKEHOLDER CONSULTATION MEETING HELD ON 25 TH APRIL 2024 IN NN, HALDWANI CUM KATHGODAM	43
6.1. POST STUDY WORKSHOP HELD ON 30 TH AUGUST, 2024	44
6.5. CURRENT SITUATION	47
6.6. COMPARATIVE ANALYSIS OF NAGAR PALIKA PARISHAD, HALDWANI CUM KATHGODAM (AS PER CENSUS 2011) AND NAGAR NIGAM, HALDWANI CUM KATHGODAM (2021), AS PER THE DISCUSSIONS AND THE DATA PROVIDED BY THE OFFICIALS MET	57
CHAPTER 7. HALDWANI CUM KATHGODAM: SOLID WASTE MANAGEMENT	60
7.1. SYSTEM INFRASTRUCTURE	60
7.1.1. <i>Present Situation of Garbage Dumping in NN, Haldwani cum Kathgodam</i>	63
7.1.2. <i>Process of Solid Waste Management in Haldwani cum Kathgodam</i>	64
a) Step-01: Waste Generation.....	64
b) Step-02: Waste Collection.....	66
c) Step-03: Waste Segregation.....	73
d) Step-04: Waste Treatment	73
e) Step-05: Waste Disposal	74

7.1.3. Potential Health Hazards.....	75
7.2. PRESENT GOVERNMENT POLICIES FOR SOLID WASTE MANAGEMENT IN HALDWANI CUM KATHGODAM.....	75
7.3. ISSUES/CHALLENGES	76
7.4. POSSIBLE SOLUTIONS/SUGGESTED PROJECTS FOR SWM IN NN, HALDWANI CUM KATHGODAM	80
CHAPTER 8. HALDWANI CUM KATHGODAM: URBAN TRANSPORT AND PARKING.....	88
8.1. SYSTEM INFRASTRUCTURE	88
8.1.1. Present Connectivity.....	90
8.1.2. Present Parking Situation in Haldwani cum Kathgodam.....	92
8.2. PRESENT GOVERNMENT POLICIES FOR URBAN TRANSPORTATION AND PARKING IN HALDWANI CUM KATHGODAM TOWN	97
8.3. ISSUES/CHALLENGES	97
8.4. POSSIBLE SOLUTIONS/SUGGESTED PROJECTS FOR URBAN TRANSPORT AND PARKING IN NN, HALDWANI CUM KATHGODAM	100
CHAPTER 9. HALDWANI CUM KATHGODAM: WATER AVAILABILITY AND SUPPLY	112
9.1. SYSTEM INFRASTRUCTURE	112
9.1.1. Process of Water Supply in Haldwani cum Kathgodam City.....	114
a) Step-01: Collection of Water.....	114
b) Step-02: Intake of Water.....	115
c) Step-03: Treatment of Water	115
d) Step-04: Storage of Treated Water	115
e) Step-05: Distribution of Water.....	117
9.1.2. Demand and Supply of Water in Town	118
9.1.3. Water Tariff.....	120
9.1.4. Tourism and water supply:	121
9.2. PRESENT GOVERNMENT POLICIES FOR WATER SUPPLY IN HALDWANI CUM KATHGODAM TOWN.....	122
9.3. ISSUES/CHALLENGES	123
9.4. POSSIBLE SOLUTIONS/SUGGESTED PROJECTS FOR WATER AVAILABILITY AND SUPPLY IN NN, HALDWANI CUM KATHGODAM	126
ANNEXURE A	134
DETAILS OF DOCUMENTS COLLECTED FROM VARIOUS DEPARTMENTS IN HALDWANI CUM KATHGODAM	134
ANNEXURE B.....	160
QUESTIONNAIRE FOR DATA COLLECTION ON SOLID WASTE MANAGEMENT IN HALDWANI CUM KATHGODAM.....	160
QUESTIONNAIRE FOR DATA COLLECTION ON URBAN TRANSPORT AND PARKING IN HALDWANI CUM KATHGODAM.....	166
QUESTIONNAIRE FOR DATA COLLECTION ON WATER AVAILABILITY AND SUPPLY IN HALDWANI CUM KATHGODAM	170
ANNEXURE C.....	176
OFFICIALS MET IN HALDWANI CUM KATHGODAM:.....	176
LIST OF STAKEHOLDERS/PARTICIPANTS ATTENDED THE STAKEHOLDER CONSULTATION MEETING HELD ON 25 TH APRIL, 2024 IN NN, HALDWANI CUM KATHGODAM:	177
ANNEXURE D	178
POSTER OF STAKEHOLDER CONSULTATION MEETING HELD ON 25 TH APRIL 2024 IN NN, HALDWANI CUM KATHGODAM.....	178
BIBLIOGRAPHY.....	180

List of Images

Image 1: Uttarakhand State Flower, Bird, Animal and Tree Image	21
Image 2: Images of Stakeholder Consultation Meeting Held on 25th April 2024 in NN, Haldwani cum Kathgodam	43
Image 3: Image of Slums located along the Railway Tracks in Haldwani cum Kathgodam	52
Image 4: Images of Major Market Areas in Nagar Nigam, Haldwani cum Kathgodam	55
Image 5: Existing Condition of Some of the Small Garbage Bins Located in Public Offices and Public Spaces like Uttarakhand Jal Sansthan and Haldwani Railway Station in NN, Haldwani cum Kathgodam	61
Image 6: Areas identified as Garbage Vulnerable Points and are being used for Dumping Garbage by the Residents of NN, Haldwani cum Kathgodam at Present (2024)	63
Image 7: Images of Some of the Vehicles used for Transportation of Solid Waste in Haldwani cum Kathgodam Town	70
Image 8: Present Situation of Building Legacy Solid Waste on the Under-Construction SWM Site	74
Image 9: Open Burning of Garbage Observed During Filed Visit in the Month of March, 2024 on the Under Construction Solid Waste Management Plant in Haldwani cum Kathgodam	75
Image 10: Bio CNG Plant, an example of Jabalpur City	83
Image 11: Haldwani cum Kathgodam Bus Station, <i>Bus Stand Rd, Banbhoolpura, Haldwani</i>	91
Image 12: <i>Haldwani Railway Station, Railway Station Road, Banbhoolpura, Haldwani</i>	91
Image 13: Kathgodam Railway Station, Kathgodam, Haldwani.	91
Image 14: <i>Airport: Pant Nagar Airport, Approx. 32.7 km away from NN, Haldwani cum Kathgodam</i>	91
Image 15: Images of Parking in NN, Haldwani cum Kathgodam	93
Image 16: Image of an example of Single Stack Automated Car Parking.....	106
Image 17: Image of Guala River the Main Source of Natural Water in Haldwani cum Kathgodam....	112
Image 18: Image of Existing OHT in NN, Haldwani cum Kathgodam	116

List of Tables

Table 1: Data Collection Tools	19
Table 2: Overview of the State of Uttarakhand, India (Census 2011)	26
Table 3: Overview of Haldwani cum Kathgodam Town (Census 2011)	37
Table 4: Overview of Haldwani cum Kathgodam	50
Table 5: Population Distribution of Slums in NPP, Haldwani cum Kathgodam as per Census 2011.....	52
Table 6: Details of Slums and the Total Number of HHs in Slums of Nagar Nigam, Haldwani cum Kathgodam as per the data provided by the officials met during field visit	53
Table 7: List of Major Market Areas in Haldwani cum Kathgodam and their location	54
Table 8: Comparative Analysis of NPP, Haldwani cum Kathgodam (as per Census 2011) and NN, Haldwani cum Kathgodam (2021), as per the Discussions and the Data Provided by the Officials Met	57
Table 9: Overview of System Infrastructure Provided by NN, Haldwani cum Kathgodam for Solid Waste Management (SWM) in the Municipal Boundary Area	60
Table 10: Distribution of Activities Undertaken by the NN, Haldwani cum Kathgodam and the Private Agency as per the Solid Waste Management (SWM) Contract between the Two	62
Table 11: Overview of Solid Waste Generated in NN, Haldwani cum Kathgodam	65
Table 12: Duties/Job Responsibilities of Sanitation Workers Appointed by the Private Agency for Solid Waste Management in NN, Haldwani cum Kathgodam.....	66
Table 13: Solid Waste Collection	67
Table 14: Details of Vehicles Provided and Used by the Nagar Nigam, Haldwani cum Kathgodam for Collection and Transportation of Solid Waste Generated in the Town.....	67
Table 15: Details of Vehicles used for Door-to-Door Collection of Solid Waste in Nagar Nigam, Haldwani cum Kathgodam	68
Table 16: Details of Vehicles used for Transpiration of Solid Waste Collected by the Nagar Nigam, Haldwani cum Kathgodam	68
Table 17: Details of Other-Vehicles Used for Removal and Transportation of Garbage from Vacant Land/Plot by the Nagar Nigam, Haldwani cum Kathgodam.....	69
Table 18: User Charges Charged by the Nagar Nigam, Haldwani cum Kathgodam for Door-To-Door Solid Waste Collection.....	71
Table 19: Overview of Solid Waste Segregation Practises in NN, Haldwani cum Kathgodam for SWM73	
Table 20: Issues/Challenges Identified for SWM in NN, Haldwani cum Kathgodam	76
Table 21: Possible Solutions/Suggested Projects for SWM in NN, Haldwani cum Kathgodam.....	80
Table 22: Road Network Hierarchy of Haldwani cum Kathgodam as per the Draft Comprehensive Mobility Plan Report,2023 by UUSDA.....	89
Table 23: Overview of Present Connectivity of NN, Haldwani cum Kathgodam.....	91
Table 24: Parking Situation of NN, Haldwani cum Kathgodam	92
Table 25: Parking Areas Preferences of the Residents, the Working Population and the Tourists in NN, Haldwani cum Kathgodam	95
Table 26: Service Level Benchmarks (as per MoHUA) Targeted and Calculated for Haldwani cum Kathgodam by the UUSDA Team for the Draft CMP of Haldwani cum Kathgodam	96
Table 27: Issues/Challenges Identified for Urban Transport and Parking in NN, Haldwani cum Kathgodam	97
Table 28: Possible Solutions/Suggested Projects for Urban Transport and Parking in NN, Haldwani cum Kathgodam	100

Table 29: Authorities Responsible for the Construction of the Water Supply Network in Haldwani cum Kathgodam	112
Table 30: Authorities Responsible for the Water Supply Network in Haldwani cum Kathgodam	113
Table 31: Water Demand-Supply Gap as per the Projected Population by the UKPJN, Haldwani cum Kathgodam	118
Table 32: Comparative Analysis of Benchmark (as per CPHEEO) and Existing Situation of Water Availability and Supply (as per ULBs) in NN, Haldwani cum Kathgodam	119
Table 33: Minimum Charges (Water Price) ₹ Per Month as per the Annual Assessment of Building for Water Supply in Urban Residential Area by the Uttarakhand Jal Sansthan, Haldwani cum Kathgodam	120
Table 34: Water Price Rates for Metered Domestic Water Connections (in ₹ per Kilo Liter Per Month) by UJS, Haldwani cum Kathgodam	121
Table 35: Water Price Rates (Non-Domestic Metered Connections) ₹ Per Kilo Liter by the Uttarakhand Jal Sansthan, Haldwani cum Kathgodam	121
Table 36: Issues/Challenges Identified for Water Availability and Supply in NN, Haldwani cum Kathgodam	123
Table 37: Possible Solutions/Suggested Projects for Water Availability and Supply in NN, Haldwani cum Kathgodam	126

List of Figures

Figure 1: Objectives of the Research Project	13
Figure 2: Methodology Stage Chart	17
Figure 3: Methodology Flow Chart	18
Figure 4: Percentage of Area Distribution of Uttarakhand (Census 2011).....	27
Figure 5: Population-Split of Uttarakhand (Census 2011).....	32
Figure 6: Comparative Analysis of the Average Literacy Rate of Uttarakhand and the Urban Areas of Uttarakhand (Census 2011).....	32
Figure 7: Comparative Analysis of the Average Male and Female Literacy-Rate of Urban Areas of Uttarakhand (Census 2011).....	33
Figure 8: Comparative Analysis of the Sex-Ratio of Urban Areas of Uttarakhand and the State of Uttarakhand (Census 2011).....	33
Figure 9: Working Population Split and Distribution of Main Workers in Uttarakhand (Census 2011)	34
Figure 10: Population Distribution in the Four Towns in Haldwani Tehsil and Male-Female Population Percentage of the Nagar Palika Parishad, Haldwani cum Kathgodam (Census 2011)	41
Figure 11: Comparative Analysis of Sex-Ratio of NPP, Haldwani cum Kathgodam and Nainital District (Census 2011).....	41
Figure 12: Comparative Analysis of Average Literacy Rate of NPP, Haldwani cum Kathgodam and Nainital District (Census 2011).....	42
Figure 13: Demography of Working Population of NPP, Haldwani cum Kathgodam (Census 2011)	42
Figure 14: Population Projection of Haldwani cum Kathgodam according to the amalgamated 27 Wards (i.e. from wards number 34 to 66) in the Old Municipal Area (i.e. from wards number 1 to 33)	47
Figure 15: Flowchart of Solid Waste Management (SWM) In Nagar Nigam, Haldwani cum Kathgodam	64
Figure 16: User Charges Charged by the NN, Haldwani cum Kathgodam for Collection of Solid Waste	71
Figure 17: Waste Management Hierarchy as per the Swachh Bharat Mission-Urban.....	82
Figure 18: Annual Registered Vehicular Growth Trends (September 2023)	92
Figure 19: The Hybrid Land Use Model: Transportation and the Formation of Urban Landscapes ...	108
Figure 20: Flowchart of Process of Water Supply System in NN, Haldwani cum Kathgodam.....	114
Figure 21: Ward Details and Ward Wise Population List of Municipal Corporation, Haldwani cum Kathgodam	134
Figure 22: List of Slums in Municipal Corporation, Haldwani cum Kathgodam	145
Figure 23: Category wise List of Slums in Municipal Corporation, Haldwani cum Kathgodam	146
Figure 24: List of Vehicles of Municipal Corporation, Haldwani cum Kathgodam	147
Figure 25: Details of Vehicles used by Municipal Corporation, Haldwani cum Kathgodam	148
Figure 26: Water Tariff: Municipal Corporation, Haldwani cum Kathgodam	149
Figure 27 Comprehensive Mobility Plan (CMP)	150
Figure 28 Comprehensive Mobility Plan (CMP)	150
Figure 29 Comprehensive Mobility Plan (CMP)	151
Figure 30 Comprehensive Mobility Plan (CMP)	151
Figure 31 Comprehensive Mobility Plan (CMP)	152
Figure 32 Comprehensive Mobility Plan (CMP)	152
Figure 33 Comprehensive Mobility Plan (CMP)	153

Figure 34 Comprehensive Mobility Plan (CMP)	153
Figure 35 Comprehensive Mobility Plan (CMP)	154
Figure 36 Comprehensive Mobility Plan (CMP)	154
Figure 37 Comprehensive Mobility Plan (CMP)	155
Figure 38 Intelligent Traffic Management System (ITMS)	155
Figure 39 Intelligent Traffic Management System (ITMS)	156
Figure 40 Intelligent Traffic Management System (ITMS)	156
Figure 41 Water Supply Scheme by UUSDA	157
Figure 42 Water Supply Scheme by UUSDA	157
Figure 43 Storm Water Drainage Scheme by UUSDA	158
Figure 44 Storm Water Drainage Scheme by UUSDA	158

List of Maps

Map 1: Location Map of all the Six Towns Highlighted on the Thematic Map of the State of Uttarakhand	11
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	21
Map 3: Thematic Map of the State of Uttarakhand's Administrative Division	22
Map 4: Road Network Map of Uttarakhand	23
Map 5: Major Railway Stations in the Garhwal and Kumaon Region of Uttarakhand	24
Map 6: Major Airports in Uttarakhand	25
Map 7: Terrain Map of Uttarakhand	28
Map 8: Climate Classification of Uttarakhand.....	29
Map 9: Earthquake Zonation Map for the State of Uttarakhand	30
Map 10: Uttarakhand State: Major River Basins	31
Map 11: Location Map of Nagar Nigam, Haldwani cum Kathgodam in Nainital District, Uttarakhand, India	36
Map 12: Geographical Location of Haldwani cum Kathgodam Town in Uttarakhand	38
Map 13: Climatic Classification Map of Uttarakhand Highlighting the Climatic Conditions of Haldwani cum Kathgodam	39
Map 14: Location of Haldwani cum Kathgodam Town in Earthquake Zonation Map of Uttarakhand .	40
Map 15: Old and New Municipal Boundary Area Map of Haldwani cum Kathgodam	48
Map 16: Present Boundary Map of Nagar Nigam, Haldwani cum Kathgodam (2024)	49
Map 17: Location Map of Major Market Areas of Haldwani cum Kathgodam	56
Map 18: Location of Trenching Ground/Dumping Ground/Disposal Ground i.e. under construction SWM Plant in Haldwani cum Kathgodam from NN, Haldwani cum Kathgodam	72
Map 19: Existing Road Network Map of NN, Haldwani cum Kathgodam	88
Map 20: Haldwani cum Kathgodam Road Hierarchy Connectivity	90
Map 21: Location of Parking Areas in NN, Haldwani cum Kathgodam	94
Map 22: Prevailing Level of Service Map-Haldwani Road Network.....	100
Map 23: Road development in Ring radial Pattern	101
Map 24: Redevelopment of Arterial Road Network	101
Map 25: Haldwani cum Kathgodam Masterplan 2041 Proposals.....	103
Map 26: Haldwani – Kathgodam Bypass NH-109 connecting Bhimtal Junction	103
Map 27: Haldwani cum Kathgodam Ring Road Proposal.....	104
Map 28: Existing and Proposed Parking location in Haldwani cum Kathgodam.....	105
Map 29: Areas under UKPJM, World Bank and UUSDA for Water Supply in Haldwani cum Kathgodam	113
Map 30: Locations of OHT, WTP, GSLR, TW in Haldwani cum Kathgodam as per the UJS, Haldwani cum Kathgodam	117
Map 31: Map of Haldwani cum Kathgodam Water Supply Scheme	127
Map 32: Jamarani Dam to Haldwani cum Kathgodam Water Supply Scheme	128

Abbreviations Used

ADB	Asian Development Bank
BPL	Below Poverty Line
CPHEEO	Central Public Health and Environmental Engineering Organization
CMP	Comprehensive Mobility Plan
DCHB	District Census Handbook
GoI	Government of India
GIS	Geographic Information Systems
HH	Household
kL	Kilo Litre
Km	Kilo Meter
LUTI	Land and Transport integration
LOS	Level of Service
MLD	Million Litres per Day
MSWM	Municipal Solid Waste Management
MTPD	Metric Tonnes Per Day
NH	National Highway
NPP	Nagar Palika Parishad
NN	Nagar Nigam
OHT	Over Head Tank
PPH	Persons 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
UKPJN	Uttarakhand Pey Jal Nigam
UUSDA	Uttarakhand Urban Sector Development Agency
UUSDIP	Uttarakhand Urban Sector Development Investment Program
UJS	Uttarakhand Jal Sansthan
ULB	Urban Local Body

Chapter 1

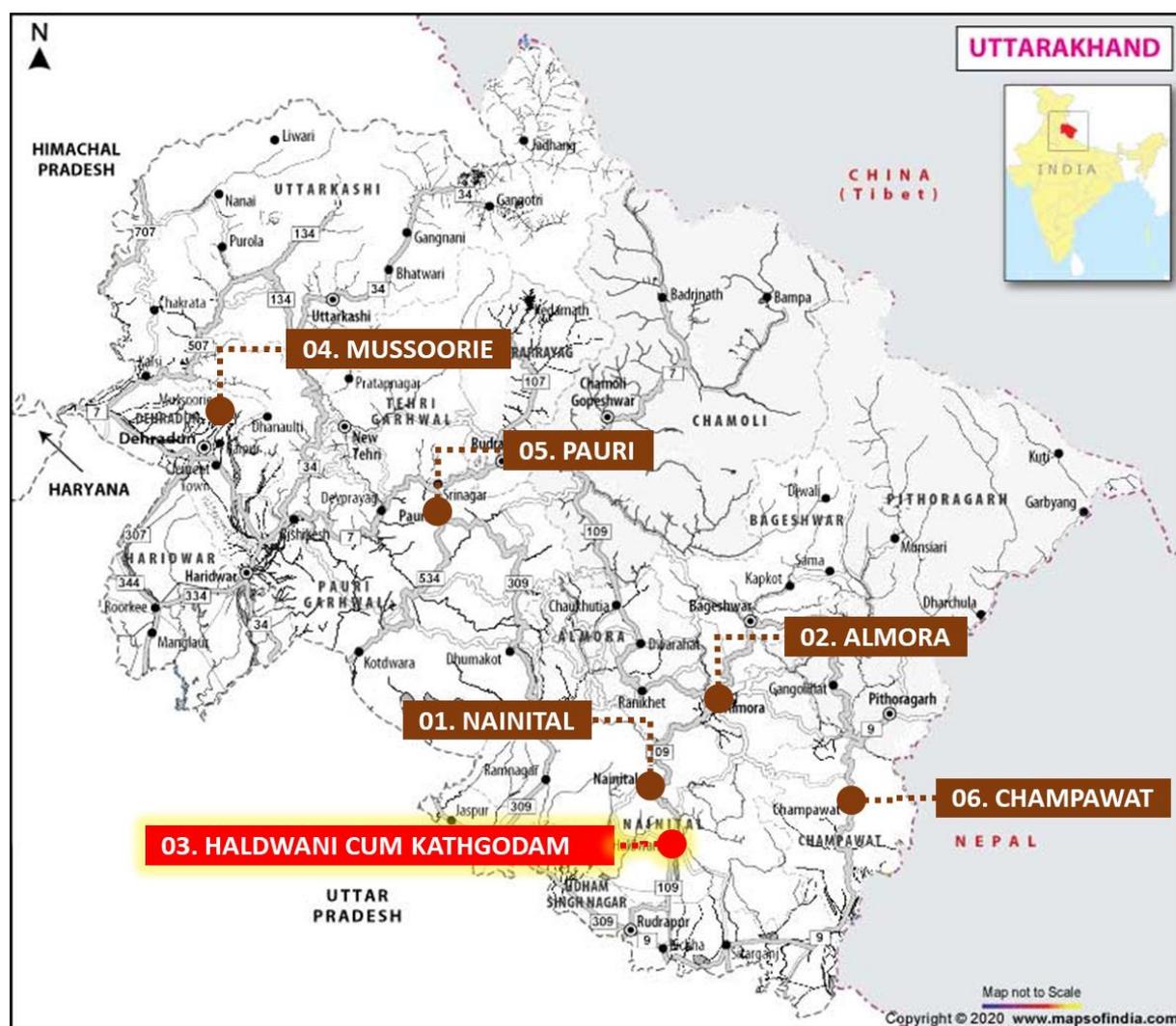
Introduction

Chapter 1. Introduction

This Final Report is for Haldwani cum Kathgodam Town as required in the Terms of Reference (ToR). It contains related to each of the three sectors 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 cum Kathgodam, 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)

Chapter 2

Objectives of Research Project

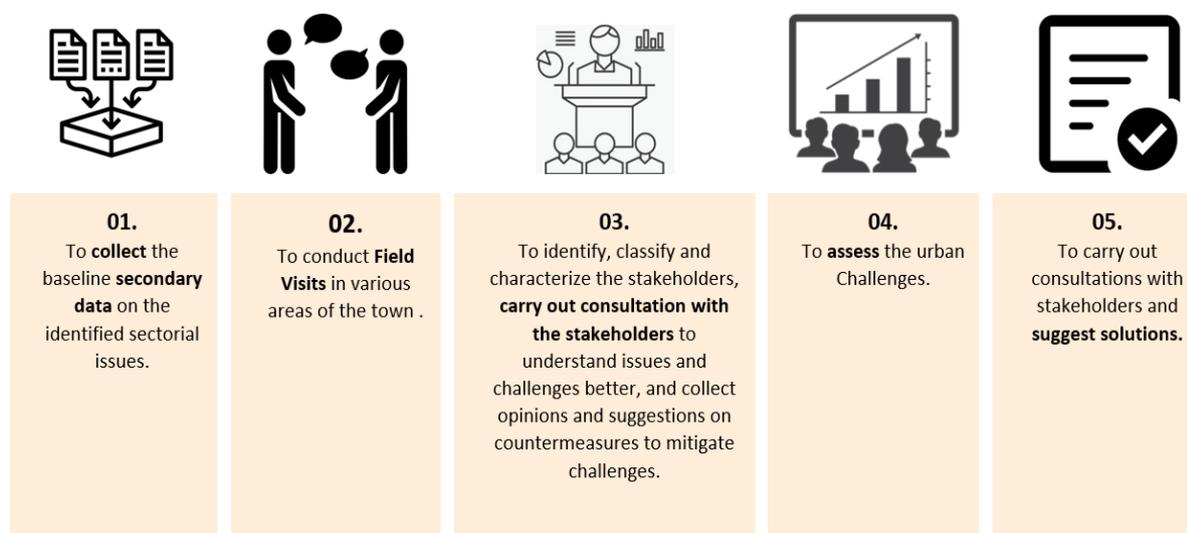
Chapter 2. Objectives of the Research Project

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 Champawat. 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 identify, classify and characterize the stakeholders, carry out consultation with the stakeholders to understand issues and challenges better, and collect opinions and suggestions on counter measures to mitigate challenges.
3. To assess the Challenges.
4. To carry out consultations with stakeholders and suggest solutions.

Figure 1: Objectives of the Research Project



Chapter 3

Scope of Work

Chapter 3. Scope of Work

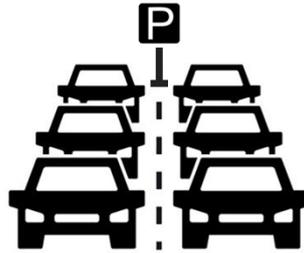
This report relates to the following sectors;

- 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 sectors in Haldwani cum Kathgodam Town are identified in this report. Along with this a Stakeholder Consultation Meeting was also conducted on 25th April, 2024. Further, a Post Study Workshop has also been conducted on 30th August 2024. After the brainstorming sessions in the Stakeholder Consultation Meeting appropriate possible solutions and suggestions for improvement have been prepared and recommended in this report based on the feedback provided by the officials for Haldwani cum Kathgodam Town.

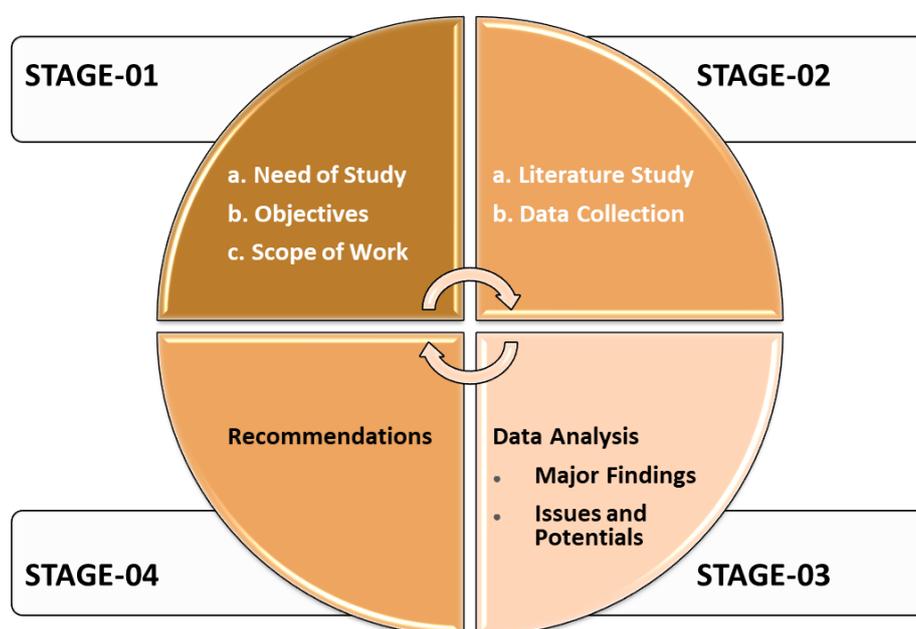
Chapter 4

Methodology

Chapter 4. Methodology

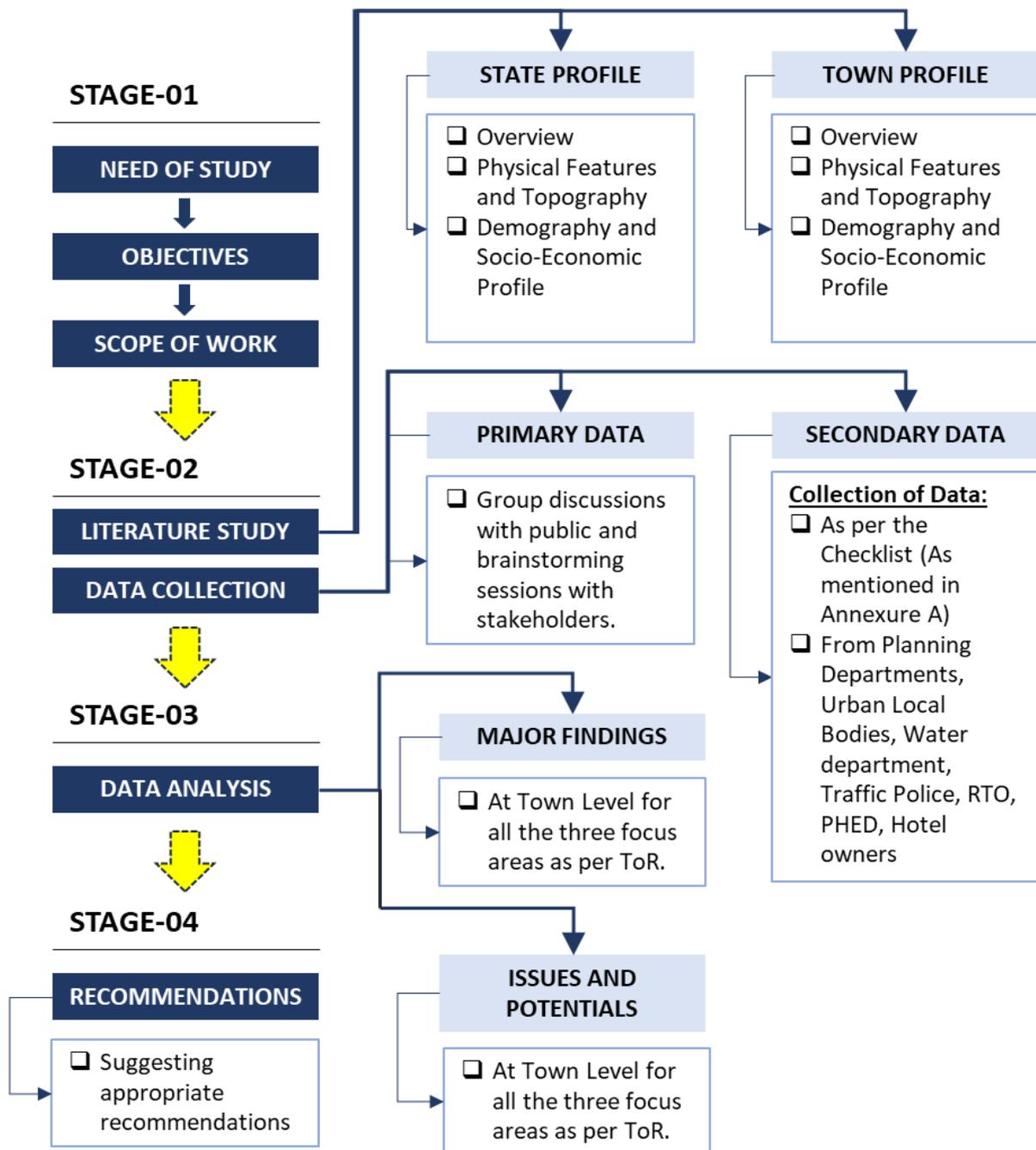
The Research Project Methodology is divided into four stages namely Stage-01, Stage-02, Stage-03 and Stage-04, as shown in Figure 2. Stage-01 consists of: the Need of Study, the Objectives defined and the Scope of Work as mentioned in the ToR. Stage-02 consists of Literature Study and Data Collection 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 the stakeholder consultation meeting, held on 25th April 2024 for Haldwani cum Kathgodam Town as well as the Post Study Workshop held on 30th August, 2024.

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	<ul style="list-style-type: none"> Group discussions with public and brainstorming sessions with stakeholders.
Secondary Data	<ul style="list-style-type: none"> 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 potentials

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.

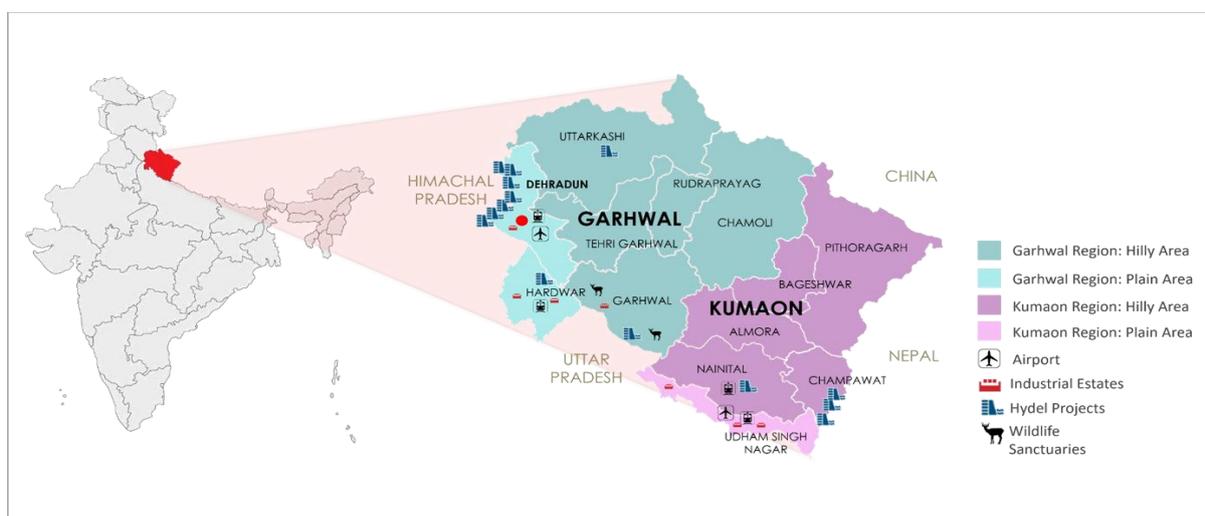
Image 1: Uttarakhand State Flower, Bird, Animal and Tree Image



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.

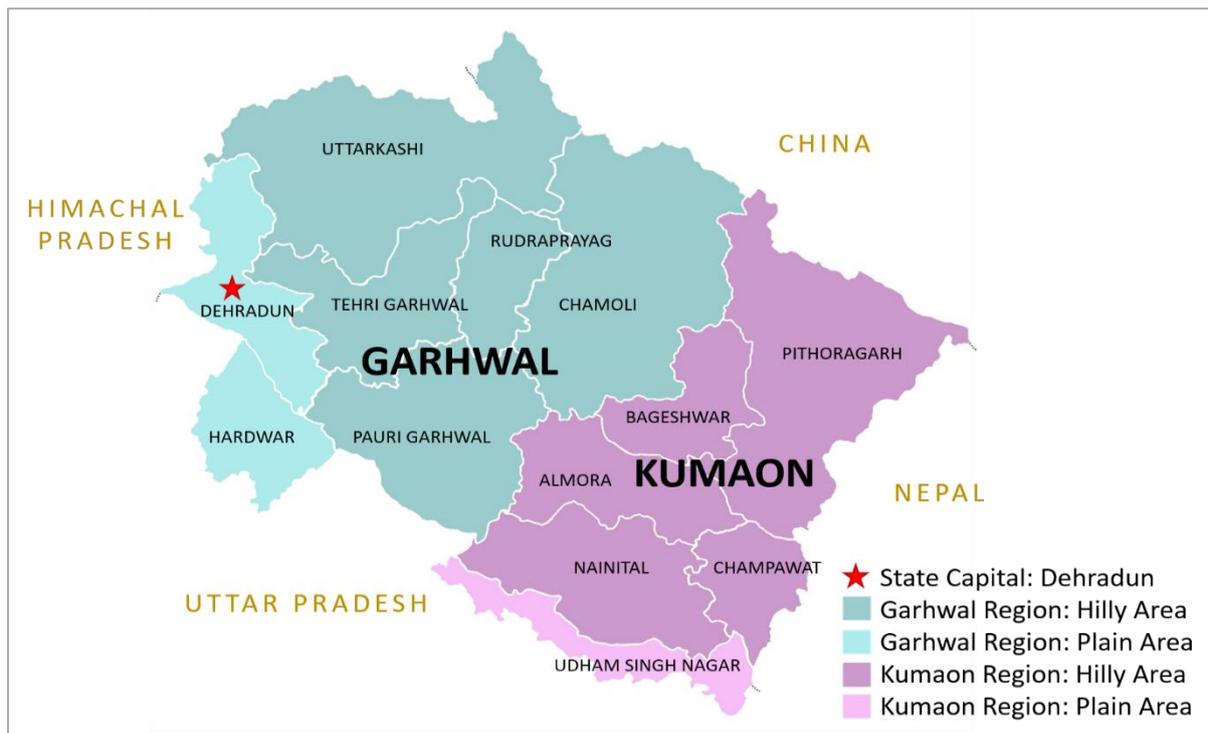
Map 2: Thematic Map of India Highlighting the Location of the State of Uttarakhand and its Administrative Division, Location of: Airport, Industrial Estates, Hydel Projects and Wildlife Sanctuaries



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

As shown above 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, Haldwani cum Kathgodam, Rudraprayag, Chamoli, Almora, Bageshwar and Pithoragarh.

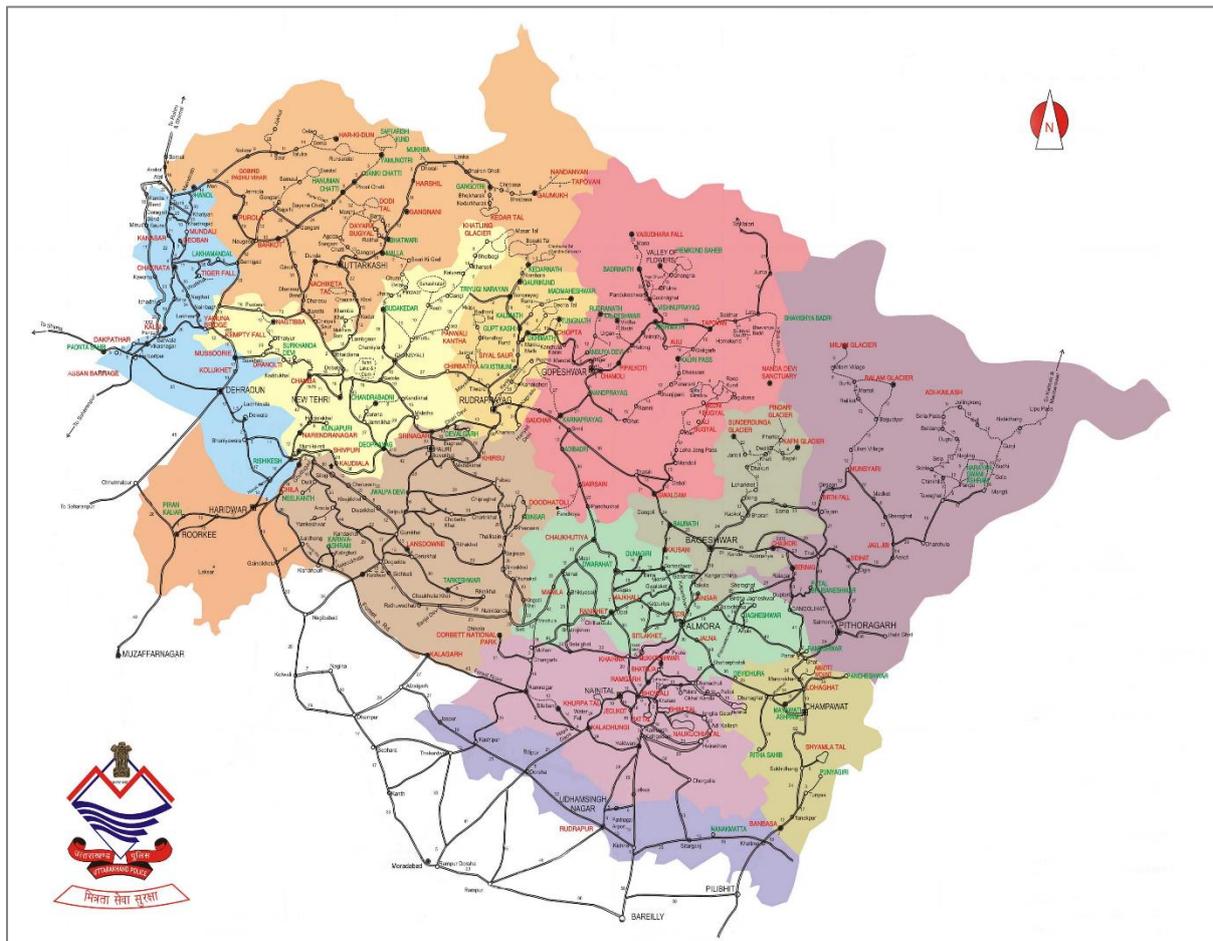
Map 3: Thematic Map of the State of Uttarakhand's Administrative Division



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

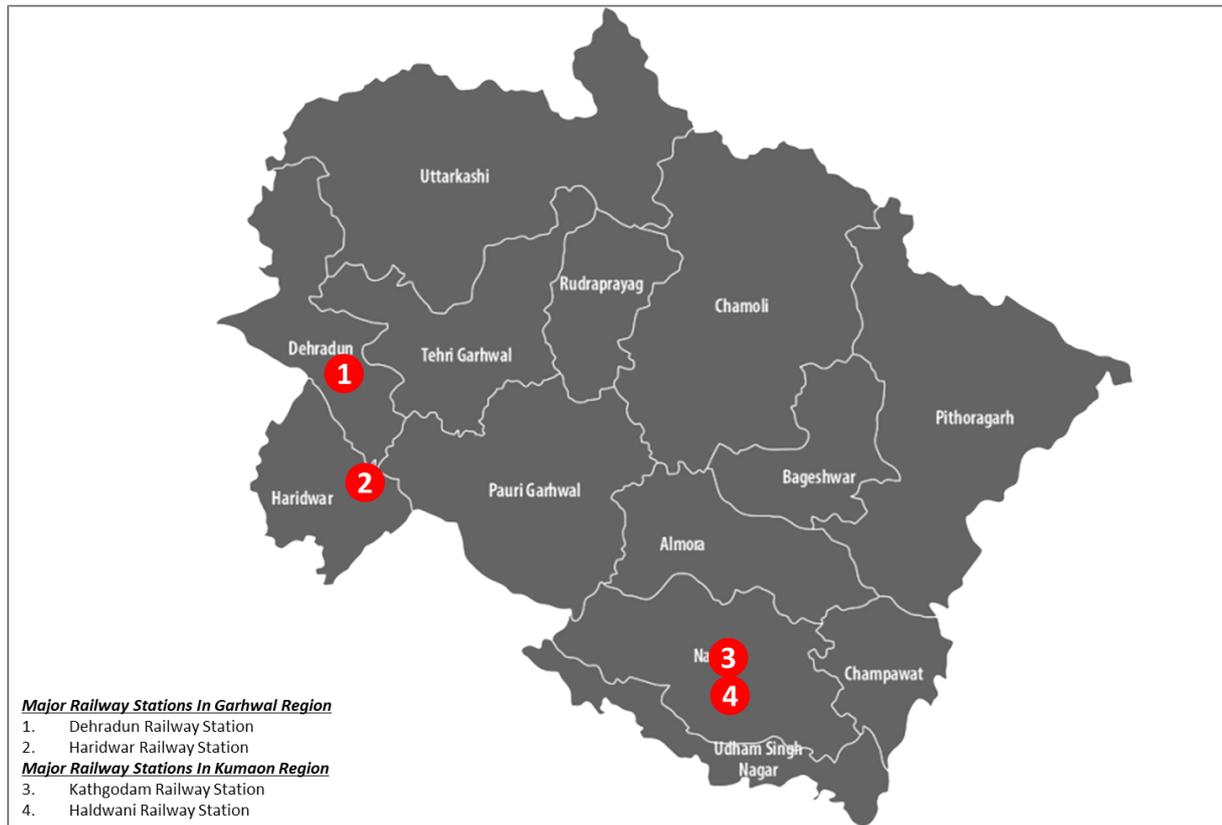


Source: (Traffic Directorate Uttarakhand Police, 2024)

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.

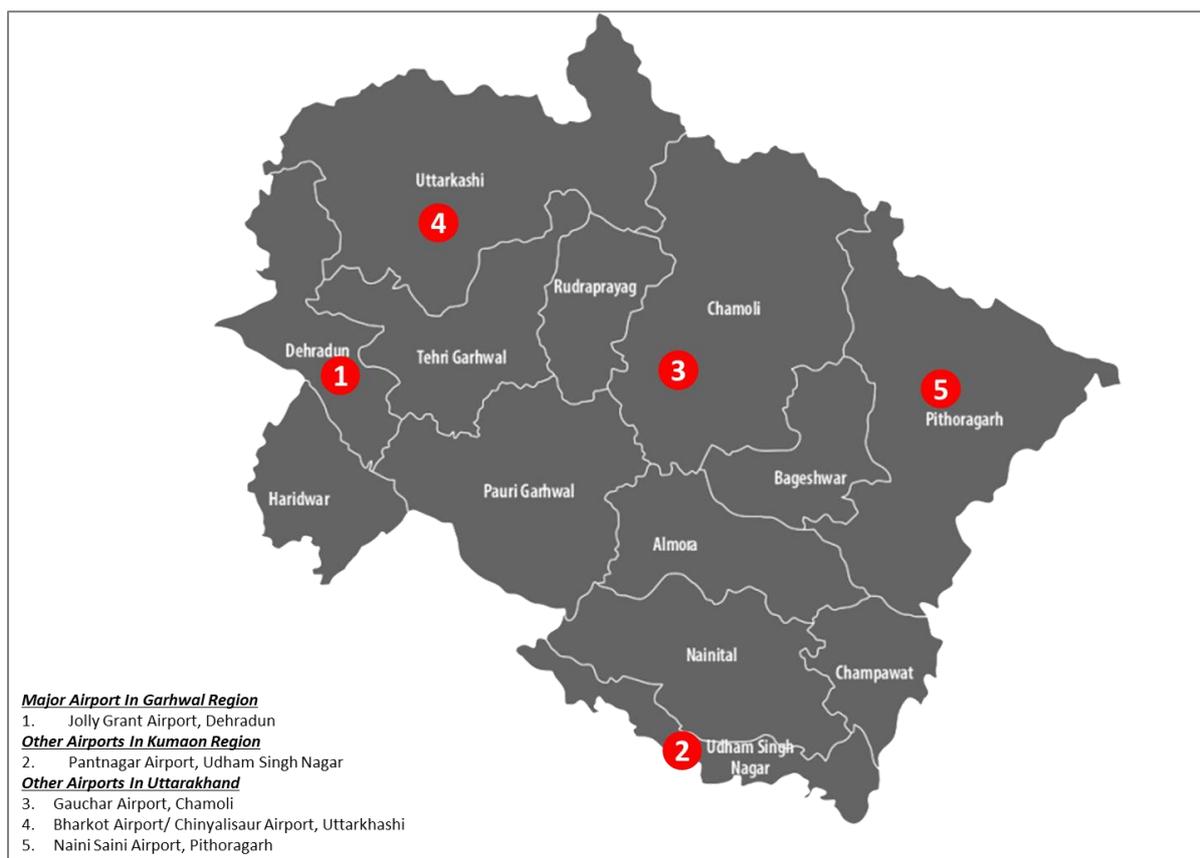
Map 5: Major Railway Stations in the Garhwal and Kumaon Region of Uttarakhand



Source: Basemap: (Google Images, 2024)

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)

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)	53,483 sq. km.
Geographical Area (Urban)	
Geographical Area (Rural)	
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	100,86,292 (100%)
Total Urban Population	30,49,338 (30%)
Total Rural Population	70,36,954 (70%)
Male Population (Total)	51,37,773 (100%)
Male Population (Urban)	16,18,731 (32%)
Male Population (Rural)	35,19,042 (68%)
Female Population (Total)	49,48,519 (100%)
Female Population (Urban)	14,30,607 (29%)
Female Population (Rural)	35,17,912 (71%)
Population Density (Overall)	189 per sq. km.
Population Density (Urban)	
Population Density (Rural)	
Population Growth-Rate (2011) (%)	18.81
Average Literacy Rate (%) (Overall)	78.82
Average Literacy Rate (%) (Urban)	84.45
Average Literacy Rate (%) (Rural)	76.31
Male Literacy Rate (%) (Overall)	87.40
Male Literacy Rate (%) (Urban)	89.05
Male Literacy Rate (%) (Rural)	86.62
Female Literacy Rate (%) (Overall)	70.01
Female Literacy Rate (%) (Urban)	79.25
Female Literacy Rate (%) (Rural)	66.18
Sex-Ratio (female per thousand male) (Overall)	963
Sex-Ratio (female per thousand male) (Urban)	884
Sex-Ratio (female per thousand male) (Rural)	1,000

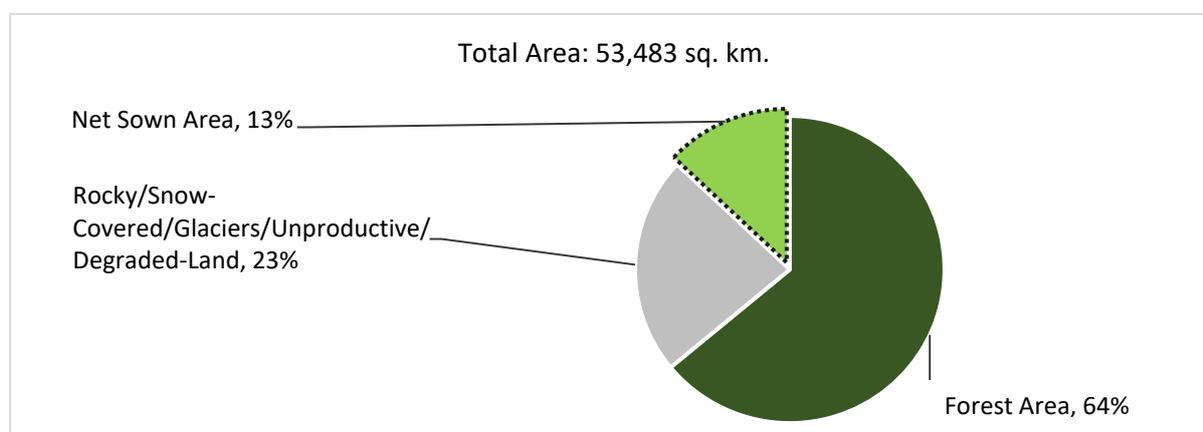
ADMINISTRATIVE SET UP	
Number of Divisions	2 Garhwal Division Kumaon Division
Number of Districts	13
Number of Tehsils	110
Number of Sub-Tehsils	18
Number of Development Blocks	95
Number of Nyaya Panchayats	662
Number of Gram Panchayats	7796
Number of Census Villages	16,793
Number of Nagar Nigam	9
Number 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.

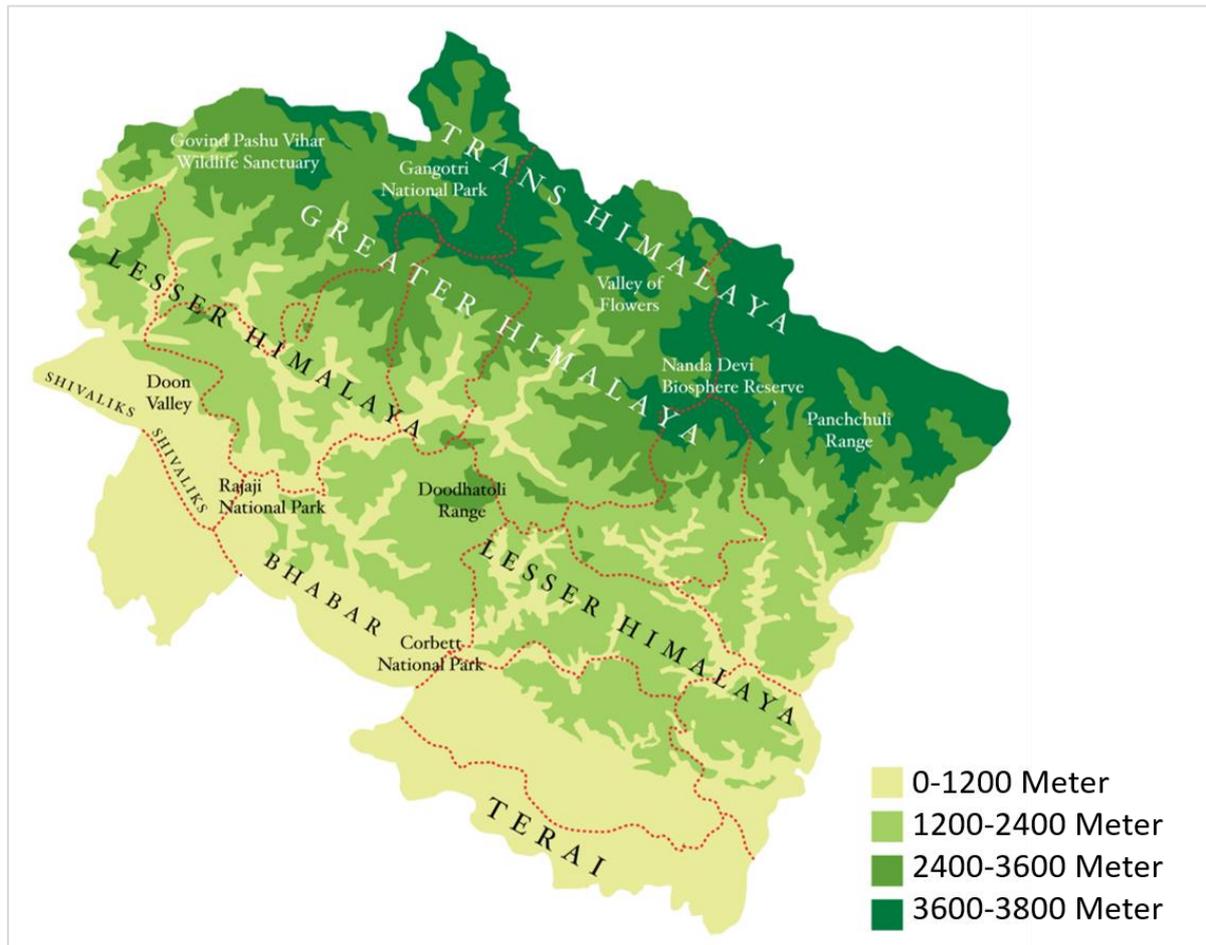
Figure 4: Percentage of Area Distribution of Uttarakhand (Census 2011)



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.

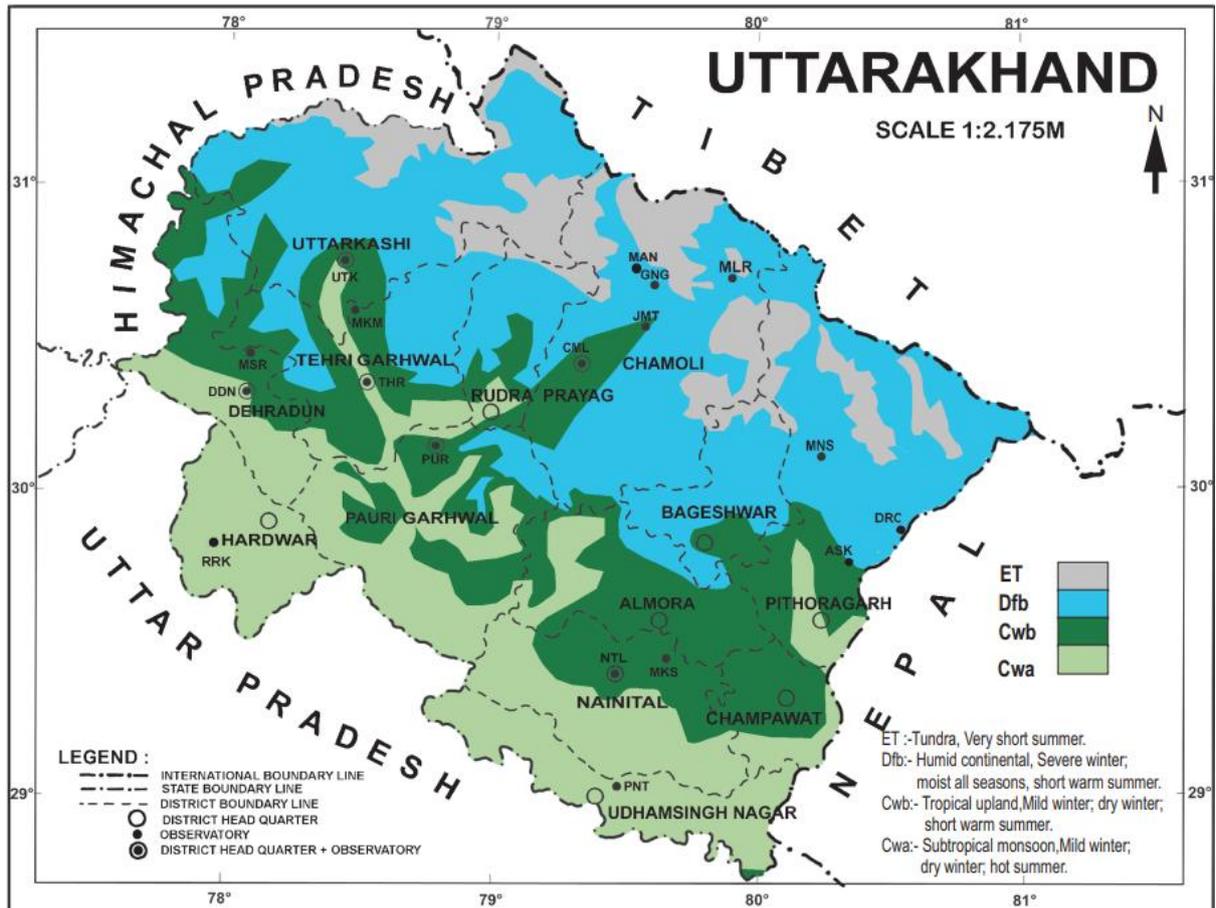
Map 7: Terrain Map of Uttarakhand



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.

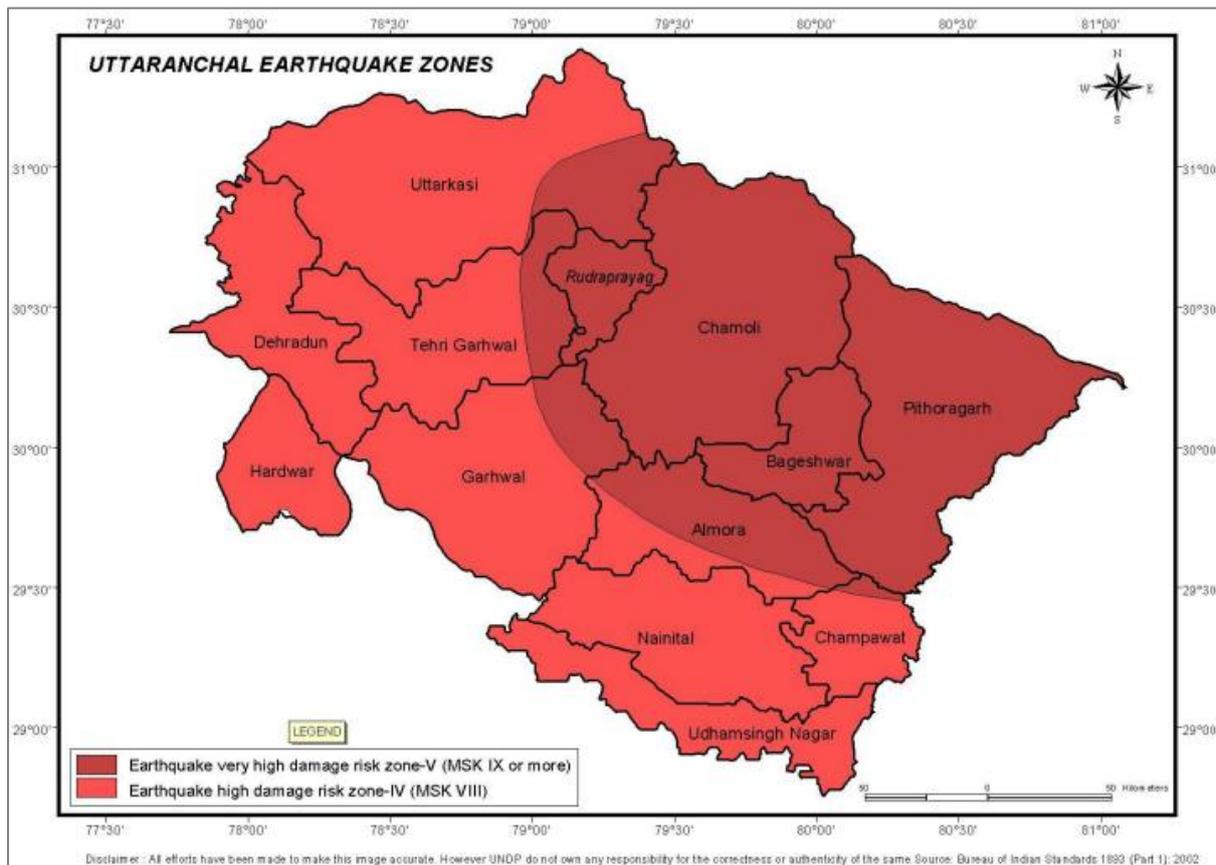
Map 8: Climate Classification of Uttarakhand



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.

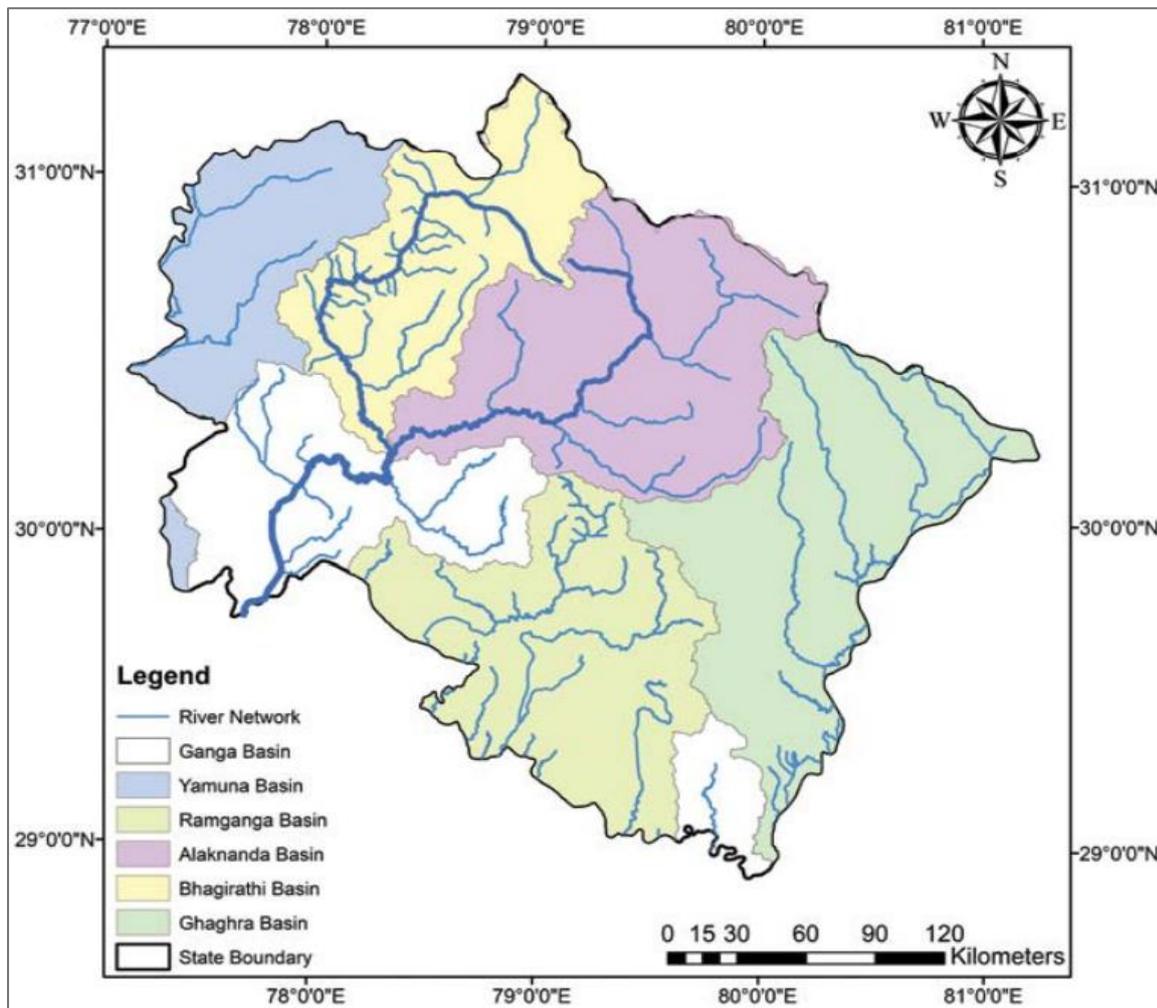
Map 9: Earthquake Zonation Map for the State of Uttarakhand



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



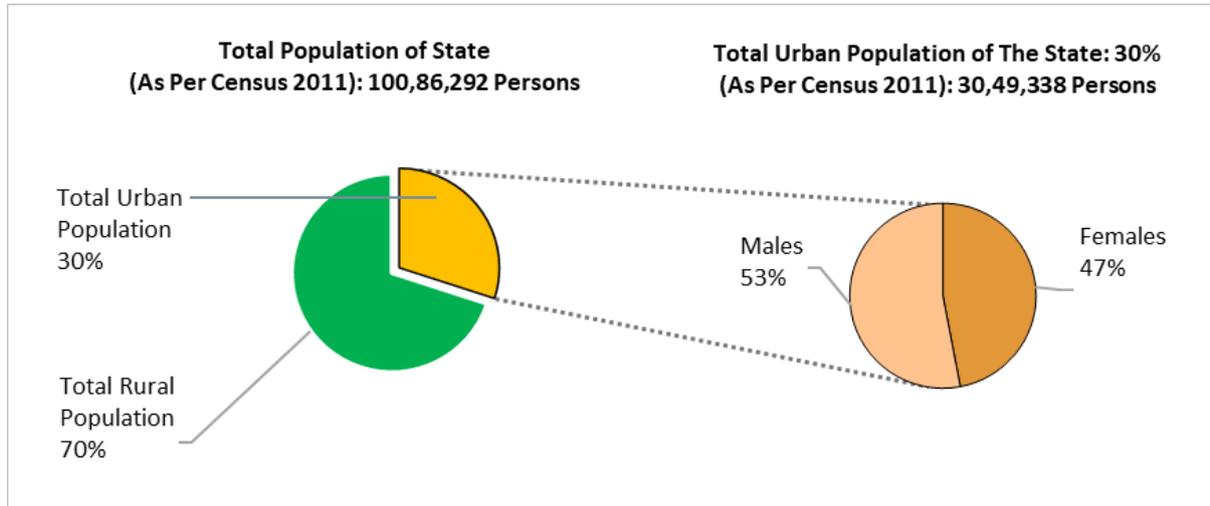
Source: (*Uttarakhand River Atlas, National Mission for Clean Ganga, Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Government of India, 2021*)

5.3. Demography and Socio-Economic Profile

5.3.1. Demography

As shown in Figure 5, 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.

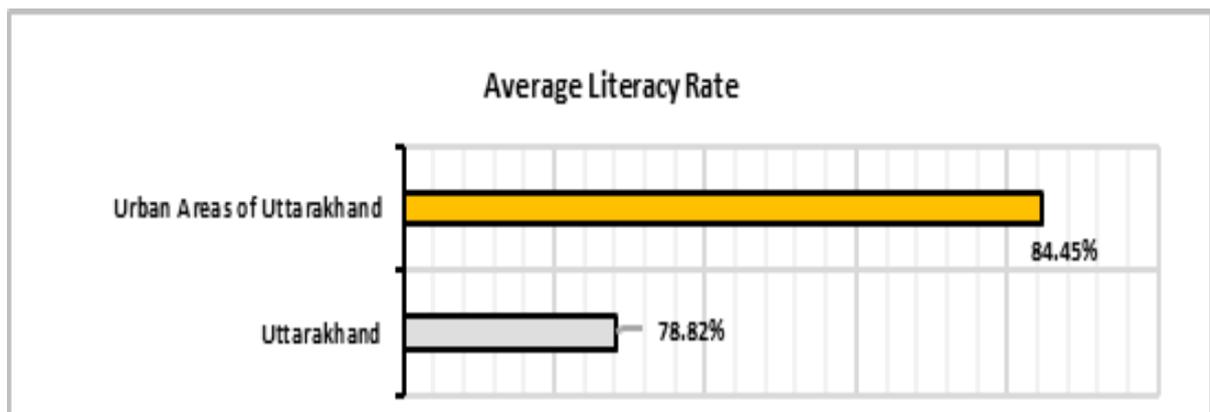
Figure 5: Population-Split of Uttarakhand (Census 2011)



Source: (Census India, 2011)

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%.

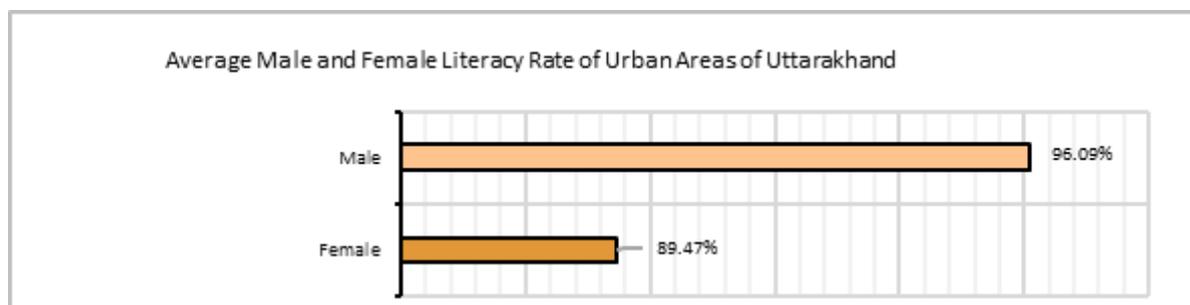
Figure 6: Comparative Analysis of the Average Literacy Rate of Uttarakhand and the Urban Areas of Uttarakhand (Census 2011)



Source: (Census India, 2011)

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%).

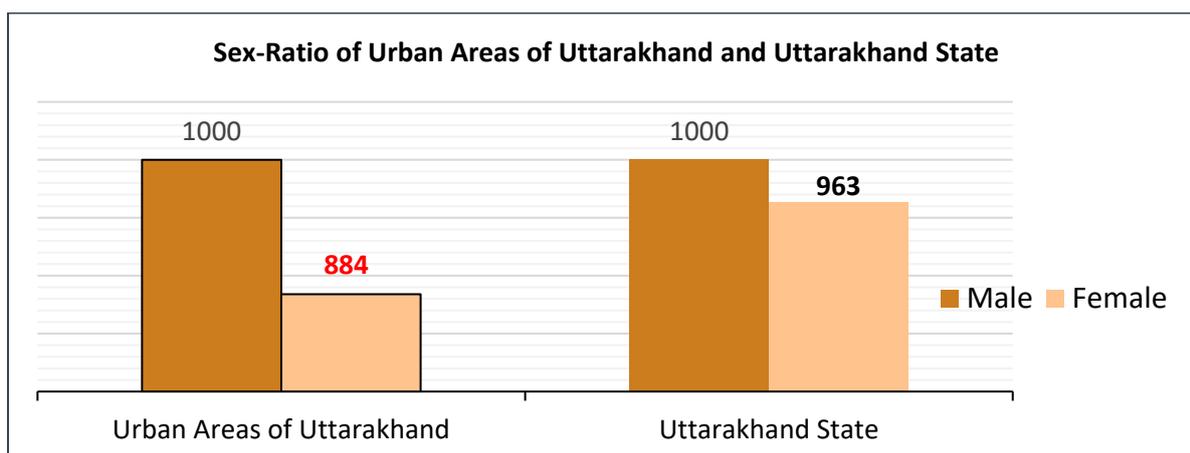
Figure 7: Comparative Analysis of the Average Male and Female Literacy-Rate of Urban Areas of Uttarakhand (Census 2011)



Source: (Census India, 2011)

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)

5.3.2. Social and Cultural Aspects

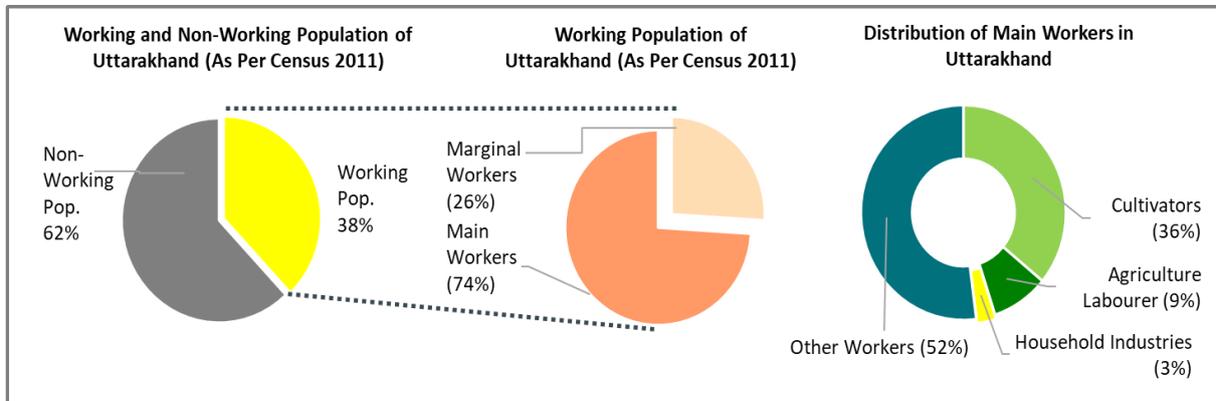
As per the (Census India, 2011), Uttarakhand has a Hindu majority with 82.97% of Hindu population followed by 13.95% of Muslim population, 2.34 % Sikh population, 0.37% of Christian population, 0.15% of Buddhist population, 0.09% of Jain population, 0.01% of Other Religions population and 0.12% of population 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 25% (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)

Chapter 6

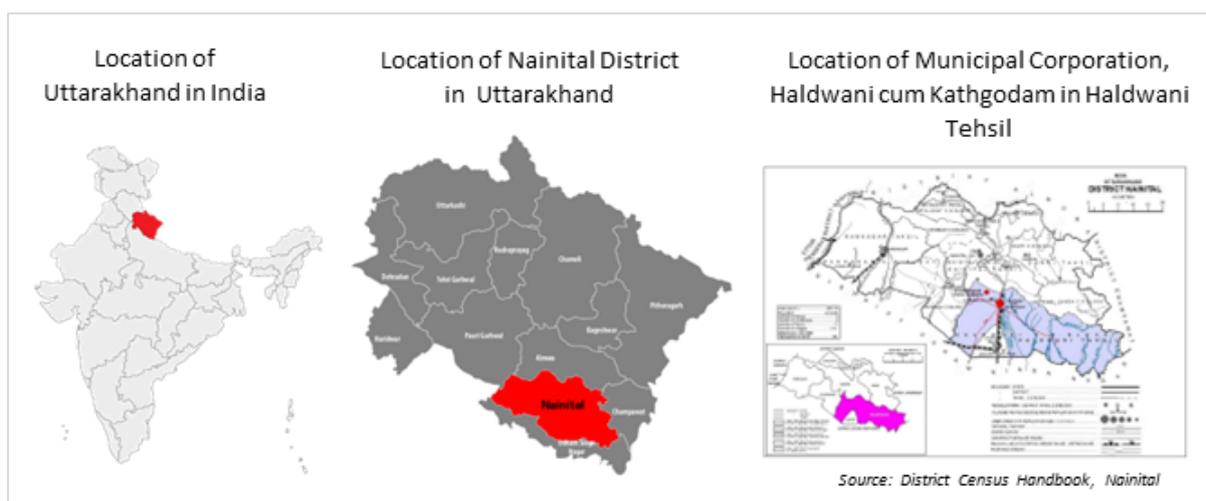
Haldwani cum Kathgodam Town

Chapter 6. Haldwani cum Kathgodam City

6.1. Overview

As shown in Map 11, Haldwani cum Kathgodam City is Located in the immediate foothills of the Kumaon Region of Uttarakhand. It falls in the Haldwani Tehsil of the Nainital District in the State of Uttarakhand India. Haldwani cum Kathgodam is also known as the Gateway to Kumaon i.e. the entry point to the Kumaon Region of Uttarakhand. It is famous for being a wedding destination and it's breath-taking views of the surrounding hills. 3rd Most Populous City in Uttarakhand after Dehradun and Haridwar. It is the Largest City of Kumaon Region of Uttarakhand. It is the Financial Capital of State accommodating most of the commercial, economic and industrial activities of the State. Historically, trading post of the Kumaon Region. It accommodates many picturesque spots including the Sanjay Van, a lush green area that is a part of the Tunda Range Forest. The Town has a huge tourist footfall due to being the entry point for the entire Kumaon Division and many tourist spots like Nainital, Almora, Ranikhet, Mukteshwar, Bhimtal, etc and being one of the most popular wedding destinations. Thus, it experiences Tourist Season during the months of April, May, June, July, December and January. Approx. 20,000 to 30,000 persons per day visit the city, especially around the wedding seasons.

Map 11: Location Map of Nagar Nigam, Haldwani cum Kathgodam in Nainital District, Uttarakhand, India



Source: (Google Images, 2024)

The following Table 3, shows a comprehensive overview of Haldwani cum Kathgodam Town as per the Census 2011.

Table 3: Overview of Haldwani cum Kathgodam Town (Census 2011)

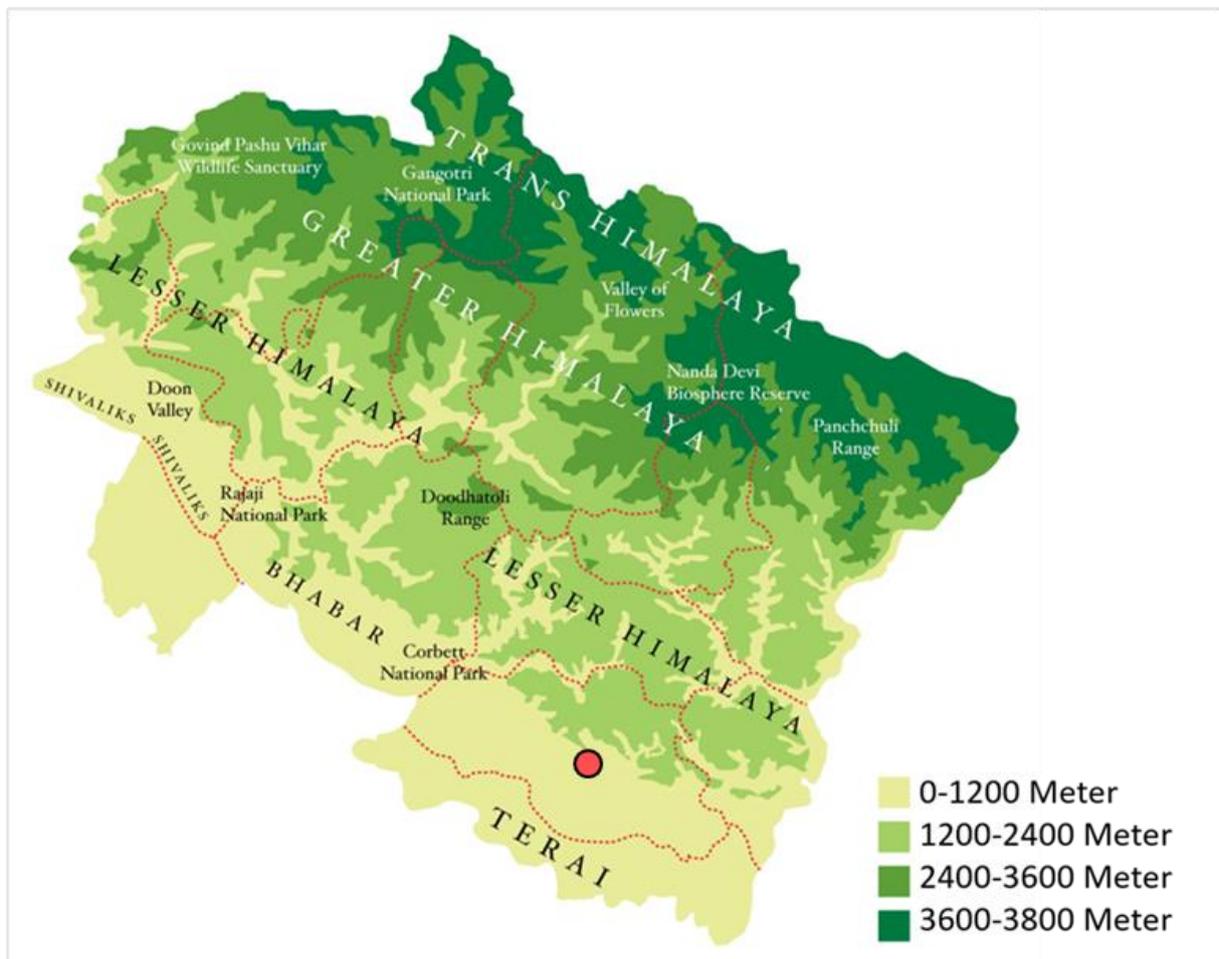
GEOGRAPHICAL LOCATION	
District	Nainital
Tehsil	Haldwani
Town	Haldwani cum Kathgodam
Latitude	29° 13' 10.8372" N
Longitude	79° 30' 44.8524" E.
Geographical area of the Town	10.62 sq. km
Average elevation of district headquarters (ASL)	424 m
POPULATION DATA (CENSUS 2011)	
Total population	2,01,461
Male population	1,05,580
Female population	95,881
Population density (persons per sq. km.)	805
Average literacy rate (%)	86.3
Male literacy (%)	86.32
Female literacy (%)	79.81
Sex-Ratio (female per thousand male)	908
ULB	
Nagar Palika Parishad, Haldwani cum Kathgodam	33 Wards

Source: (GoI, District Census Handbook, Nainital, 2011), (Census India, 2011)

6.2. Physical Features and Topography

As shown in Map 12, as per the (District Census Handbook, 2011), Haldwani cum Kathgodam Town falls in the Bhabhar region (0-1200m) of Uttarakhand. Topographically it is formed by unsorted sediments, it's the submontane belt and runs at the foot of Siwalik. It falls in the Ramganga Basin and sub-micro region of Kosi Basin. The main river is Guala River.

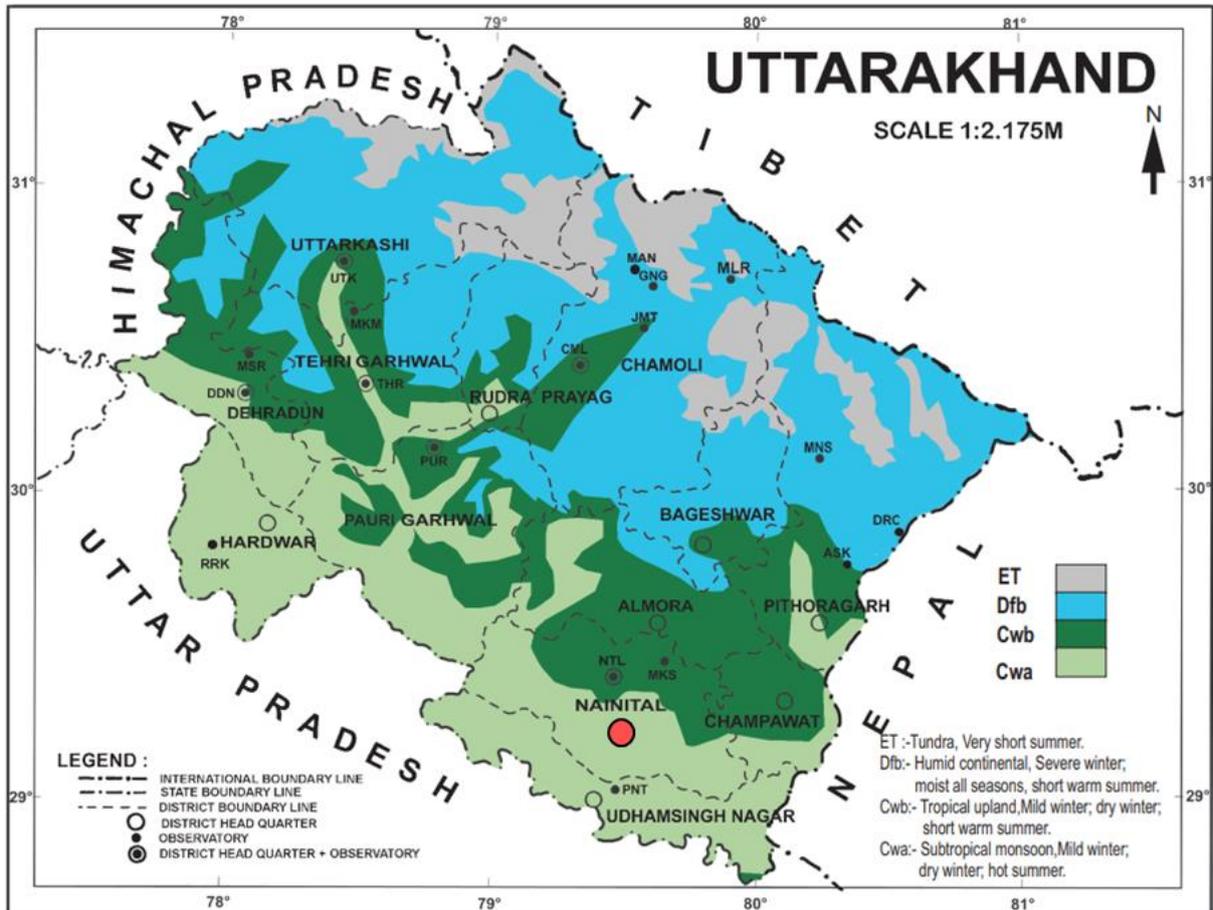
Map 12: Geographical Location of Haldwani cum Kathgodam Town in Uttarakhand



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

As shown in Map 13, the climate in Haldwani cum Kathgodam experiences humid subtropical, dry winter climate. However, the temperature in the Shivalik and lesser Himalayan region generally remains pleasant throughout the year. The temperature in Haldwani cum Kathgodam ranges from 42°C to 8°C.

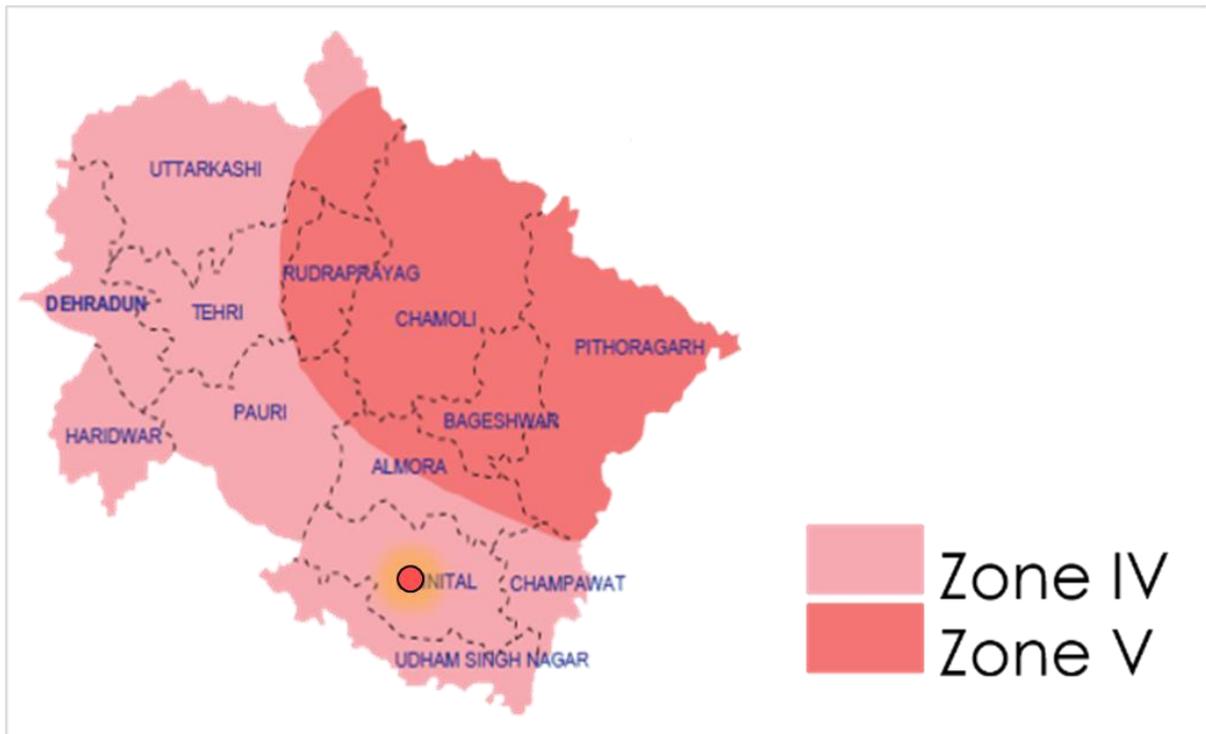
Map 13: Climatic Classification Map of Uttarakhand Highlighting the Climatic Conditions of Haldwani cum Kathgodam



Source: Basemap: (Gol, Climate of Uttarakhand)

As shown in Map 14, Haldwani cum Kathgodam falls in the Zone IV of the Earthquake prone zone i.e. the second most vulnerable zone prone to earthquakes and disasters.

Map 14: Location of Haldwani cum Kathgodam Town in Earthquake Zonation Map of Uttarakhand



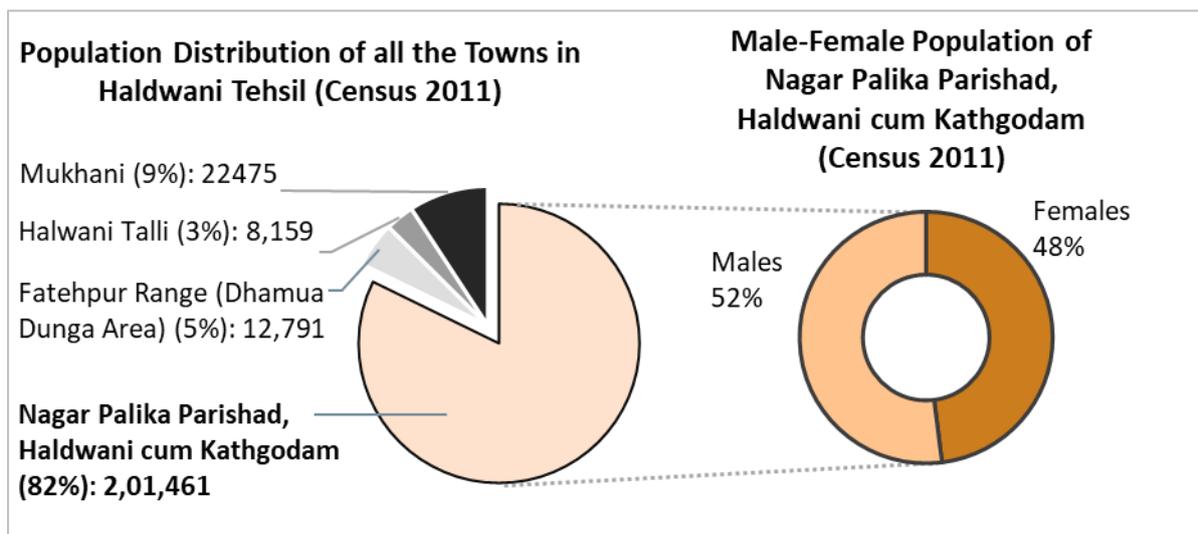
Source: (Thematic Map Library, Uttarakhand.org, 2024)

6.3. Demography and Socio-Economic Profile

6.3.1. Demography

As shown in Figure 10, as per the (Census India, 2011), Haldwani Tehsil has total 4 Towns in it. Out of these 4 Towns Nagar Palika Parishad (NPP), Haldwani cum Kathgodam consists of 82% (2,01,461 persons) of its total population. The NPP, Haldwani cum Kathgodam further has 52% (1,05,580 persons) of male population and 48% (95,881 persons) of female population in the Town.

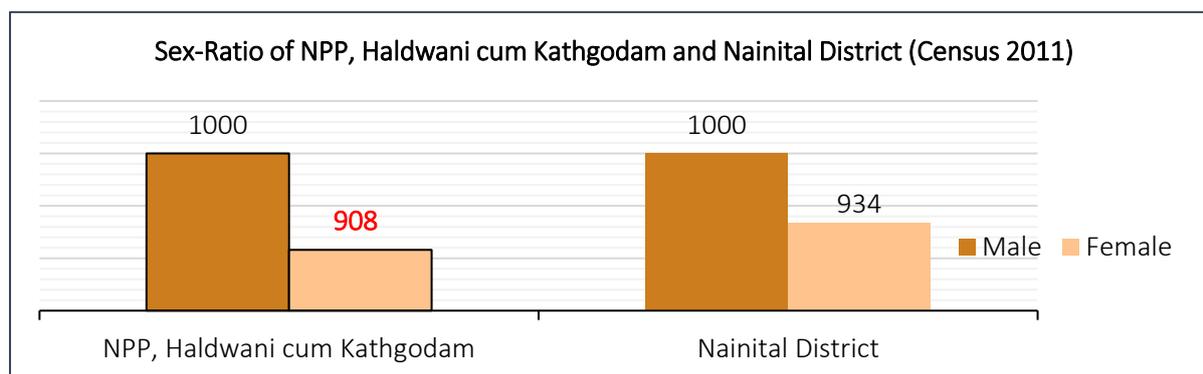
Figure 10: Population Distribution in the Four Towns in Haldwani Tehsil and Male-Female Population Percentage of the Nagar Palika Parishad, Haldwani cum Kathgodam (Census 2011)



Source: (Census India, 2011)

As shown in Figure 11, Haldwani cum Kathgodam Town has 908 females per 1000 males. Thus, making the sex-ratio of Haldwani cum Kathgodam Town to be lower than the sex-ratio of Nainital District i.e. 934 females per 1000 males.

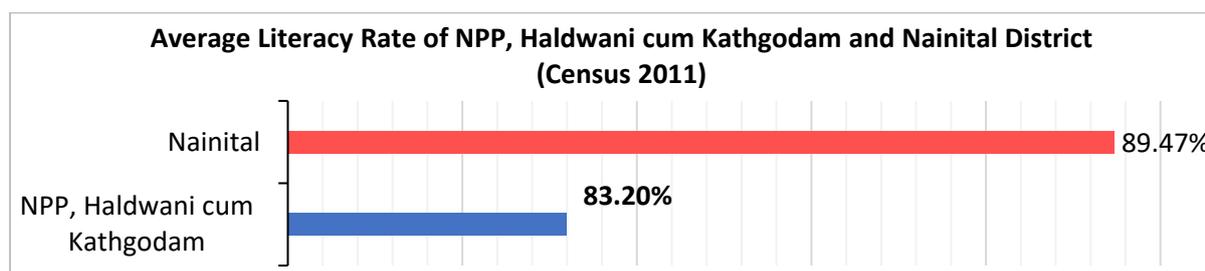
Figure 11: Comparative Analysis of Sex-Ratio of NPP, Haldwani cum Kathgodam and Nainital District (Census 2011)



Source: (Census India, 2011)

As shown in Figure 12, the average literacy rate of NPP, Haldwani cum Kathgodam (83.20%) is lower than the average literacy rate of Nainital District (89.47%).

Figure 12: Comparative Analysis of Average Literacy Rate of NPP, Haldwani cum Kathgodam and Nainital District (Census 2011)



Source: (Census India, 2011)

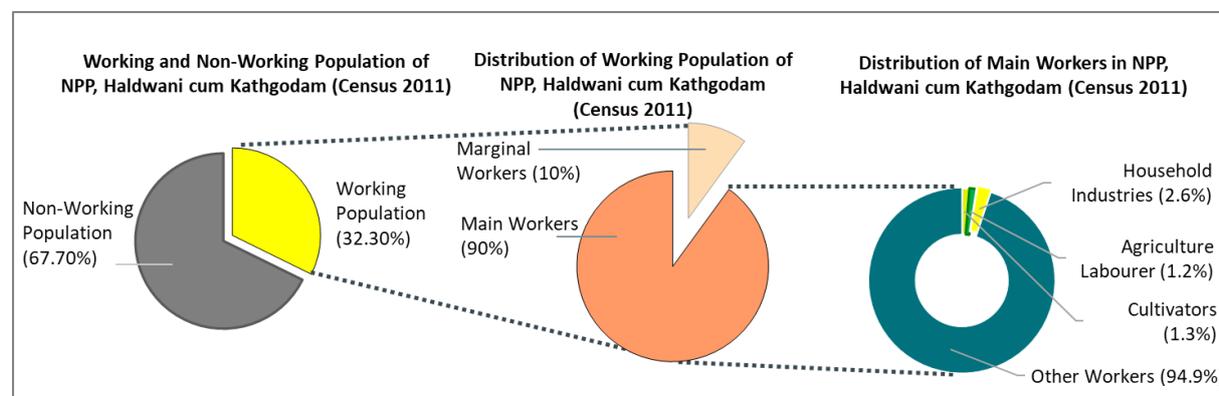
6.3.2. Social and Cultural Aspect

As per (Census India, 2011), in NPP, Haldwani cum Kathgodam out of the total population (2,01,461 persons) of the town 10% (20,653) of population is Schedule Caste (SC) and 1% (1,0635) of population is Schedule Tribe (ST).

As per the (Census India, 2011), Nagar Panchayat, Haldwani cum Kathgodam has a Hindu majority with 68.84% of Hindu population followed by 31.89% of Muslim population, 2.19 % Sikh population, 0.89% of Christian population, 0.02% of Buddhist population, 0.09% of Jain population, 0.01% of Other Religions population and 0.07% of population with No Religion Stated.

6.3.3. Economic Profile

Figure 13: Demography of Working Population of NPP, Haldwani cum Kathgodam (Census 2011)



Source: (Census India, 2011)

As shown in Figure 13, according to the (Census India, 2011) around 32.3% of the total population of Nagar Panchayat, Haldwani cum Kathgodam is the engaged in working activities. Thus, making the total working population to be 65,005 persons. Out of this total working population, 90% of the population are Main Workers (employed or earning more than 6 months) i.e. 58,496 persons (86% males and 14% females) and the remaining 10% of the total working population are Marginal Workers (working for less than 6 months) i.e. 6,509 persons (72% males and 28% females). Out of the total Main Workers, 1.3% are Cultivators, 1.2% are Agriculture Labourer, 2.6% works in the Household Industries and 94.9% are engaged as Other Workers. While the remaining 67.7% of the total population of the NPP, Haldwani cum Kathgodam is the Non-Working Population i.e. 1,36,456 persons.

6.4. Discussions and the Data Provided by the Officials Met During Field Visit and Stakeholder Consultation Meeting held on 25th April 2024 in NN, Haldwani cum Kathgodam

As shown in Image 2 below, a Stakeholder Consultation Meeting was held on 25th April 2024 in Nagar Nigam (NN), Haldwani cum Kathgodam. This meeting was attended by 21 stakeholders/participants as mentioned in the list attached in Annexure C.

Image 2: Images of Stakeholder Consultation Meeting Held on 25th April 2024 in NN, Haldwani cum Kathgodam



Source: (Stakeholder Consultation 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) Wate Availability and Supply in Haldwani cum Kathgodam.

6.1. Post study workshop held on 30th August, 2024







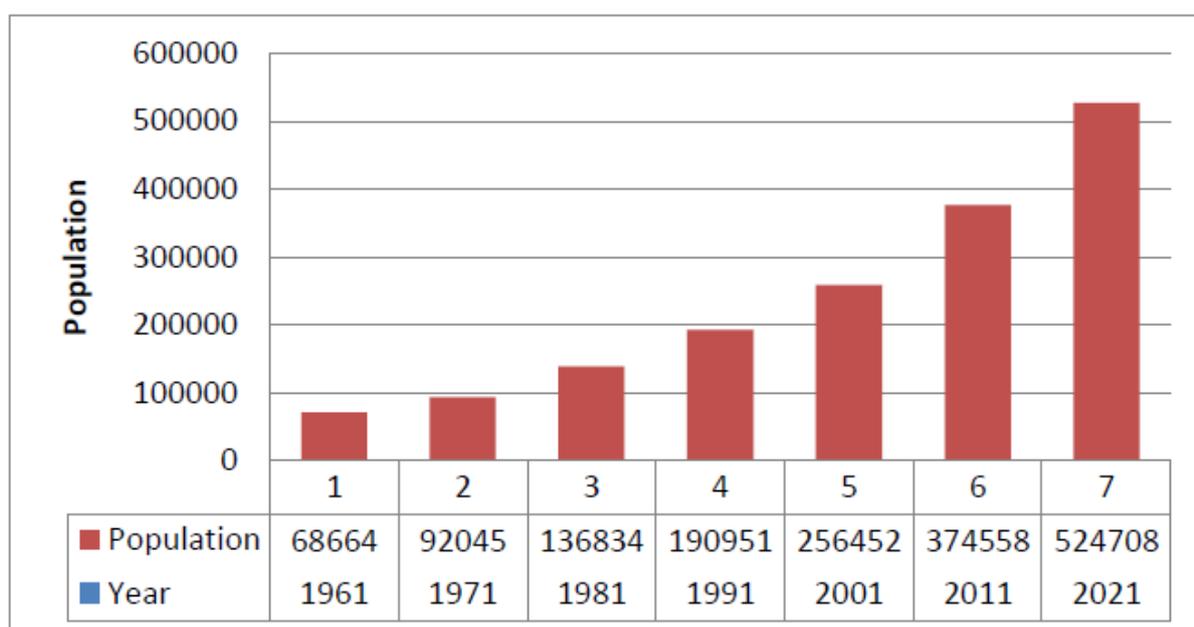
Source: (Post Study Workshop, 2024)

6.5. Current Situation

As per the discussion with the officials of Nagar Nigam, Haldwani cum Kathgodam and the data collected as attached in Annexure A, the total area of the town has increased 4 times i.e. 10.62 sq. km. (Census India, 2011) to 42.59 sq. km. due to the amalgamation of 27 wards (Ward Number 34 to 60) to the existing/old municipal boundary area (i.e. Ward Number 01 to 33) in the year 2018. This further lead to an increase in number of wards from 33 (Census India, 2011) to 60 with a total population increase from 2,01,461 persons to 3,74,558 persons (for the year 2011) as per the (Handbook for Pre-Study Workshop by Dr. R. S. Tolia Uttarakhand Academy of Administration, 2024).

As shown in Figure 14, according to the Draft Master Plan of Haldwani cum Kathgodam 2041, the total population for the year 2021 is 5,24,708 persons. Thus, calculations are based on this population.

Figure 14: Population Projection of Haldwani cum Kathgodam according to the amalgamated 27 Wards (i.e. from wards number 34 to 66) in the Old Municipal Area (i.e. from wards number 1 to 33)



Source: (Handbook for Pre-Study Workshop by Dr. R. S. Tolia Uttarakhand Academy of Administration, 2024)

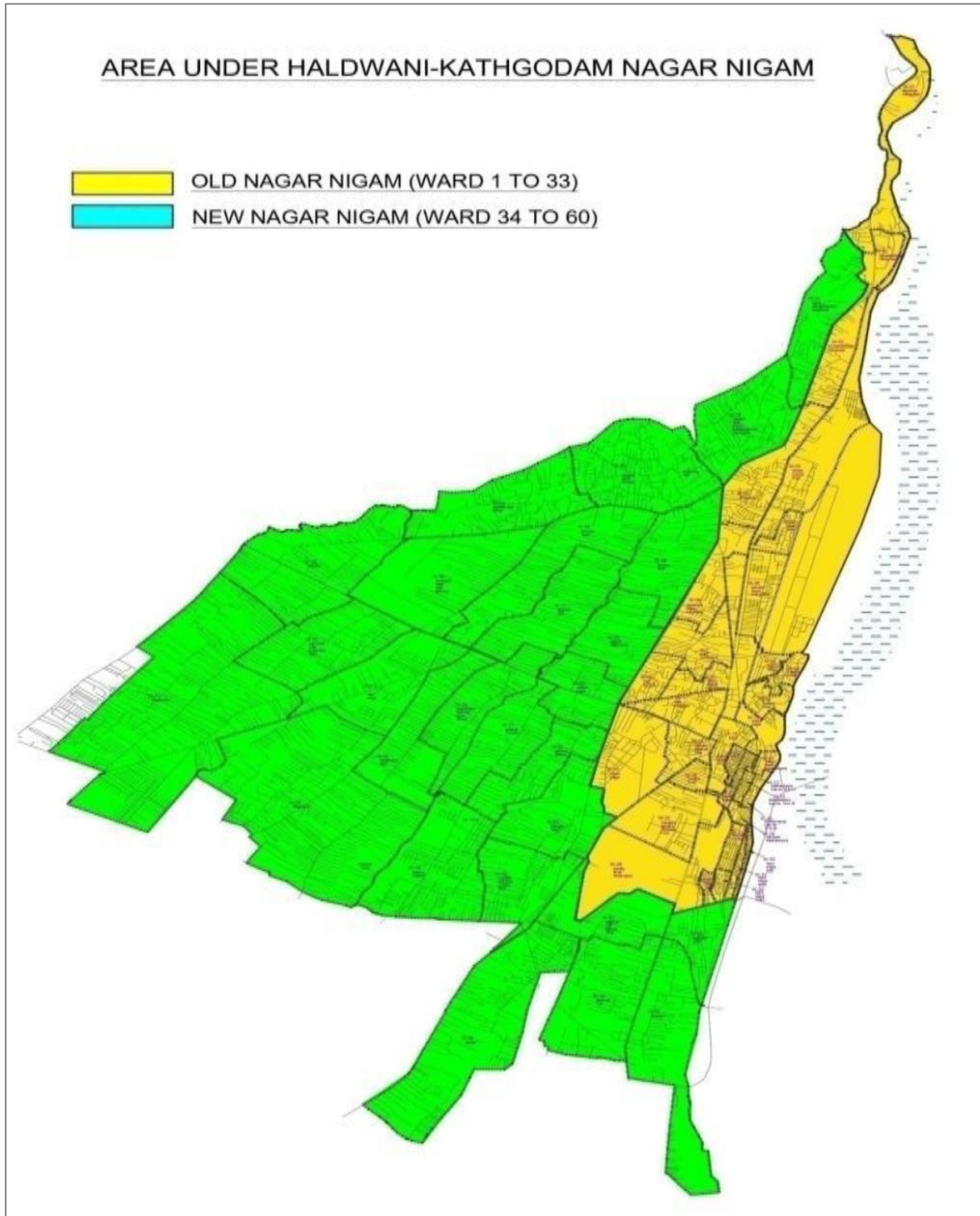
As per the discussion with the officials of Nagar Nigam, Haldwani cum Kathgodam and the data collected as attached in Annexure A, NN, Haldwani cum Kathgodam has an average household (HH) size of 5. According to the average HH size provided by the officials the total number of HHs calculated for the year 2021 are 1,04,942 HHs. Thus, approximately the total number of HHs have increased 1.4 times since 2011 i.e. from 74,912 HHs to 1,04,942 HHs.

$$\text{Total Number of HHs in 2021} = \frac{\text{Total Population of NN, Haldwani cum Kathgodam}}{\text{Average HH Size of NN, Haldwani cum Kathgodam}}$$

$$\text{Total Number of HHs in 2021} = \frac{5,24,708}{5} = 1,04,942 \text{ HHs.}$$

The Map 16 below shows the old municipal boundary from Ward Number 01 to 33 of Nagar Palika Parishad, Haldwani cum Kathgodam and the Amalgamated 27 Wards from Ward Number 34 to 60 in the New Municipal Boundary of Nagar Nigam, Haldwani cum Kathgodam.

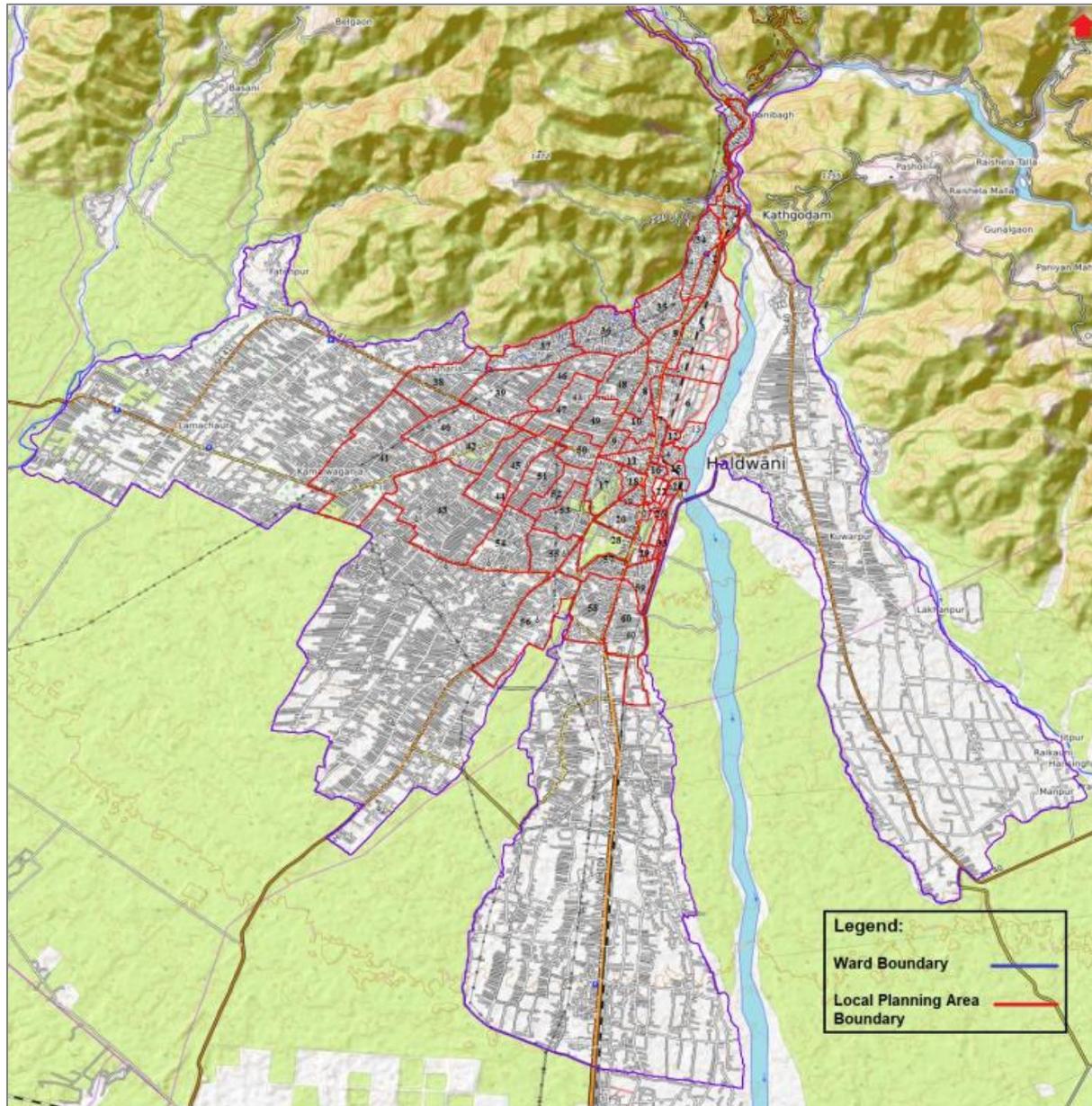
Map 15: Old and New Municipal Boundary Area Map of Haldwani cum Kathgodam



Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani)

The Map 16 below shows the present boundary map of Nagar Nigam, Haldwani cum Kathgodam (2024) including all the wards from number 01 to 60 in the New Municipal Boundary Area of Nagar Nigam Haldwani cum Kathgodam and the Local Planning Area Boundary.

Map 16: Present Boundary Map of Nagar Nigam, Haldwani cum Kathgodam (2024)



Source: (UUSDA, Government of Uttarakhand, 2023)

As shown in Table 4, the 60 wards of Nagar Nigam , Haldwani cum Kathgodam are named as Ranibagh Kathgodam, Kathgodam Damuadhunga, Haripur Colonel Ward, Awas Vikas, Polysheet, Subhash Nagar Govindpura, Bhotia Parao Gorakhpur, Jagdamba Nagar Kulyalpura, Talli Bamori, Malla Gorakhpur, Talla Gorakhpur, Rajendra Nagar, Rajpura Padav, Tanakpur Road, Kidwai Nagar, Bazar Chetra, Heera Nagar, Shivpuri Bhawaniganj, Rampur Road, Parvatiya Mohalla Himalaya Farm, Banbhoolpura Line No. 01 to 07, Banbhoolpura Line No. 08 to 13, Banbhoolpura Line No. 14 to 16, Gafoor Basti Banbhoolpura, Banbhoolpura Line No. 17 to 20, Nai Basti Banbhoolpura, Gandhi Nagar, Bareilly Road Dharampura, Indira Nagar, Indira Nagar South, Company Bagh, Indira Nagar West,

Indira Nagar East, Byura Damuvadhunga Bandobasti, Jawahar Jyoti Anshik Damuvadhunga Bandobasti, Jawahar Jyoti-1, Jawahar Jyoti-2, Bithoria, Lohariyasaal Malla Dhar Bithoria, Lohariyasaal Talla Himmatpur Malla, Bhagwanpur, Harinagar, Charayal, Kusumkhara West, Kusumkhara East and Kohli Colony, Bithoria West, Bithoria East, Bamori Malli, Bamori Bandobasti, Adarsh Nagar, Mukhani-1, Mukhani-2, Mukhani-3, Mukhani-4, Mukhani-5 Manpur North, Manpur, Haldwani Talli Manpur North, Haldwani Talli, Gauja Jali North and Gaujajali.

The Table 4 below shows the overview of Haldwani cum Kathgodam.

Table 4: Overview of Haldwani cum Kathgodam

Overview of Haldwani cum Kathgodam Town	
Area of Haldwani cum Kathgodam Town (in sq. km.)	42.59 sq. km.
Total number of wards in Haldwani cum Kathgodam Town (2024)	60 Wards
Ward 01	Ranibagh Kathgodam
Ward 02	Kathgodam Damuadhunga
Ward 03	Haripur Colonel Ward
Ward 04	Awas Vikas
Ward 05	Polysheet
Ward 06	Subhash Nagar Govindpura
Ward 07	Bhotia Parao Gorakhpur
Ward 08	Jagdamba Nagar Kulyalpura
Ward 09	Talli Bamori
Ward 10	Malla Gorakhpur
Ward 11	Talla Gorakhpur
Ward 12	Rajendra Nagar
Ward 13	Rajpura Padav
Ward 14	Tanakpur Road
Ward 15	Kidwai Nagar
Ward 16	Bazar Chetra
Ward 17	Heera Nagar
Ward 18	Shivpuri Bhawaniganj
Ward 19	Rampur Road
Ward 20	Parvatiya Mohalla Himalaya Farm
Ward 21	Banbhoolpura Line No. 01 to 07
Ward 22	Banbhoolpura Line No. 08 to 13
Ward 23	Banbhoolpura Line No. 14 to 16
Ward 24	Gafoor Basti Banbhoolpura
Ward 25	Banbhoolpura Line No. 17 to 20
Ward 26	Nai Basti Banbhoolpura
Ward 27	Gandhi Nagar
Ward 28	Bareilly Road Dharampura
Ward 29	Indira Nagar
Ward 30	Indira Nagar South
Ward 31	Company Bagh
Ward 32	Indira Nagar West
Ward 33	Indira Nagar East
Ward 34	Byura Damuvadhunga Bandobasti

Ward 35	Jawahar Jyoti Anshik Damuvadhunga Bandobasti
Ward 36	Jawahar Jyoti-1
Ward 37	Jawahar Jyoti-2
Ward 38	Bithoria
Ward 39	Lohariyasaal Malla Dhar Bithoria
Ward 40	Lohariyasaal Talla Himmatpur Malla
Ward 41	Bhagwanpur
Ward 42	Harinagar
Ward 43	Charayal
Ward 44	Kusumkhera West
Ward 45	Kusumkhera East and Kohli Colony
Ward 46	Bithoria West
Ward 47	Bithoria East
Ward 48	Bamori Malli
Ward 49	Bamori Bandobasti
Ward 50	Adarsh Nagar
Ward 51	Mukhani-1
Ward 52	Mukhani-2
Ward 53	Mukhani-3
Ward 54	Mukhani-4
Ward 55	Mukhani-5 Manpur North
Ward 56	Manpur
Ward 57	Haldwani Talli Manpur North
Ward 58	Haldwani Talli
Ward 59	Gauja Jali North
Ward 60	Gaujajali
Total Population in Haldwani cum Kathgodam Town (2021) (Handbook for Pre-Study Workshop by Dr. R. S. Tolia Uttarakhand Academy of Administration, 2024) (Persons)	5,24,708
Floating Population of Haldwani cum Kathgodam Town	20,000 to 30,000 Persons Per Day
Total number of HHs (2021)	1,04,942 HHs
Average HH size (as per NN, Haldwani cum Kathgodam)	5
Name of department responsible for Solid Waste Management in Haldwani cum Kathgodam Town	Nagar Nigam (NN), Haldwani cum Kathgodam

Source: (Handbook for Pre-Study Workshop by Dr. R. S. Tolia Uttarakhand Academy of Administration, 2024), (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As shown in Table 5, according to the (Census India, 2011) the NPP, Haldwani cum Kathgodam have slum population 9,546 (4.74% of total population i.e. 2,01,461) has increased to

Table 5: Population Distribution of Slums in NPP, Haldwani cum Kathgodam as per Census 2011

Population Distribution of Slums in NPP, Haldwani cum Kathgodam (Census 2011)			
S.No.	Name of Slum	Number of Households (HH)	Population of Slum (in persons)
01.	Jawahar Nagar	350	2,400
02.	Kulyapura	31	186
03.	Rajendra Nagar	444	2,220
04.	Nai Basti Kathgodam	70	350
05.	Gusai Nagar	6	53
06.	Indra Nagar Pachchim	356	2,492
07.	Indra nagar Purvi	179	1,253
08.	Gandhi Nagar	54	432
09.	Ambedkar Nagar	32	160
	Total	1,522 HHs	9,546 Persons
	HH Size		6

Source: (Census India, 2011)

Image 3: Image of Slums located along the Railway Tracks in Haldwani cum Kathgodam



Source: (SPA, New Delhi, 2024) primary survey

The Table 6: Details of Slums and the Total Number of HHs in Slums of Nagar Nigam, Haldwani cum Kathgodam as per the data provided by the officials met during field visit below, as per the discussion with the officials of Nagar Nigam, Haldwani cum Kathgodam and the data collected as attached in (Annexure A), depicts that at present the NN, Haldwani cum Kathgodam has a total of 22 slums with a split of 13 Type-01 Slum, 1 Type-02 Slum and 8 Type-03 Slum. There is a total of 11,307 households in the slums of Municipal Corporation, Haldwani cum Kathgodam with a split of 5,149 households in Type-01 slum, 80 households in Type-02 slum and 6,078 households in Type-03 slum.

Therefore, since 2011 to 2021 the total number of slums has increased approximately 2.44 times i.e. from 9 to 22 with a total HH increase of 7.43 times i.e. from 1,522 HHs to 11,307 HHs.

Table 6: Details of Slums and the Total Number of HHs in Slums of Nagar Nigam, Haldwani cum Kathgodam as per the data provided by the officials met during field visit

Details of Slums and the Total Number of HHs in Slums of NN, Haldwani cum Kathgodam (2021)		
Type-01 Slum (a)		
S.No.	Name of Slum	Number of HHs
1	Ambedkar Nagar	224
2	Gandhi Nagar	665
3	Gussain Nagar	130
4	Kulyanpura	233
5	Belejali Lounge	675
6	Devaldhounga KAthgoadam	33
7	Barachappar/Heera Nagar	50
8	Mungali Garden	60
9	Indiranagar West-A	1,850
10	Nayi Basti Kathgodam-A	440
11	Jawahar Nagar-A	334
12	Rajendra Nagar-A	180
13	Badripura Kathgodam-A	275
	Total Number of HHs in Type-01 Slums (a)	5,149
Type-02 Slum (b)		
S.No.	Name of Slum	Number of HHs
1	Badripura Kathgodam-B	80
	Total Number of HHs in Type-02 Slums (b)	80
Type-03 Slum (c)		
S.No.	Name of Slum	Number of HHs
1	Chirag Ali Shah	642
2	Dholak/Gafur Basti	746
3	Indira Nagar West-B	640
4	Indira Nagar East	1,364
5	Jawahar Nagar-B	760
6	Nayi Basti Kathgodam-B	80
7	Rajendra Nagar-B	1,651
8	Badripura Kathgodam-C	195
	Total Number of HHs in Type-02 Slums (c)	6,078
	Total Number of Slums	22
	Total Number of HHs in Slums (S = a+b+c)	11,307
	Total Number of Slums =	13+1+8

	Total Number of Slums in Type-01 + Total Number of Slums in Type-02 + Total Number of Slums in Type-03	=22 Slums
--	---	------------------

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As mentioned in Table 7 there are seven main market areas in Haldwani cum Kathgodam, namely Patel Chowk Market Area located near the main market road in Haldwani, Sabzi Mandi and Sadar Bazar both located on Mangal Parao, Badi Mandi/Krishi Mandi located near Shani Bazar Road (weekly market), Railway Bazar located on the Railway Bazar Road, Nainital Road Market situated along the Bareilly-Nainital Road and Haldwani Bus Station Market situated on the Bus Stand Road, Banbhoolpura.

Table 7: List of Major Market Areas in Haldwani cum Kathgodam and their location

Major Market Areas in Nagar Nigam, Haldwani cum Kathgodam and their Location		
S. No.	Market Areas	Location
1	Patel Chowk Market Area	Near Main Market Road
2	Sabzi Mandi	Mangal Parao
3	Sadar Bazar	Mangal Parao, Banbhoolpura
4	Badi Mandi/Krishi Mandi	Near Shani Bazar
5	Railway Bazar	Railway Bazar Road
6	Nainital Road Market	Bareilly – Nainital Road
7	Haldwani Bus Station Market	Bus Stand Road, Banbhoolpura

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Image 4: Images of Major Market Areas in Nagar Nigam, Haldwani cum Kathgodam



Source: (SPA, New Delhi, 2024) primary survey

Map 17: Location Map of Major Market Areas of Haldwani cum Kathgodam



Source: (Google My Maps, 2024) (Google Maps, 2024)

6.6. Comparative Analysis of Nagar Palika Parishad, Haldwani cum Kathgodam (as per Census 2011) and Nagar Nigam, Haldwani cum Kathgodam (2021), as per the Discussions and the Data Provided by the Officials Met

The Table 8 below, shows the comparative analysis of the NPP, Haldwani cum Kathgodam (as per Census 2011) and NN, Haldwani cum Kathgodam (2021) as per the discussions and the data provided by the officials met during field visit in the month of March, 2024 and Stakeholder Consultation Meeting on 25th April 2024. Along with the inferences for the same.

Table 8: Comparative Analysis of NPP, Haldwani cum Kathgodam (as per Census 2011) and NN, Haldwani cum Kathgodam (2021), as per the Discussions and the Data Provided by 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	Nagar Panchayat, Haldwani cum Kathgodam As Per Census (2011)	Nagar Nigam, Haldwani cum Kathgodam (2021)	Inferences
Area of NN, Haldwani cum Kathgodam	10.62 sq. km.	42.59 sq. km.	<ul style="list-style-type: none"> At present i.e. 2024 the area of Town has increased 4 times its area since 2011 due to amalgamation of 27 wards in the old municipal boundary area.
No. of Wards in NN, Haldwani cum Kathgodam	33	60	<ul style="list-style-type: none"> Subsequently, the number of wards has increased from 36 to 60.
Total Population of NN, Haldwani cum Kathgodam	3,74,558 Persons	5,24,708 Persons	<ul style="list-style-type: none"> The total population of Town has also increased approx. 1.66 Times from the total population in 2011.
Total Number of Households (HHs)	1,172	2,586	<ul style="list-style-type: none"> The total number of Households (HHs) at present (2024) has increased 1.21 times since 2011.
Average HH Size	5	5	<ul style="list-style-type: none"> The Average HH size has been the same since 2011.
Population Density of NN, Haldwani cum Kathgodam	353 PPH	123 PPH	<ul style="list-style-type: none"> There has been approx. 65% of decrease in the population density i.e. from 353 person/hectare to 123 person/hectare after the increase in the New Municipal Boundary Area after the amalgamation of 27 wards into it.
Number of Slums	9	22	<ul style="list-style-type: none"> An increased approximately 2.44 times is observed since 2011 to 2021 in the number of slums in Haldwani cum Kathgodam i.e. from 9 to 22

Total Number of HHs in Slums	1,522	11,307	<ul style="list-style-type: none"> An increase of approximately 7.43 times is observed in the number of HHs in Haldwani cum Kathgodam since 2011 i.e. from 1,522 HHs to 11,307 HHs.
Floating Population of NN, Haldwani cum Kathgodam	-	20,000-30,000 Persons Per Day	<ul style="list-style-type: none"> There is huge Tourist influx in Haldwani cum Kathgodam i.e. approx. 20,000 to 30,000 Persons per day during tourist season (April, May, June, July, December and January). This number may even escalate up to 50,000 persons per day during the peak of wedding season.

Source: (Census India, 2011), (Nagar Nigam, Haldwani cum Kathgodam , 2024), (Post Study Workshop, 2024)

Chapter 7

Haldwani cum Kathgodam: Solid Waste Management (SWM)

Chapter 7. Haldwani cum Kathgodam: Solid Waste Management

7.1. System Infrastructure

The Solid Waste Management (SWM) in Haldwani cum Kathgodam Town is the responsibility of the ULB: Nagar Nigam, Haldwani cum Kathgodam. As per the discussions with the officials met (as mentioned in Annexure C) the Table 9 below, shows the existing system infrastructure for the SWM in NN, Haldwani cum Kathgodam.

Table 9: Overview of System Infrastructure Provided by NN, Haldwani cum Kathgodam for Solid Waste Management (SWM) in the Municipal Boundary Area

System Infrastructure Provided By NN, Haldwani cum Kathgodam	
Community Bins	
Total Number of Dustbins	<ul style="list-style-type: none"> The city is Bin-Free under the Swatch Bharat Mission 2.0. There is a total of 05 Underground Dustbins that are installed in the Municipal Boundary Area by the NN, Haldwani cum Kathgodam i.e. Kathgodam, Colletex Chauraha, LIC Office, Near Brij Lal Hospital and near Jaji Court. Only certain office areas and certain public spaces like Haldwani Railway Station has small garbage bins installed apart from this the entire Municipal Corporation Area is Bin-Free under the Swatch Bharat Mission 2.0 In the Commercial Areas to prevent littering of garbage the shop owners and road side vendors keep their individual dustbins. Further to promote segregation of waste at HH level 15L Twin Bins were distributed by the authorities.
Total Number of Large Dustbins Ward Wise Number of Large Dustbins (on an average)	
Total Number of Small Dustbins Ward Wise Number of Small Dustbins (on an average)	
Staff Appointed by NN, Haldwani cum Kathgodam for Cleaning of Roads	
Total Number of Sanitation Workers Appointed for Cleaning of Roads and Streets	1,150
Wards Wise Number of Sanitation Workers Appointed for Cleaning of Roads and Streets (on an average)	19
Frequency of Cleaning of Roads and Streets for Commercial and Residential Areas by the staff appointed by NN, Haldwani cum Kathgodam:	
During Summers	Two times a day <ul style="list-style-type: none"> Morning: 04:00 am to 10:00 am Evening: 03:00 pm to 05:00 pm
During Winters	Two times a day <ul style="list-style-type: none"> Morning: 04:00 am to 10:00 am

	<ul style="list-style-type: none"> Evening: 03:00 pm to 05:00 pm
Garbage Pick-Up Vehicles Provided by the NN, Haldwani cum Kathgodam to the Private Agency for Solid Waste Collection and Transportation	
Garbage Pick-up Trucks (Dumper Trucks with compactor) (with 7 m ³ capacity each)	7 numbers =7X7 =49 m ³ total capacity
Partitioned Auto-Tippers (with 3 m ³ capacity each)	=33+35+6= 74 numbers =74X3 =222 m ³ total capacity
Staff Appointed by Private Agency	
Total Number of Workers (Door-To-Door Collection)	As per requirement

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As shown in Table 9, Haldwani cum Kathgodam is a bin-free city, under Swatch Bharat Mission 2.0. The city has total 05 underground dustbins installed at Kathgodam, Colletex Chauraha, LIC Office, Near Brij Lal Hospital and near Jaji Court. Apart from these underground dustbins in the city, certain office areas and public spaces like Haldwani Railway Station have installed small garbage bins as shown in Image 5.

Image 5: Existing Condition of Some of the Small Garbage Bins Located in Public Offices and Public Spaces like Uttarakhand Jal Sansthan and Haldwani Railway Station in NN, Haldwani cum Kathgodam



Source: (Primary Survey, 2024)

For the cleaning and sweeping of roads the NN, Haldwani cum Kathgodam has appointed a total number of 1,150 sanitation workers with an average number of 19 sanitation workers per ward. These sanitation workers clean/sweeps the streets and roads of the commercial and residential areas in the Town. The frequency of cleaning/sweeping of streets and roads in the commercial and residential areas is twice a day on a regular basis. During summers and winters the streets and roads are cleaned in morning from 04:00 am to 10:00 am respectively while 03:00 pm to 05:00 pm in the evening.

As per the discussions with the officials met the following Table 10 below, consists of a brief description of the activities undertaken by the NN, Haldwani cum Kathgodam and the Private Agency as per the contract for the Solid Waste Management in between them. According to the contract, the

Private Agency is responsible for the door-to-door collection, segregation, transportation, storing of segregated dry waste, hiring of sanitation workers for the solid waste management, providing salary, equipment, safety masks, uniforms, ID cards, Insurance to the sanitation workers and collecting the user charge for Solid Waste Management in NN, Haldwani cum Kathgodam. While the NN, Haldwani cum Kathgodam is responsible for composting of segregated wet waste, selling the fertilizer produced after composting, providing buckets, plastic bags, vehicles, underground 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 City.

Table 10: Distribution of Activities Undertaken by the NN, Haldwani cum Kathgodam and the Private Agency as per the Solid Waste Management (SWM) Contract between the Two

S. No.	Activity	Done By/ Given To	
		NN, Haldwani cum Kathgodam	Private Agency
1	Door-To-Door Collection of Solid Waste from all the 09 wards (Every-day, Every Morning)	-	Yes
2	Segregation at Source of Solid Waste Collected from Door-to-Door	-	Yes
3	Transportation of Waste after Segregation	-	Yes
4	Storing Segregated Dry Waste at one location in Plastic Bags on Site itself	-	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	-	-
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	User Charge collection for Solid Waste Collection	-	Yes
15	Deposition of User Charge Collected to	Yes	-
16	Public Awareness Programme for MSWM	Yes	-

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

7.1.1. Present Situation of Garbage Dumping in NN, Haldwani cum Kathgodam

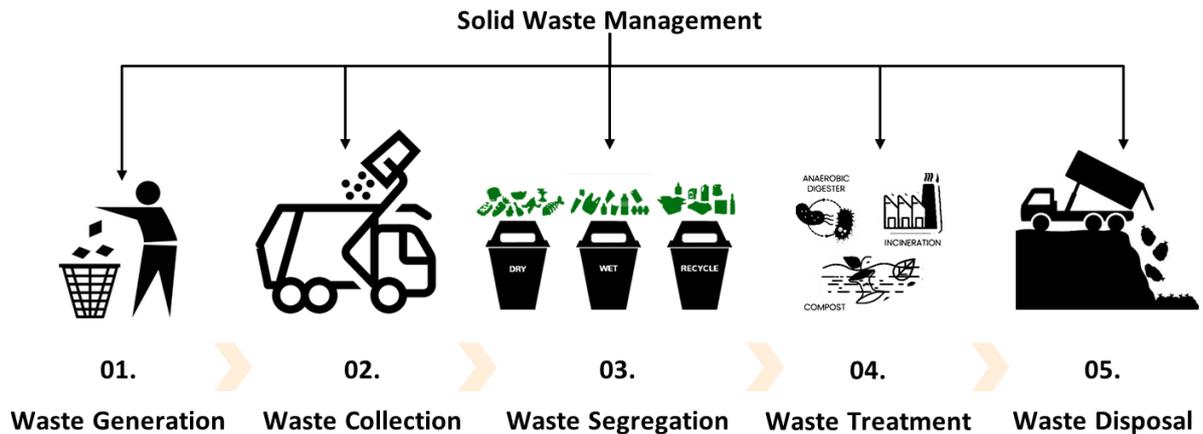
As shown in Image 6, in NN, Haldwani cum Kathgodam the garbage generated is being dumped in the following seven areas i.e. public spaces, vacant land parcels, on road side, drains, along the railway tracks, solid waste management plant of Haldwani cum Kathgodam and along its periphery. This open littering of waste by the residents and floating population has the potential to develop health hazard in the near future of the city.

Image 6: Areas identified as Garbage Vulnerable Points and are being used for Dumping Garbage by the Residents of NN, Haldwani cum Kathgodam at Present (2024)



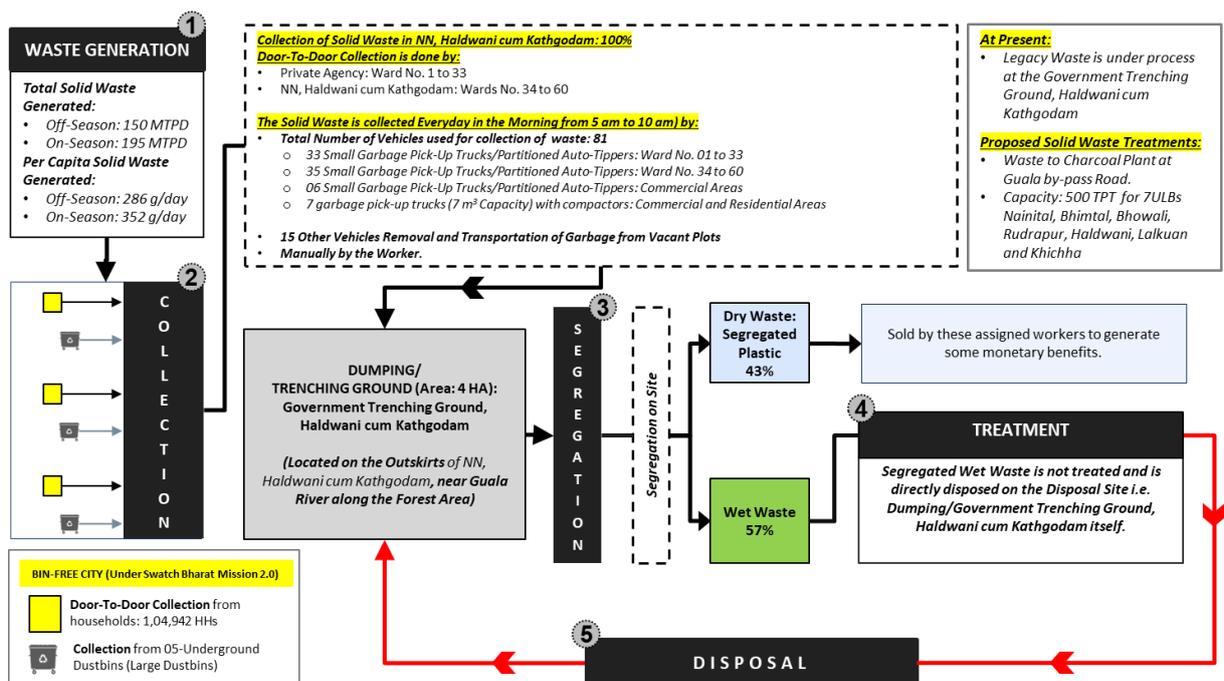
Source: (Primary Survey, 2024)

7.1.2. Process of Solid Waste Management in Haldwani cum Kathgodam



As per the discussions with the officials met (as mentioned in Annexure C) Figure 15 below represents the flowchart for Solid Waste Management (SWM) in Haldwani cum Kathgodam.

Figure 15: Flowchart of Solid Waste Management (SWM) In Nagar Nigam, Haldwani cum Kathgodam



Source: Source: (SPA, New Delhi, 2024) based on data provided by (Nagar Nigam, Haldwani cum Kathgodam, 2024), Author

As mentioned in the flowchart the SWM in NN, Haldwani cum Kathgodam 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-01: Waste Generation

As shown in Table 11, 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 Haldwani cum Kathgodam Town by the Nagar Nigam is

150 Metric Tonnes per Day. Out of which up to 2 Tonne per Day of the total solid waste generated is collected from the major market areas of Haldwani cum Kathgodam Town. Approximately 30% of seasonal variations i.e. an increase of 45 MTPD in the total Solid Waste Generated is experienced by the NN, Haldwani cum Kathgodam due to the floating population. Thus, making the per capita solid waste generated in range from 286g/day to 352g/day.

Table 11: Overview of Solid Waste Generated in NN, Haldwani cum Kathgodam

Solid Waste Generated in Nagar Nigam (NN), Haldwani cum Kathgodam		
Solid Waste Generation	As per the Discussion with the Officials Of NN, Haldwani cum Kathgodam (2024)	Inferences
Main Source of Solid Waste Generation	<ul style="list-style-type: none"> Residential Areas Commercial Areas 	<ul style="list-style-type: none"> Main Source of Solid Waste Generation in NN, Haldwani cum Kathgodam are the Major Market Areas and Residential Areas of the Town.
Solid Waste Generated (MTPD)	<p>Total Waste Generated: Off-Season: 150 Metric Tonnes Per Day (MTPD) On-Season: 195 MTPD</p> <p>Waste Generated from Commercial Areas: Up to 2 Metric Tonnes Per Day (MTPD)</p> <p>Seasonal Variations in Solid Waste Generated: 45 MTPD</p>	<ul style="list-style-type: none"> At present the Total Solid Waste Generated is 150 MTPD during off-season and 195 MTPD during on-season in the city. Out of the Total Solid Waste Generated up to 2 MTPD is generated from the Major Market Areas. Approximately 45 MTPD i.e. 30% of seasonal variations is observed in the solid waste generated.
Per Capita MSW Generation (g/day)	<p>Off-Season: 286 g/day (Solid Waste Generated Per Capita Per Day = Total Solid Waste Generated Everyday (in g) / Total Population =15,00,00,000 / 5,24,708 =286 g/day</p> <p>On-Season: 352 g/day (Solid Waste Generated Per Capita Per Day = [Total Solid Waste Generated Everyday (in g) / (Total Population + Floating Population)] =19,50,00,000 / (5,24,708 + 30,000)</p>	<ul style="list-style-type: none"> The total solid waste generated per day in NN, Haldwani cum Kathgodam ranges from 286 g per capita per day (during off-season) up-to 352 g/day (during on-season).

	=352 g/day	
--	------------	--

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

b) Step-02: Waste Collection

As per the discussions with the officials met (as mentioned in Annexure C), the NN, Haldwani cum Kathgodam 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 city. This private agency further appointed sanitation workers as per the requirement for door-to-door solid waste collection. These workers include supervisor, drivers and helpers.

Table 12 below, shows the duties/responsibilities assigned to these sanitation workers for the collection and management of the solid waste generated throughout the town.

Table 12: Duties/Job Responsibilities of Sanitation Workers Appointed by the Private Agency for Solid Waste Management in NN, Haldwani cum Kathgodam

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, Haldwani cum Kathgodam, from the areas with proper road network accessibility.
03.	Helpers	To manually collect and segregate the solid waste from the areas with limited accessibility from garbage collection vehicles in the buckets or large plastic bags provided by the NN, Haldwani cum Kathgodam.

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As per the discussions with the officials met (as mentioned in Annexure C), the solid waste generated in Nagar Nigam, Haldwani cum Kathgodam is frequently collected once every day through door-to-door collection by the department and another private organization appointed by the Nagar Nigam, Haldwani cum Kathgodam. The private organization is responsible for the collection of solid waste from Ward number 1 to Ward number 33 while the department itself collects the solid waste generated from Ward number 34 to Ward number 60 on a regular basis every morning from 5 am to 10 am. Also, the department collects the solid waste from the underground garbage bins through mechanized collection by the garbage collection vehicles of Nagar Nigam, Haldwani cum Kathgodam. Apart from this the garbage collection vehicles of Nagar Nigam, Haldwani cum Kathgodam conduct regular collection rounds in the residential and commercial areas of the town. No separate collection system is being used for recyclable and non-recyclable waste.

Table 13 describes the frequency and methods of collection used for the solid waste produced in different areas of Nagar Nigam, Haldwani cum Kathgodam.

Table 13: Solid Waste Collection

Areas Collected-From	Collection Methods	Frequency of collection of Solid Waste
Underground Garbage Bins	Garbage Collection Vehicles of Nagar Nigam, Haldwani cum Kathgodam	Once Daily: Morning (5 am to 10 am)
Residential Areas	Door to Door Collection, Garbage Collection Vehicles of NN, Haldwani cum Kathgodam Garbage Collection through Commercial Vehicles, Private Agency	Once Daily: Morning (5 am to 10 am)
Major Commercial Areas	Door to Door Collection, Garbage Collection Vehicles of NN, Haldwani cum Kathgodam	Once Daily: Morning (5 am to 10 am)
Medical Waste	Global incinerators are installed by the hospitals to incinerate medical waste generated by them. Also, some hospitals hire Private agency by themselves for collection and disposal of medical waste.	-
Institutional Waste	-	-
Industrial Waste	-	-

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As shown in Table 14, NN, Haldwani cum Kathgodam has a total number of 96 vehicles (for regular use: 81 + only if required/requested: 15). For the door-to-door collection of the solid waste a total of 81 vehicles are being used at present, for the transportation of solid waste to the disposal site 36 vehicles are being used and 15 other vehicles (as per the requirement or on request) for the removal of solid waste from any of the vacant plot to the disposal site are being used by the NN, Haldwani cum Kathgodam.

Table 14: Details of Vehicles Provided and Used by the Nagar Nigam, Haldwani cum Kathgodam for Collection and Transportation of Solid Waste Generated in the Town

Type of Vehicles Provided for Transportation of Solid Waste	Number of Vehicles (B)	Capacity of Each Vehicle (m ³) (A)	Total Capacity (m ³) (C = AXB)
Dumper Trucks	7	7	49
Partitioned Auto-Tippers	74	3	222
Total	81		271

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Vehicles used for Door-To-door Collection: As shown in Table 15, a total number of 81 vehicles are being used for door-to-door collection in the Nagar Nigam, Haldwani cum Kathgodam. Out of these 81 vehicles, 33 small garbage pick-up vehicles/ auto-tippers/garbage tippers collect solid waste from ward number 01 to ward number 33 while another 35 small garbage pick-up vehicles/ auto-tippers/garbage tippers collect solid waste from ward number 34 to ward number 60. Additionally, 6 small garbage pick-up vehicles/auto-tippers are designated for the collection of waste from the commercial areas and 7 garbage pick-up trucks with compactors, each with a capacity of 7 cubic meters, cater to both commercial and residential areas.

Table 15: Details of Vehicles used for Door-to-Door Collection of Solid Waste in Nagar Nigam, Haldwani cum Kathgodam

Vehicles used for Door-to-Door Collection of Solid Waste in Nagar Nigam, Haldwani cum Kathgodam	
Small Garbage Pick-up Vehicles/ Auto-Tippers (For Residential Area: Ward 01 to Ward 33)	33
Small Garbage Pick-up Vehicles/ Auto-Tippers (For Residential Area: Ward 34 to Ward 60)	35
Small Garbage Pick-up Vehicles/ Auto-Tippers (For Commercial Areas)	6
Garbage Pick-up Trucks – Compactors (7 cum) (For both Commercial and Residential Areas)	7
Total Number of Vehicles used for Door-to-Door Collection of Solid Waste (a)	81

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Transportation of Solid Waste: From those 81 vehicles that are being used for door-to-door collection of solid waste by the Nagar Nigam, Haldwani cum Kathgodam, as shown in Table 16, a total number of 36 vehicles are also being used for the transportation of the solid waste to the disposal site. These vehicles consist of 33 small garbage pick-up vehicles/ auto-tippers/garbage tippers (being used to collect solid waste from ward 01 to 33) and 3 garbage pick-up trucks with compactors, each with a capacity of 7 cubic meters (being used to collect solid waste from for both residential and commercial areas).

Table 16: Details of Vehicles used for Transportation of Solid Waste Collected by the Nagar Nigam, Haldwani cum Kathgodam

Vehicles used for Transportation of Solid Waste Collected by Nagar Nigam, Haldwani cum Kathgodam	
Small Garbage Pick-up Vehicles/ Auto-Tippers (Also being used for door-to-door waste collection in Ward 01 to Ward 33)	33
Garbage Pick-up Trucks – Compactors (7 cum) (Also being used for door-to-door waste collection from both Commercial and Residential Areas)	3
Total Number of Vehicles used for Transportation of Solid Waste (b)	36

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Other Vehicles Removal and Transportation of Garbage from Vacant Plots: In instances where garbage needs to be removed from vacant plots, the Nagar Nigam has another fleet of 15 vehicles as

shown in Table 17, for the same. These additional vehicles, helps in removal and transportation of solid waste from vacant plots as and when required or requested.

Table 17: Details of Other-Vehicles Used for Removal and Transportation of Garbage from Vacant Land/Plot by the Nagar Nigam, Haldwani cum Kathgodam

Other Vehicles Used for Removal and Transportation of Garbage from Vacant Land/Plot by Nagar Nigam, Haldwani cum Kathgodam (Only If Required or Requested)	
Rented-Vehicles	
Backhoe Loader	2
Owned-Vehicles	
Backhoe Loader	2
Sonalika Tractor	2
Utility Vehicle	2
Garbage Tipper	2
Mahendra Bolero	3
Trolly	2
Total Number of Other Vehicles used for Removal and Transportation of Solid Waste from Vacant Plots (c)	15

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

NN, Haldwani cum Kathgodam does not collect the medical waste separately. 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 on contractual-basis.

The Image 7 below shows some of the vehicles being used at present for the transportation of solid waste in Nagar Nigam, Haldwani cum Kathgodam.

Image 7: Images of Some of the Vehicles used for Transportation of Solid Waste in Haldwani cum Kathgodam Town



Source: (SPA, New Delhi, 2024) primary survey

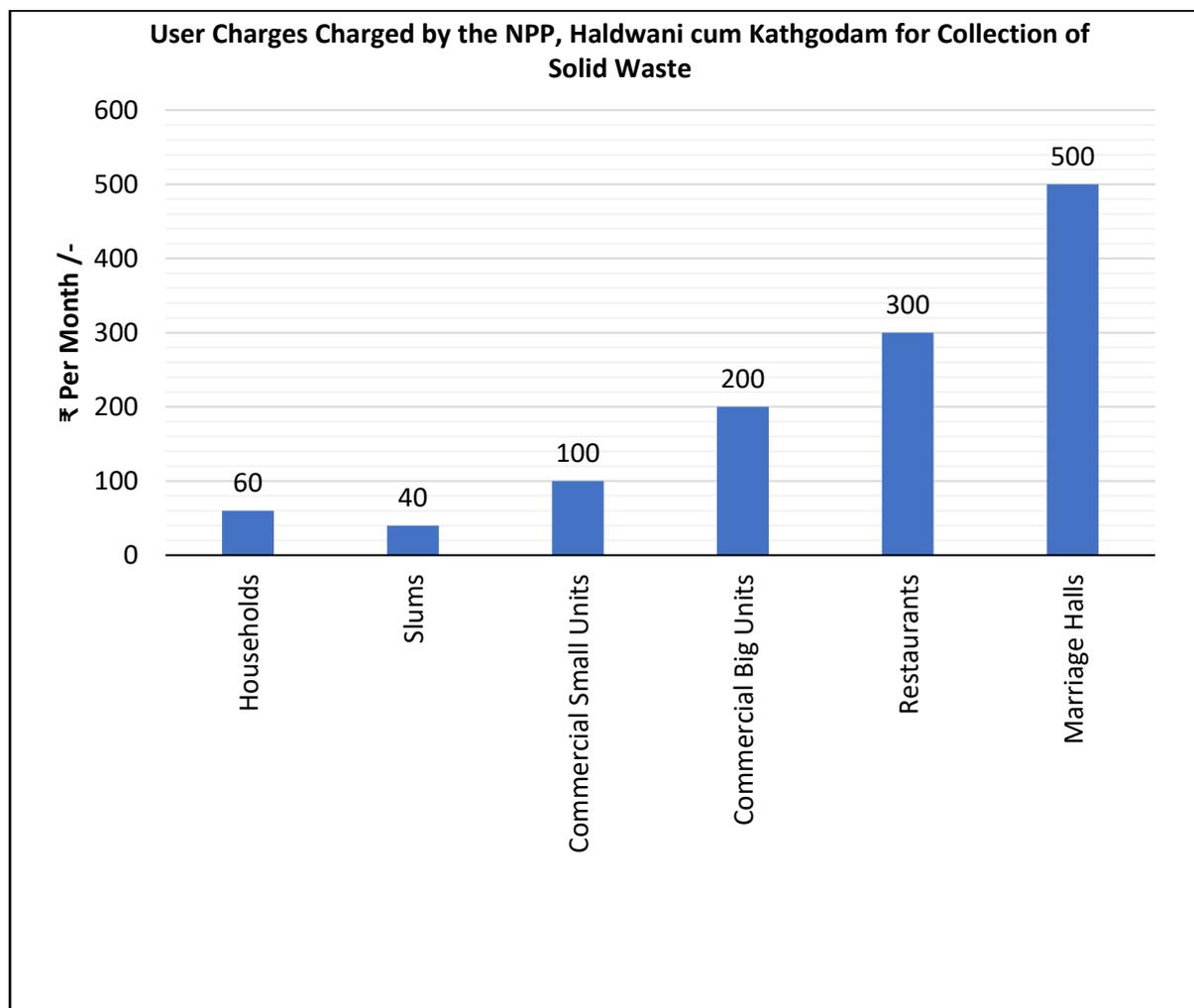
As shown in Table 18, NN, Haldwani cum Kathgodam charges ₹60/- per month for door-to-door collection of solid waste from households and ₹40/- per month from slum areas, ₹100/- per month from commercial areas (small units), up to ₹200/- per month from commercial areas with big units, up to ₹300/- per month from restaurants and up to ₹500/- per month from marriage halls. This user charge is collected by the Private Agency and Self Help Groups (SHGs) also known as “Baini Sena” and then deposited to the NN, Haldwani cum Kathgodam by the end of the month. About 25% of the total user charge collected is given to the SHGs as collection fees by the NN, Haldwani cum Kathgodam.

Table 18: User Charges Charged by the Nagar Nigam, Haldwani cum Kathgodam for Door-To-Door Solid Waste Collection

Fees Charged by the Nagar Nigam for Door-To-Door Solid Waste Collection	
Area	Charges (in INR)
Households	₹60/- Per Month
Slums	₹40/- Per Month
Commercial Small Units	Up to ₹100/- Per Month
Commercial Big Units	Up to ₹200/- Per Month
Restaurants	Up to ₹300/- Per Month
Marriage Halls	Up to ₹500/- Per Month

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

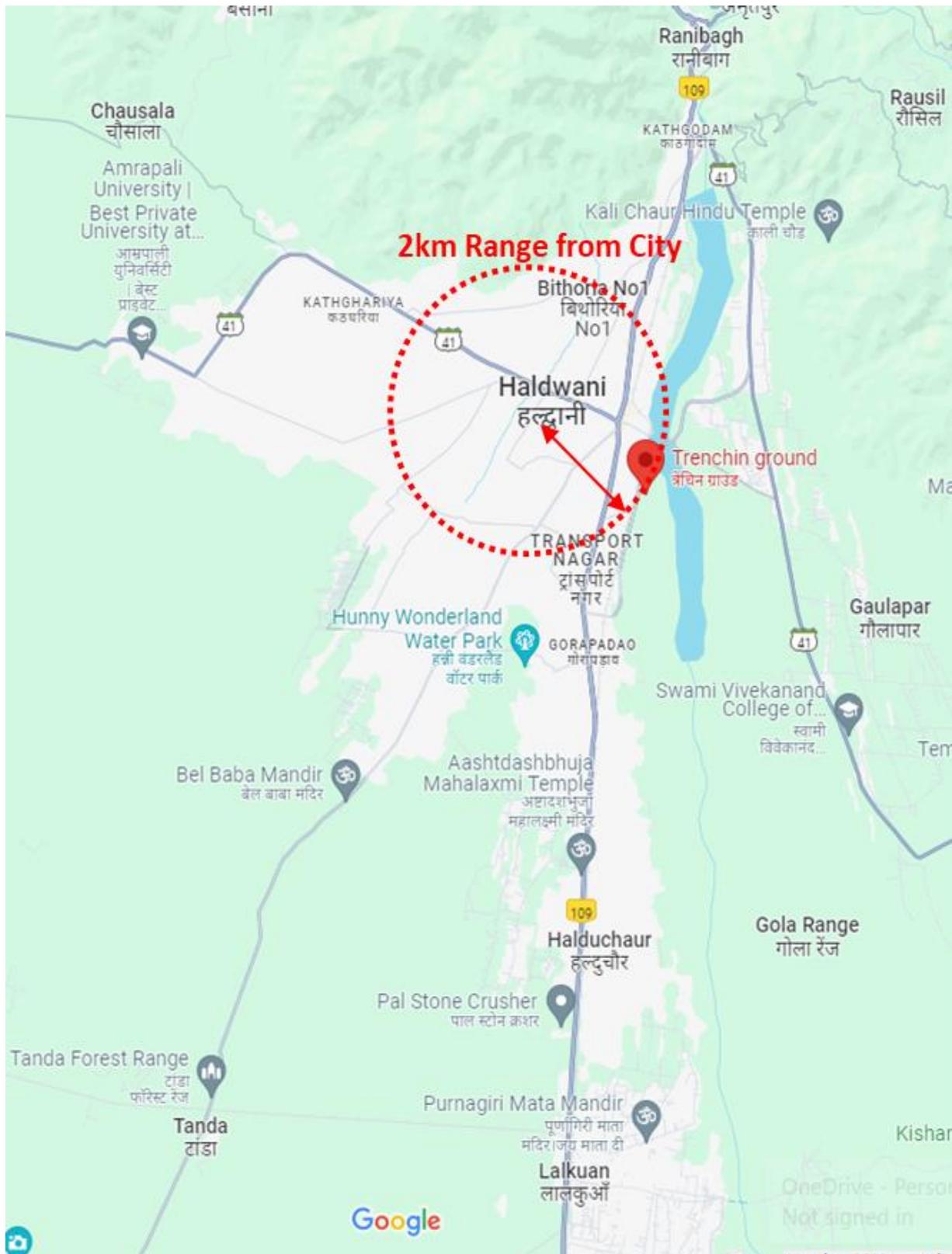
Figure 16: User Charges Charged by the NN, Haldwani cum Kathgodam for Collection of Solid Waste



Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

After total solid waste is collected from NN, Haldwani cum Kathgodam it is transported to the Dumping Ground/Trenching Ground/Disposal Ground i.e. the 4HA site, under construction Solid Waste Management (SWM) Plant located within 2 km range on the outskirts of municipal boundary area of Haldwani cum Kathgodam, near Guala River along the forest area for Step-03 i.e. Waste Segregation as shown in Map 18.

Map 18: Location of Trenching Ground/Dumping Ground/Disposal Ground i.e. under construction SWM Plant in Haldwani cum Kathgodam from NN, Haldwani cum Kathgodam



Source: (Google Maps, 2024)

c) Step-03: Waste Segregation

As shown in Table 19, at present there is no household level segregation of wet and dry waste in Haldwani cum Kathgodam. Only central level segregation is in practice. The sanitation workers appointed by the Private Agency manually segregate the dry waste i.e. plastic bags, cardboard and plastic bottles (for selling purposes) from the total solid waste collected on the dumping ground/trenching ground/disposal ground i.e. under construction Solid Waste Management Plant, located on the outskirts of Haldwani cum Kathgodam.

Table 19: Overview of Solid Waste Segregation Practises in NN, Haldwani cum Kathgodam for SWM

Overview of Solid Waste Segregation in NN, Haldwani cum Kathgodam		
Segregation at Source Level	0%	<ul style="list-style-type: none"> No Segregation at source level
Central Level Segregation: Segregation of Solid Waste after collection at the Dumping Ground/ Trenching Ground/ Disposal Ground i.e. Under-construction SWM Plant in Haldwani cum Kathgodam	<ul style="list-style-type: none"> Central Level Segregation is in practice in NN, Haldwani cum Kathgodam. This central level segregation is done by the sanitation workers (i.e. helpers) appointed by the Private Agency. <p>Total Waste Collected: 4.5 MTPD</p> <ul style="list-style-type: none"> Segregated Dry Waste: 43% Segregated Wet Waste: 57% 	<ul style="list-style-type: none"> Segregation of the plastic from the total waste collected is done on the Site i.e. under construction SWM Plant, Haldwani cum Kathgodam. From the total waste collected 43% is dry waste while the remaining 57% is wet waste. The Segregated Dry Waste (Plastic, Cardboard, etc.) is sold by the Sanitation Workers appointed for Door-To-Door Collection and waste segregation by the Private Agency for generation of some Monetary Benefits.

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

As per the discussions with the officials met (as mentioned in Annexure C) the amount of dry waste generated is approximately 43% of the total solid waste generated. The amount of wet waste generated is 57% of the total solid waste generated.

d) Step-04: Waste Treatment

The segregated dry waste is further sold by the sanitation workers appointed by the Private Agency for door-to-door collection and central level segregation of waste for generation of some monetary benefits. While the remaining wet waste is not provided with any further treatment before the final Step-05 i.e. Disposal.

As per the discussions with the officials met (as mentioned in Annexure C), at present NN, Haldwani cum Kathgodam has established:

- MRF (Metal Recovery Facility) at the under construction SWM Plant in Haldwani cum Kathgodam.

- 13 Nodal Officers with 5 SHGs known as “*Baini Sena*” (Sister’s Army) under each Nodal Officer. These SHGs:
 - a) **Under Phase-1:**
 - ✓ *Regulates regular cleaning and sweeping of roads.*
 - ✓ *Monitors no open littering in Haldwani cum Kathgodam takes place.*
 - ✓ *Collect user charges for solid waste collection (out of the total user charge collected 25% of amount will remain with the SHGs as a part of collection fees).*
 - b) **Under Phase-2 (to be implemented):**
 - ✓ *Will promote HH level waste segregation by door-to-door campaign,*
 - ✓ *Monitor overall solid waste management in Haldwani cum Kathgodam.*
- Treatment of 88,000 metric Tons of legacy solid waste of City.

Also, the NN, Haldwani cum Kathgodam has proposed:

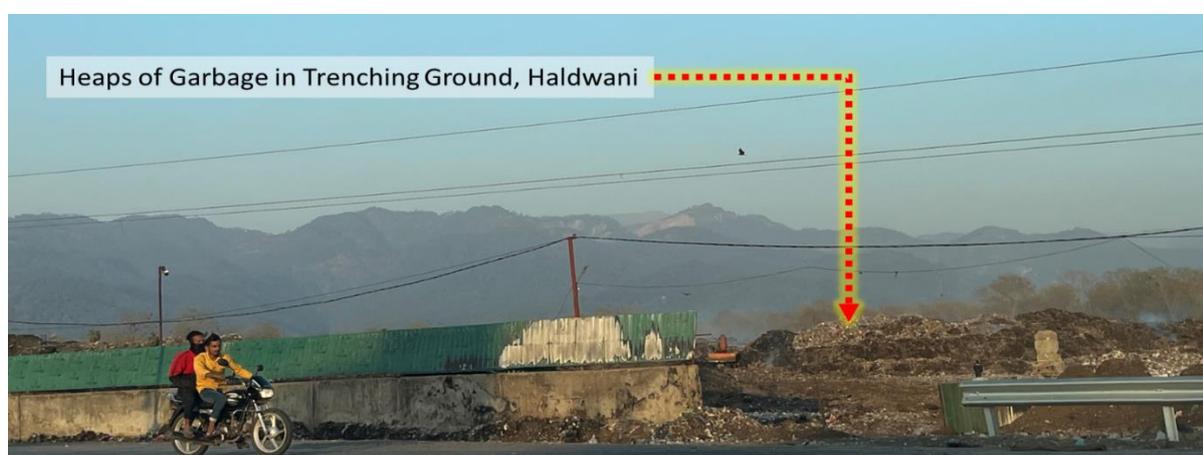
- Treatment of 1,39,073 Metric Tons of Legacy Waste.
- NTPC Waste to Charcoal Plant at Guala by-pass road for the generation of charcoal to be utilized by NTPC. This Waste to Charcoal Treatment Plant has 500 TPT capacity and is proposed for 7 ULBs namely: Haldwani cum Kathgodam, Nainital, Bhimtal, Bhowali, Rudrapur, Lalkuan and Kichha. The plant will help to convert the segregated waste into charcoal. This charcoal produced will be further used by NTPC for its Plant’s operation. It will be located at a distance of 3.4 kms from the NN, Haldwani cum Kathgodam.

e) Step-05: Waste Disposal

As per the discussions with the officials met (as mentioned in Annexure C), the remaining wet waste without any treatment is directly dumped on the dumping ground/trenching ground/disposal ground i.e. the under construction SWM Plant (4HA area) located at Guala Par Road, near Railway Crossing Haldwani.

As shown in Image 8, this direct dumping of untreated waste on the under construction SWM Plant has resulted in rising heaps of garbage and building-up of 1,39,073 Metric Tons of untreated legacy waste on it.

Image 8: Present Situation of Building Legacy Solid Waste on the Under-Construction SWM Site



Source: (SPA, New Delhi, 2024) primary survey

As per the discussions with the officials met (as mentioned in Annexure C and brainstorming sessions during (Post Study Workshop, 2024) in NN, Haldwani cum Kathgodam 88,000 metric tonnes of legacy waste has been treated by the NN, Haldwani cum Kathgodam. Also, NN, Haldwani cum Kathgodam has proposed treatment of 1,39,073 Metric Tons of Legacy Waste.

As shown in Image 9, during the field visit in March 2024, open burning of solid waste on the under construction SWM Plant in Haldwani cum Kathgodam was observed.

Image 9: Open Burning of Garbage Observed During Field Visit in the Month of March, 2024 on the Under Construction Solid Waste Management Plant in Haldwani cum Kathgodam



Source: (SPA, New Delhi, 2024) primary survey

7.1.3. Potential Health Hazards

As per the discussions with the officials met (as mentioned in Annexure C), there have been no reported health hazards in the past due to the untreated solid waste in the Town and to further control the outbreak of vector borne diseases fogging is being done on a regular basis in the monsoon season by the Nagar Nigam, Haldwani cum Kathgodam.

The increasing population along with building-up of untreated legacy waste along has the potential to develop environmental and public health hazard in the near future of the Town. Thus, strong measures need to be implemented to control the situation by the ULB.

7.2. Present Government Policies for Solid Waste Management in Haldwani cum Kathgodam

Solid Waste Management Rule 2016, SWM Bye Laws, 2020 for Solid Waste Management in NN, Haldwani cum Kathgodam and Swachh Bharat Mission 2.0 are the policies implemented in NN, Haldwani cum Kathgodam for SWM in the Town.

7.3. Issues/Challenges

The Table 20 below highlights the issues/challenges identified along with the inferences for SWM in NN, Haldwani cum Kathgodam.

Table 20: Issues/Challenges Identified for SWM in NN, Haldwani cum Kathgodam

S.No.	Issues/Challenges	Inferences
01.		<p>Sudden Increase in Geographical Area</p> <ul style="list-style-type: none"> The amalgamation of 27 wards has 4 times increased the geographic area under the jurisdiction of the Municipal Corporation i.e. from 10.62 sq.km. to 42.59 sq. km. It has resulted in increasing the total number of wards in the city from 33 to 60. This rapid expansion of the area in the year 2018 has resulted in inducing strain on the existing SWM infrastructure. Thus, causing operational difficulties in the Old Municipal Boundary Area (Ward Number 1 to 33) and the New Municipal Boundary Area (Ward Number 34 to 60).
		<p>Population Growth and Urbanization</p> <ul style="list-style-type: none"> The amalgamation of 27-ward boundaries into the existing boundaries has resulted in an influx of population and rapid urbanization i.e. from 3,74,588 persons in the year 2011 to 5,24,708 persons in the year 2021. This has led to an increase in the generation of solid waste in the city and is adding on to 1,39,073 Metric Tons of existing legacy of Solid Waste in the City.
02.		<p>Tourist Influx</p> <ul style="list-style-type: none"> Being the Gateway to Kumaon Region, Haldwani cum Kathgodam experiences huge tourist footfall around the year especially during the months of May, June, July, August, December and January and around the peak wedding seasons. As Haldwani being one of the popular wedding destinations in India due to its easy accessibility and scenic beauty by the surrounding hills. On an average around 20,000 to 30,000 persons per day visit the city. Thus, this adds up to approximately 30% increase in the total solid waste generated in the city. This number may even escalate up-to 50,000 persons per day during the peak of wedding season. Thus, generating more

			solid waste then the existing infrastructure could handle.
03.		Lack of Awareness about Bin-Free System	<ul style="list-style-type: none"> • Transitioning to a bin-free city requires extensive public awareness campaigns in the entire Municipal Area (Old and New), to educate residents about the new waste disposal methods, such as door-to-door collection or community collection points. • Lack of awareness among the residents has led to confusion among the residents and improper waste disposal practices.
		Resistance to Change	<ul style="list-style-type: none"> • Lack of behavioral sensitization and resistance to the transition to a bin-free system due to familiarity with traditional waste collection methods makes it difficult for the residents to adapt to the transition towards a bin-free city. Overcoming this resistance and having community support for the new system can be challenging for the Municipal Corporation.
04.		No Source Level Segregation of Waste	<ul style="list-style-type: none"> • No household level segregation is being practiced only central level segregations is in practice in the city. • Also, without common garbage bins to facilitate waste segregation at the source, there is a tendency for residents to dispose of all waste together, leading to contamination and reduced effectiveness of recycling efforts.
05.		Lack of Recycling Facilities	<ul style="list-style-type: none"> • The absence of recycling facilities is resulting in just selling of the segregated dry waste by the sanitation workers appointed by the Private Agency for monetary benefits. This absence of recycling facilities is resulting in the landfilling of recyclable materials and organic waste. Thus, reducing the overall efficiency of waste management efforts.
06.		Lack of Solid Waste Treatment Facilities	<ul style="list-style-type: none"> • Haldwani cum Kathgodam lacks infrastructure for effective SWM in the Town. Lack of treatment facilities/options have resulted in the direct disposal of the wet waste on the under-construction SWM Plant itself. Thus, leading to adding up on the existing legacy waste. • At present there is only 1 Under-

			<p>Construction SWM Plant in NN, Haldwani cum Kathgodam and this site is being used as Dumping Ground/Trenching Ground and Disposal Ground. On this site the solid waste is being disposed-off directly without any treatment and is being burned in open.</p>
07.		Illegal Dumping and Littering	<ul style="list-style-type: none"> The absence of bins is leading to an increase in littering of solid waste in public spaces, vacant land plots, along the railway tracks and on the road along the trenching ground in NN, Haldwani cum Kathgodam.
		Public Health Concerns	<ul style="list-style-type: none"> Littering attracts pests such as rodents and insects, which can spread diseases among people and pose health risks to residents, tourists, and wildlife.
08.		Stray Animal Interference	<ul style="list-style-type: none"> Stray animals, particularly dogs and cattle, often dig through the littered waste and scatter garbage across streets. This can lead to health hazards and sanitation issues.
		Waste Contamination	<ul style="list-style-type: none"> Stray animals may consume or come into contact with harmful materials within the waste, leading to health risks for both humans and animals.
09.		Environmental Impacts	<ul style="list-style-type: none"> Building legacy waste and improper solid waste management practices contribute to environmental pollution, soil and water contamination. It also degrades the natural beauty of the surrounding hills and impacts the environment. The open burning of waste releases harmful pollutants into the air, soil, and water, contributing to environmental degradation. The smoke and emissions from burning waste contain toxic chemicals and particulate matter that pose serious health risks to both humans and wildlife. Prolonged exposure to these pollutants can increase the risk of respiratory diseases and other ailments. Excessive use of plastic in NPP is a significant environmental concern due to

			its impact on ecosystems and human health. Plastics, particularly single-use.
10.		Policy and Governance Issues	<ul style="list-style-type: none">• Weak enforcement of waste management regulations, limited funding and resources may hinder effective solid waste management in Nagar Nigam, Haldwani cum Kathgodam.

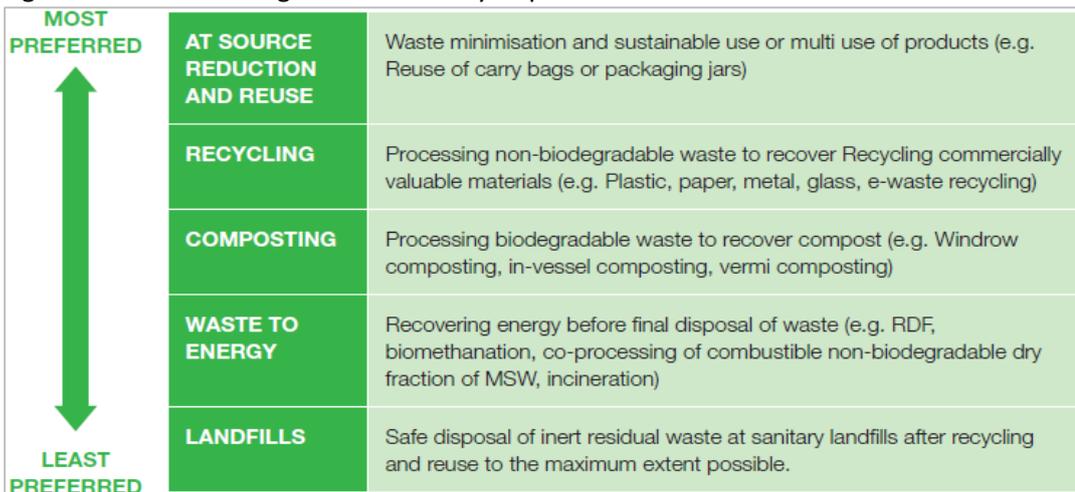
7.4. Possible Solutions/Suggested Projects for SWM in NN, Haldwani cum Kathgodam

A Stakeholder Consultation Meeting was held on 25th April 2024 in NN, Haldwani cum Kathgodam. Based on the feedback provided by the official's possible solutions and suggested projects for improvement are proposed for Haldwani cum Kathgodam Town in Table 21 below.

Table 21: Possible Solutions/Suggested Projects for SWM in NN, Haldwani cum Kathgodam

S.No.	Possible Solutions/Suggested Projects
01.	Sudden Increase in Geographical Area, Population Growth and Urbanization
	<p><u>It is proposed that:</u></p> <p>a) NN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i. Conduct Comprehensive MSWM Audit to identify the gaps and inefficiencies in the current MSWM in the Old and New Municipal Boundary Area i.e. all the 60 wards of NN, Haldwani cum Kathgodam. ii. Prepare Ward Based waste generation rates, population density and geographic factors for zone based targeted interventions. iii. Mandatorily Enforce the SWM Bye Laws, 2020 along with strict implementation of high penalties over identified defaulters.
02.	Tourist Influx
	<p><u>It is proposed that:</u></p> <p>a) The State Government of Uttarakhand should undertake the following:</p> <ol style="list-style-type: none"> i) Limit the number of tourists entering Haldwani cum Kathgodam to help to manage the solid waste generation fluctuation experienced during the tourist season especially the wedding season. ii) Impose Solid Waste Management Cess on all the tourists visiting/entering Haldwani cum Kathgodam. <p>b) NN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i) Maintain and regularly submit the digital records to the State Government of Uttarakhand for the amount of the Solid Waste Management Cess collected and the number of Tourists entering Haldwani cum Kathgodam. ii) Conduct Seasonal Waste Flow Analysis, by analyzing the waste generation patterns linked to the tourist season, events and weddings. iii) Appoint extra workforce (on contract basis) along with the existing sanitation workers to meet the on-ground requirement for solid waste management, especially during the tourist season. These sanitation workers should be delegated as per the requirement in the respective locations identified by the NN, Haldwani cum Kathgodam officials. iv) Promote Sustainable Waste Practices among the tourists visiting NN, Haldwani cum Kathgodam. v) Engage Stakeholders and Increase Awareness by working in PPP Module with the local business, event organizers and visitors to foster sustainable waste management.

03.	<p>Lack of Awareness about Bin-Free System and Resistance to Change</p> <p>It is proposed that:</p> <p>a) NN, Haldwani cum Kathgodam 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 conduct:</p> <p>i) Community Engagement Program focused on behavioral sensitization and educating residents about the benefits of transitioning to a bin-free city on a regular basis.</p> <p>ii) Extensive Community Awareness Campaigns to encourage proper solid waste management practices in the city.</p> <p>This will help to overcome the resistance to change and ensure successful adoption of the bin-free system the Municipal Corporation.</p>
04.	<p>No Source Level Segregation of Waste</p> <p>As per the Officials Met in NN, Haldwani cum Kathgodam during Field Visit:</p> <p>a) The phase-02 of the proposed treatments by the NN, Haldwani cum Kathgodam will focus on implementing the monitoring of HH level waste segregation by door-to-door campaign and monitoring of the overall solid waste management in Haldwani cum Kathgodam by the “Baini Sena” (“Sister’s Army”, SHG). This will be effective to resolve the issue of no source level segregation.</p> <p>The above may be implemented. Further alongwith this it is proposed that:</p> <p>a) NN, Haldwani cum Kathgodam 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:</p> <p>i. Distribute Garbage Bags to each HH in NN, Haldwani cum Kathgodam (especially the slums area) 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.</p> <p>ii. Appoint a Nodal Officer to monitor the door-to-door implementation of these workshops and prepare Annual Assessment Report for the same.</p> <p>iii. Provide information about the recycling options available at HH level to the local residents so as to responsibly manage the solid waste generated at HH Level.</p> <p>iv. Build and Implement Awareness Campaigns and Workshops at Community Level.</p> <p><i>These Campaigns and Workshops should be conducted at door-to-door level to:</i></p> <ul style="list-style-type: none"> ✓ <i>Promote Waste Minimization.</i> ✓ <i>Educate people about the importance of segregation of dry and wet waste.</i> ✓ <i>Educate people about the waste management hierarchy as shown in the figure below.</i>

	<p>Figure 17: Waste Management Hierarchy as per the Swachh Bharat Mission-Urban</p>  <p>The diagram illustrates the Waste Management Hierarchy as per the Swachh Bharat Mission-Urban. It consists of five levels, with a vertical green arrow on the left indicating that the top level is the 'MOST PREFERRED' and the bottom level is the 'LEAST PREFERRED'.</p> <table border="1" data-bbox="316 224 1391 716"> <tr> <td>AT SOURCE REDUCTION AND REUSE</td> <td>Waste minimisation and sustainable use or multi use of products (e.g. Reuse of carry bags or packaging jars)</td> </tr> <tr> <td>RECYCLING</td> <td>Processing non-biodegradable waste to recover Recycling commercially valuable materials (e.g. Plastic, paper, metal, glass, e-waste recycling)</td> </tr> <tr> <td>COMPOSTING</td> <td>Processing biodegradable waste to recover compost (e.g. Windrow composting, in-vessel composting, vermi composting)</td> </tr> <tr> <td>WASTE TO ENERGY</td> <td>Recovering energy before final disposal of waste (e.g. RDF, biomethanation, co-processing of combustible non-biodegradable dry fraction of MSW, incineration)</td> </tr> <tr> <td>LANDFILLS</td> <td>Safe disposal of inert residual waste at sanitary landfills after recycling and reuse to the maximum extent possible.</td> </tr> </table> <p style="text-align: right;"><i>Source: (CPHEEO, MoHUA, 2018)</i></p>	AT SOURCE REDUCTION AND REUSE	Waste minimisation and sustainable use or multi use of products (e.g. Reuse of carry bags or packaging jars)	RECYCLING	Processing non-biodegradable waste to recover Recycling commercially valuable materials (e.g. Plastic, paper, metal, glass, e-waste recycling)	COMPOSTING	Processing biodegradable waste to recover compost (e.g. Windrow composting, in-vessel composting, vermi composting)	WASTE TO ENERGY	Recovering energy before final disposal of waste (e.g. RDF, biomethanation, co-processing of combustible non-biodegradable dry fraction of MSW, incineration)	LANDFILLS	Safe disposal of inert residual waste at sanitary landfills after recycling and reuse to the maximum extent possible.
AT SOURCE REDUCTION AND REUSE	Waste minimisation and sustainable use or multi use of products (e.g. Reuse of carry bags or packaging jars)										
RECYCLING	Processing non-biodegradable waste to recover Recycling commercially valuable materials (e.g. Plastic, paper, metal, glass, e-waste recycling)										
COMPOSTING	Processing biodegradable waste to recover compost (e.g. Windrow composting, in-vessel composting, vermi composting)										
WASTE TO ENERGY	Recovering energy before final disposal of waste (e.g. RDF, biomethanation, co-processing of combustible non-biodegradable dry fraction of MSW, incineration)										
LANDFILLS	Safe disposal of inert residual waste at sanitary landfills after recycling and reuse to the maximum extent possible.										
<p>05.</p>	<p>Lack of Recycling Facilities</p>										
	<p><u>It is proposed that:</u></p> <p>a) NN, Haldwani cum Kathgodam should identify and establish potential sites for Compost Pit in NN, Haldwani cum Kathgodam. These compost pits should be built, operate and maintained by the NN, Haldwani cum Kathgodam to produce fertilizers for generation of monetary gains.</p> <p>b) NN, Haldwani cum Kathgodam on PPP model should collaborate with local NGOs, SHGs, Government Institutes, the Private Agency hired for SWM (on contractual basis) and other willing volunteers to build and implement Awareness Campaigns and Workshops at Community Level.</p> <p><i>These Community Level Campaigns and Workshops should promote “3R Approach”:</i></p> <ul style="list-style-type: none"> ✓ <i>“Reduce”:</i> Methods available to help reduce the total waste generated in the Town by reducing the waste generated at HH Level. ✓ <i>“Reuse”:</i> Options available for re-purposing or reuse of items for more than once at HH level. ✓ <i>“Recycle”:</i> Information about recycling options available at HH level. <p><i>This initiative will help to responsibly manage the waste generated by the residents at HH level.</i></p>										
<p>06.</p>	<p>Lack of Solid Waste Treatment Facilities</p>										
	<p><u>As per the Discussions with the officials met during the field visit:</u></p> <p>a) The proposed SWM Plant in Haldwani cum Kathgodam is under construction and is the only site available for the SWM in NN, Haldwani cum Kathgodam. Due to this the legacy waste is building up on the site. Hence, its construction is given an utmost priority by the officials to have an effective SWM process.</p> <p>a) The treatment of 1,39,073 Metric Tons of Legacy Waste has been proposed by the NN, Haldwani cum Kathgodam after the completion of construction of SMW Plant in Haldwani cum Kathgodam.</p> <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p>										

a) **NN, Haldwani cum Kathgodam** should undertake the following:

- i) **Identify and propose suitable location to establish a Bio CNG Plant** to convert organic waste into renewable energy/green energy, providing sustainable waste management, reducing greenhouse gas emissions and enhancing local energy security in Haldwani cum Kathgodam.
- ii) **Look after the construction and maintenance the Bio CNG Plant.**

The image below shows an example of Jabalpur's Bio CNG Plant for the same.

Image 10: Bio CNG Plant, an example of Jabalpur City



Source: (Google Images, 2024)

b) **NN, Haldwani cum Kathgodam** on **PPP model** should collaborate with **local NGOs, SHGs, Government Institutes, the Private Agency** hired for SWM (on contractual basis) and other **willing volunteers** to **build and implement Awareness Campaigns and Workshops** at **Door-to-Door Level and Community Level**.

These Campaigns and Workshops should be conducted door-to-door level to undertake the following:

- ✓ 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,**
 - **Large Communities, Apartments, RWAs, high rise buildings for 301-1000 HHs;**

	<p><i>Large Offices, Large Hotels, Large Schools,</i></p> <ul style="list-style-type: none"> ○ Decentralized plants, for more than 1000 HHs operated by ULBs/Institutions/Outsourced Agencies. <p>c) The proposal of treatment of 1,39,073 Metric Tons of Legacy Waste by the NN, Haldwani cum Kathgodam should be taken on utmost priority by the authorities to prevent any future health hazard.</p>
07.	Illegal Dumping and Littering and Public Health Concerns
	<p><u>It is proposed that:</u></p> <p>a) The NN, Haldwani cum Kathgodam 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 undertake the following:</p> <ul style="list-style-type: none"> i. Increased monitoring during tourist season to stop illegal dumping/littering of waste in the Town. Especially in the major market areas, slums areas, etc. ii. Imposing high penalties and fines on the people (tourists or residents) identified by the monitoring teams on-ground. <p>b) The NN, Haldwani cum Kathgodam should undertake the following:</p> <ul style="list-style-type: none"> i. Garbage-vulnerable points should be identify and install cameras and loudspeakers for announcements related to SWM at those places. ii. Monitor the regular cleaning of roads and collection of garbage from the community dustbins during tourist season. iii. Maintain Digital Records of the penalties/fines collected for illegal dumping/littering of garbage by the respective teams, on a regular basis. iv. Implement pest control measures to alleviate public health concerns arising from pests such as rodents and insects attracted by the littering of waste.
08.	Stray Animal Interference and Waste Contamination
	<p><u>It is proposed that:</u></p> <p>a) The NN, Haldwani cum Kathgodam should undertake the following:</p> <ul style="list-style-type: none"> 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.
09.	Environmental Impacts
	<p><u>It is proposed that:</u></p> <p>a) The State Government of Uttarakhand should undertake the following:</p> <ul style="list-style-type: none"> i. Construct “Thaila ATM” in the neighborhood level for bags is an innovative designated to combat plastic waste by providing reusable cloth bags in exchange for old or plastic bags. This will offer residents a convenient way to exchange their plastic bags for eco-friendly alternatives.

	<p>b) The NN, Haldwani cum Kathgodam should implement strict monitoring measures to stop the open burning of garbage in Haldwani cum Kathgodam.</p> <p>c) The NN, Haldwani cum Kathgodam should collaborate with restaurants and cafes to run “garbage cafes” that offers either meal or incentive money to people in exchange for a certain amount of plastic waste. For example, individuals can get a full meal or money by giving 1 kg of plastic waste or a substantial snack by contributing 500 grams. This will help to tackle plastic waste and providing Food security.</p> <p>d) The NN, Haldwani cum Kathgodam 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 undertake the following:</p> <ol style="list-style-type: none"> i. Identification of defaulters. ii. Imposition of high penalties on these defaulters for practices like illegal littering of solid waste and open burning of solid waste in NN, Haldwani cum Kathgodam. <p>e) NN, Haldwani cum Kathgodam on PPP model should collaborate with local NGOs, SHGs, Government Institutes, the Private Agency hired for SWM (on contractual basis) and other willing volunteers to build and implement Sustainable Waste Management Practices along with Environmental Awareness Campaigns/Workshops. These workshops can serve as a potential solution to mitigate environmental impacts.</p>
10.	Policy and Governance Issues
	<p><u>It is proposed that:</u></p> <p>a) The State Government of Uttarakhand should undertake the following:</p> <ol style="list-style-type: none"> 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. <p>b) NN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i. Regulate and Monitor the Implementation of City Solid Waste Management Action Plan on an annual basis. ii. Strictly Impose the Solid Waste Management Bye-Laws 2020. iii. Enhance co-ordination among relevant stakeholders and allocate adequate resources are essential for addressing the MSWM challenges. iv. Strengthen Awareness Programmes by Building and Implementing respective Programmes/campaigns/workshops required for effective SWM in Haldwani cum Kathgodam. Respectively, teams should be formed under the suggested Programmes/campaigns/workshops and a Nodal Officer should be appointed to

	<p>each team by the NN, Haldwani cum Kathgodam.</p> <p><u>The Nodal Officer appointed should:</u></p> <ul style="list-style-type: none">✓ 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. <p>v. 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.</p> <p>vi. 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. School can integrate engaging, hands-on activities into their curriculum, such as organizing interactive workshops, classroom discussions, and projects focused on waste segregation, recycling and composting. Students can participate in practical exercises like best out of waste and once a month all students will clean the town and school will provide refreshment and prizes to the students for cleaning the town.</p>
--	---

Chapter 8.

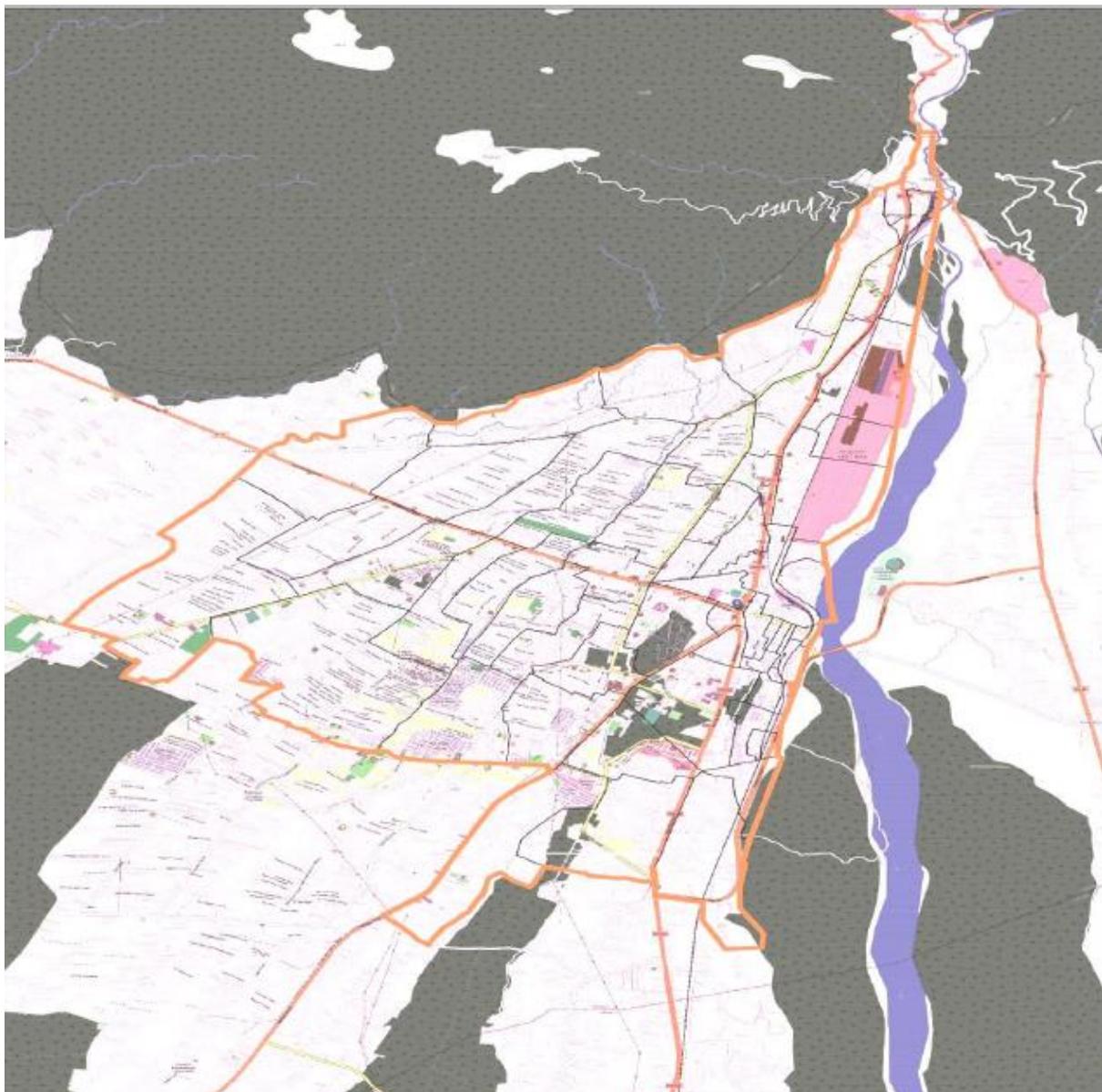
Haldwani cum Kathgodam: Urban Transport and Parking

Chapter 8. Haldwani cum Kathgodam: Urban Transport and Parking

8.1. System Infrastructure

As shown in Map 19, according to the Draft Report on Comprehensive Mobility Plan (UUSDA, Government of Uttarakhand, 2023), the city is well connected with all major cities within 500 km radius. As per the discussions with the officials met (as attached in Annexure C) and the data provided as attached in Annexure A), the road length of Haldwani cum Kathgodam has increased from 99 km (Census India, 2011) to 983 km at present. This road network caters to the entire city and covers almost 100% of its area.

Map 19: Existing Road Network Map of NN, Haldwani cum Kathgodam



Source: (UUSDA, Government of Uttarakhand, 2023)

The Table 22, as per (UUSDA, Government of Uttarakhand, 2023), shows the hierarch of the road network catering Haldwani cum Kathgodam. This road network consists of arterial, sub-arterial (internal roads of the city) and major collector roads (inside the municipal boundary area).

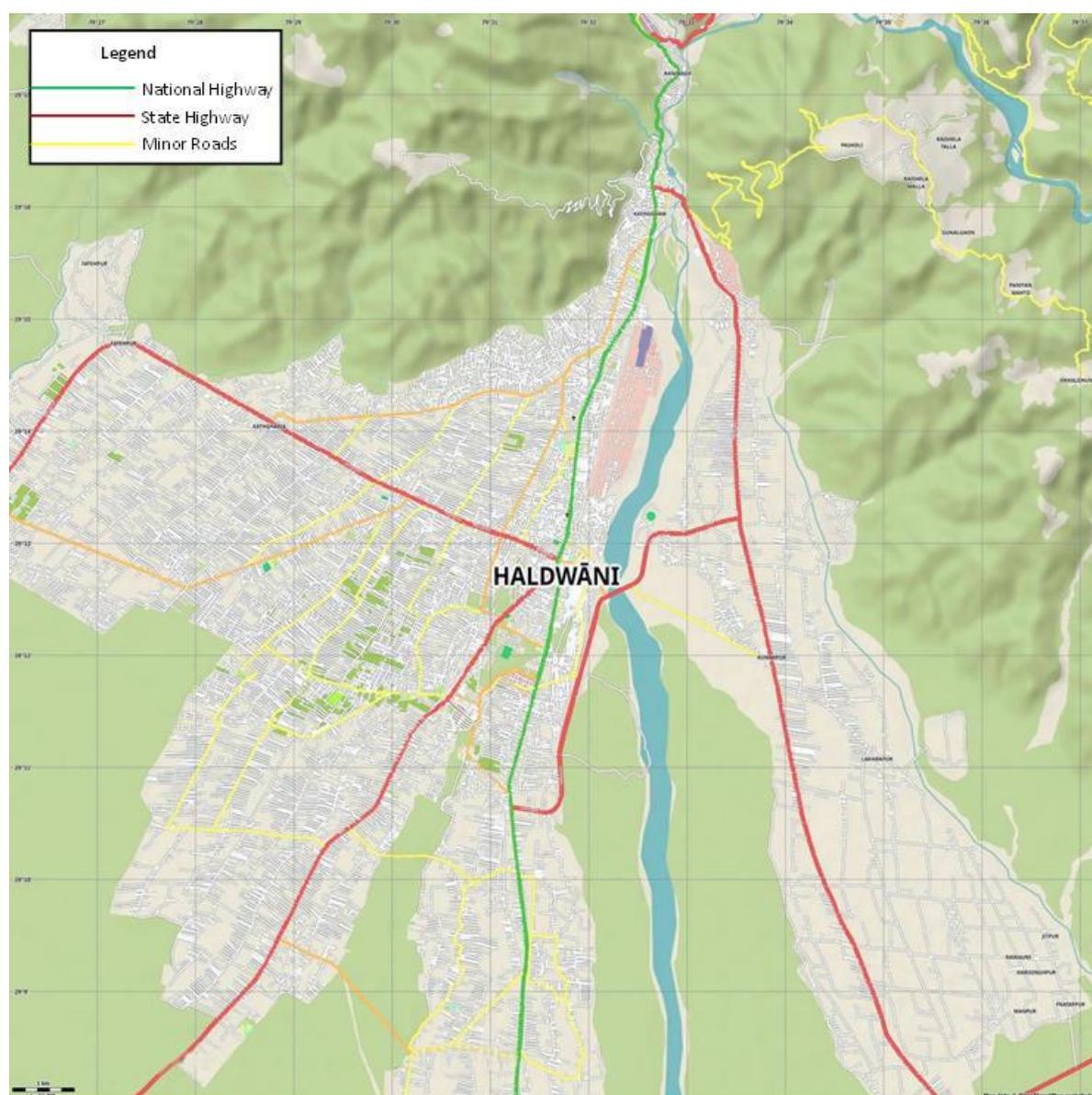
Table 22: Road Network Hierarchy of Haldwani cum Kathgodam as per the Draft Comprehensive Mobility Plan Report,2023 by UUSDA

Road Network Hierarchy of Haldwani cum Kathgodam		
Road Hierarchy	S.No.	Name of Road
Arterial Road	01.	Ranibagh – Haldwani Road (NH - 109)
	02.	Rampur Road (SH-5)
	03.	Haldwani – Kaladhungi - Ramnagar Road (SH-41)
	04.	Kathgodam- Sitarganj Road (SH-40)
Total Number		04
Sub-Arterial Road	01.	Haldwani – Nainital Road
	02.	Haldwani – Kaladhungi Road
	03.	Haldwani – Bareilly Road
	04.	Haldwani – Rampur Road
	05.	Kathgodam – Golapar Haldwani – Chorgaliya – Sitarganj road.
Total Number		05
Collector Road	01.	Kathgharia – Chauffula Bridge – Panchakki – Hydrel Gate – Kathgodam road
	02.	Unchapul – Chauffula bridge – Panchakki – Hydrel Gate – Kathgodam road
	03.	Laldanth – Chauffula bridge - Panchakki – Hydrel Gate – Kathgodam road
	04.	Mukhani – Kathgodam road
	05.	Mukhani – Durga city centre – Degree College
	06.	Nawabi Road – Durga city centre – Degree college
	07.	Kusumkheda – Hanuman Mandir – RTO road - Pal College – Panchayat Ghar
	08.	Gas godown intersection – Chhadail – Birla school – Devalchod
	09.	Peeli Kothi – Eco Town – Paddy Mill – Old ITI – Sushila Tiwari
	10.	Mukhani Square – Judge farm – Sushila Tiwari
	11.	Block – Himmatpur Talla/Malla – Gurukul School – Kamaluvaganja
	12.	Kamaluvaganja – Kathgharia Crossroads
	13.	Sushila Tiwari – Gandhi school
	14.	Transport Nagar – Mandi – Open University – Teenpani
	15.	Teenpani – Golapul – Stadium – Kheda
Total Number		15
Grand Total		04+05+15=24

Source: (UUSDA, Government of Uttarakhand, 2023)

As shown in Map 19, at present located in the foothill city of Haldwani cum Kathgodam, as per the Draft Report on Comprehensive Mobility Plan (UUSDA, Government of Uttarakhand, 2023), NH-109 is the major arterial road running along throughout the city. This arterial road serves in connecting the city towards the other hill stations of the State like Nainital, Kausani, Mukteshwar and Almora. Apart from this the other major roads for connectivity and accessibility are the Rampur Road (SH-5), Haldwani-Kaladhungi Road (SH-41) and the Kathgodam-Sitarganj Road (SH-40).

Map 20: Haldwani cum Kathgodam Road Hierarchy Connectivity



Source: (UUSDA, Government of Uttarakhand, 2023)

8.1.1. Present Connectivity

To travel towards the major cities of India from Haldwani cum Kathgodam Town, road network is the most convenient and easy to access medium and buses, shared taxis, local cabs, personal vehicles, railways and airways are the possible modes of transportation.

As shown in Table 23, as per the discussions with the officials (as mentioned in Annexure C), Haldwani cum Kathgodam Town has a road network of 52 km i.e. about 1.82% of the Haldwani cum Kathgodam Town area. The town has one bus station known as the Haldwani cum Kathgodam Bus Station. It is located at the Station Road in Haldwani cum Kathgodam on NH 9. The nearest railway station for Haldwani cum Kathgodam Town is Tanakpur Railway Station which is situated at a distance of approximately 74 km from Haldwani cum Kathgodam Town. While Pantnagar Airport located at a

distance of 169 km from the Town is the only domestic airport in function for the entire Kumaon Division of Uttarakhand State.

Table 23: Overview of Present Connectivity of NN, Haldwani cum Kathgodam

Road Network	Railways	Airways
<ul style="list-style-type: none"> • NN, Haldwani cum Kathgodam has 1 Bus Station located at Bus Stand Rd, Banbhoolpura, Haldwani. 	<ul style="list-style-type: none"> • The nearest railway stations are: <ol style="list-style-type: none"> a) Haldwani Railway Station, Railway Station Road, Banbhoolpura, Haldwani b) Kathgodam Railway Station, Kathgodam, Haldwani. • These stations are 7 km (approx. 20 mins) apart from each-other. 	<ul style="list-style-type: none"> • The only Airport for the entire Kumaon Regions is the Pantnagar Airport in Pantnagar. • Pantnagar Airport is approx. 32.7 km away from Haldwani cum Kathgodam and it takes approx. 45 to 50 minutes to reach NN, Haldwani cum Kathgodam from Pantnagar Airport.
<p>Image 11: Haldwani cum Kathgodam Bus Station, Bus Stand Rd, Banbhoolpura, Haldwani.</p>  <p>Source:(Primary Survey, 2024)</p>	<p>Image 12: <i>Haldwani Railway Station, Railway Station Road, Banbhoolpura, Haldwani</i></p>  <p>Source: (Google Images, 2024)</p> <p>Image 13: Kathgodam Railway Station, Kathgodam, Haldwani.</p>  <p>Source: (Google Images, 2024)</p>	<p>Image 14: <i>Airport: Pant Nagar Airport, Approx. 32.7 km away from NN, Haldwani cum Kathgodam</i></p>  <p>Source: (Google Images, 2024)</p>

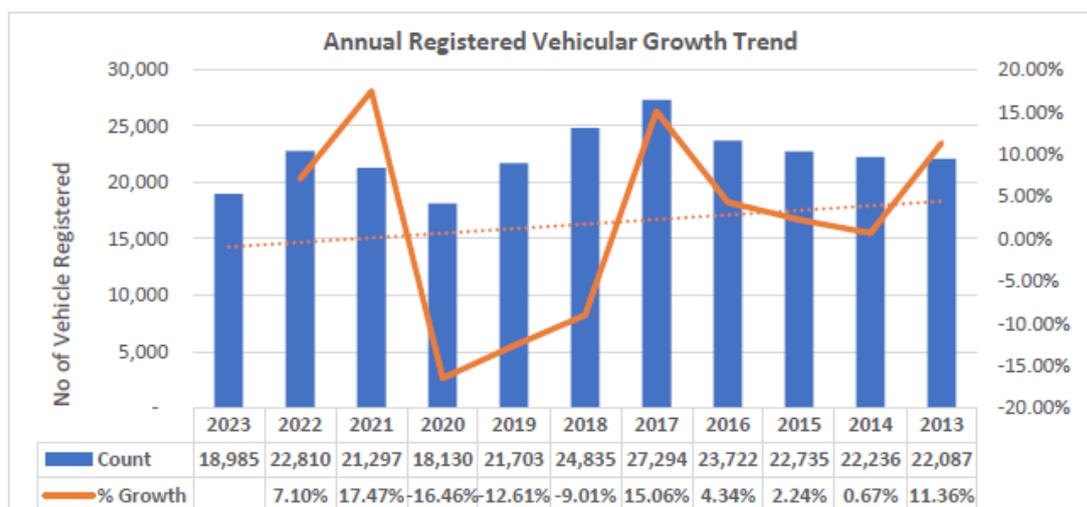
Source: (RTO, Haldwani cum Kathgodam , 2024), (Police Department Haldwani cum Kathgodam, 2024), (PWD, Haldwani cum Kathgodam , 2024), (Google Images, 2024), and (SPA, New Delhi, 2024) primary survey

As shown in Figure 18, according to the Draft Comprehensive Mobility Plan (CMP) (UUSDA, Government of Uttarakhand, 2023), there are total 22,685 number of registered vehicles in NN, Haldwani cum Kathgodam.

The Figure 18 below, as per the Draft CMP (UUSDA, Government of Uttarakhand, 2023), shows the annual registered vehicular growth trend from 2013 to 2023. According to this after COVID-19 there

was a significant fall in the registration of the number of vehicles i.e. from 24,835 vehicles in 2018 to 18,230 vehicles in 2020, this could be seen rising after 2020 and continues to grow i.e. 18,985 vehicles in 2023.

Figure 18: Annual Registered Vehicular Growth Trends (September 2023)



Source: (UUSDA, Government of Uttarakhand, 2023)

As per the Draft CMP (UUSDA, Government of Uttarakhand, 2023), a mode share of 84% of private vehicles indicates the lack of mass-transit system in Haldwani cum Kathgodam.

8.1.2. Present Parking Situation in Haldwani cum Kathgodam

As shown in Table 24, as per the discussions with the officials met (as mentioned in Annexure C), there are total 10 major parking areas including 8 existing parking areas, 1 under-construction parking area and 1 proposed parking area. All of the existing parking areas are Surface Parking with a total capacity of 805 Vehicles.

Table 24: Parking Situation of NN, Haldwani cum Kathgodam

Parking Situation NN, Halwani Cum Kathgodam			
S.No.	Type of Parking	Parking Areas	Capacity (No. of Vehicles)
1	Existing: Surface Parking	Railway Station Car Parking, Kathgodam	Up-to 100
2		Railway Station Car Parking, Haldwani	Up-to 150
3		Near Ramleela Ground Parking, Patel Chowk	100
4		Saras Market Parking	Up-to 70
5		Near Sadar Bazar Market, Located on Meena Marg (For Two Wheelers Only)	Up-to 60
6		Near Sheesh Mahal (For Taxi Only)	45
7		Taxi Union	50
8		Mangal Padav Parking	30

9	Under Construction: Surface Parking	Thandi Sadak Parking Area	350
10	Proposed: Basement Parking	Administrative cum Bus Terminus Parking Location: - (for commercial use only)	300
	TOTAL		1,105

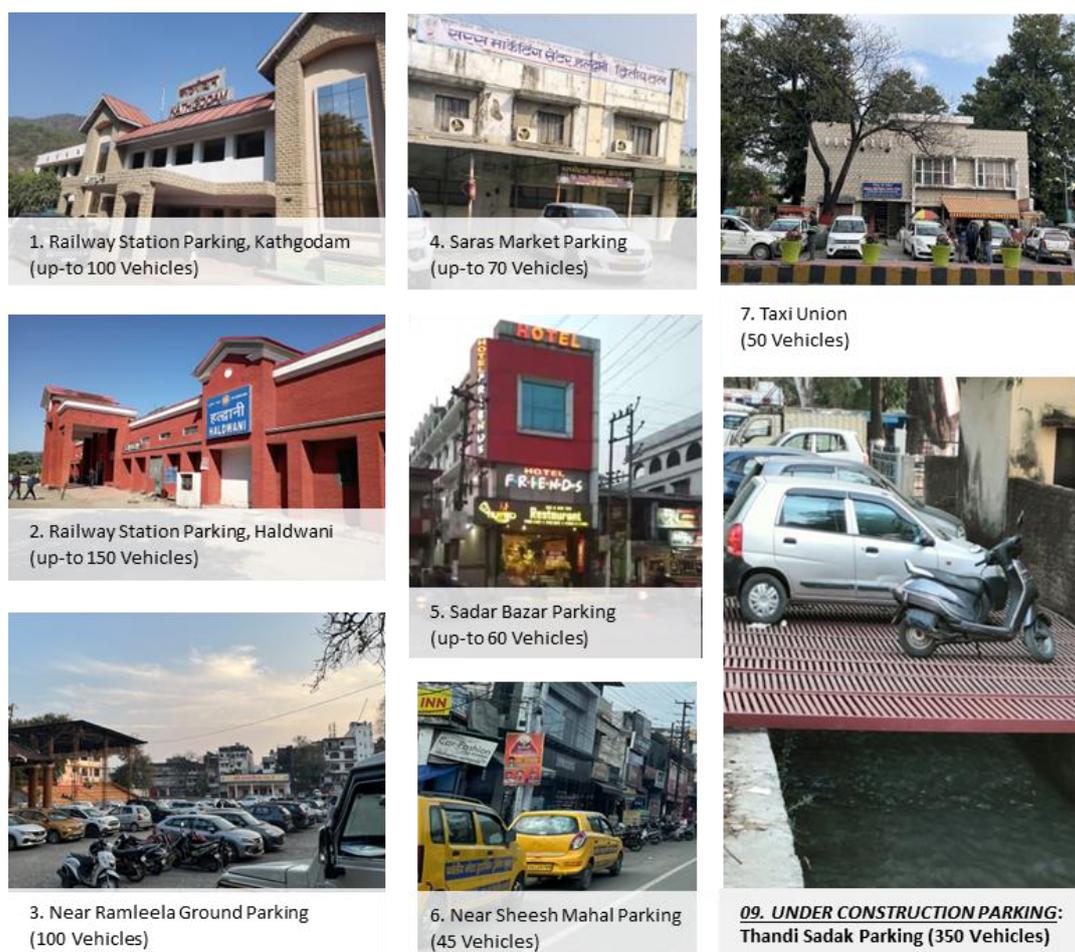
Source: (PWD, Haldwani cum Kathgodam , 2024), (Nagar Nigam, Haldwani cum Kathgodam , 2024), (Post Study Workshop, 2024), and (SPA, New Delhi, 2024) primary survey

Haldwani cum Kathgodam has experienced up to 50,000 persons per day of peak tourist footfall in the past. Resulting in severe shortage of parking in the city.

Old Town Areas including Ramleela Maidan Area, Sadar Bazar Area and other commercial spaces are the most congested due to increase of vehicular traffic and lesser pedestrian traffic. To create traffic diversion from inside the city Phase-2 of By-Pass Road is in process. This will help to reduce the traffic congestion through the city.

The Image 15 below shows the present situation of parking available in NN, Haldwani cum Kathgodam

Image 15: Images of Parking in NN, Haldwani cum Kathgodam



Source: (SPA, New Delhi, 2024) primary survey

The Map 21 below shows the location of present parking areas available in NN, Haldwani cum Kathgodam.

Map 21: Location of Parking Areas in NN, Haldwani cum Kathgodam



Source: (PWD, Haldwani cum Kathgodam , 2024), (Nagar Nigam, Haldwani cum Kathgodam , 2024), (Post Study Workshop, 2024), (Google My Maps, 2024),

While the Tourists uses the Railway Station Parking, Major Market Parking available, on road parking along the commercial areas, Hotel Parking (if available) or park illegally along the Bareilly-Nainital Road (NH-109).

Table 25, shows that according to the discussions with the officials met (as mentioned in Annexure C), the local residents of NN, Haldwani cum Kathgodam prefers to parks their personal vehicles either along the roads, in-front of commercial areas or in their premises. The working population from different areas around the town uses the available parking in their office premises or on the road (as per the availability of parking). While the Tourists uses the Railway Station Parking, Major Market Parking available, on road parking along the commercial areas, Hotel Parking (if available) or park illegally along the Bareilly-Nainital Road (NH-109).

Table 25: Parking Areas Preferences of the Residents, the Working Population and the Tourists in NN, Haldwani cum Kathgodam

Residents/ Working Population from Surrounding Areas/ Tourists	Parking Areas
Residents of NN, Haldwani cum Kathgodam	<ul style="list-style-type: none"> • Along the roads • Infront of Commercial Areas • Their residential premises
Working population from surrounding areas	<ul style="list-style-type: none"> • Office Premises • On-Road Parking/Surface Parking
Tourists with their personal vehicles	<ul style="list-style-type: none"> • Railway Station Parking, Kathgodam • Railway Station Parking, Haldwani • Near Ramleela Ground Parking, Patel Chowk • Thandi Sadak Parking Area • Saras Market Parking Area • Hotel Parking (If Available) • On Road/Illegal Surface Parking: Bareilly-Nainital Road

Source: (PWD, Haldwani cum Kathgodam , 2024), (Nagar Nigam, Haldwani cum Kathgodam , 2024), (Police Department Haldwani cum Kathgodam, 2024), (Post Study Workshop, 2024)

The Table 26 below shows the calculated and targeted service level benchmarks achieved through the Level of Service provided in Haldwani cum Kathgodam by the UUSDA Team for the Draft CMP of Haldwani cum Kathgodam.

Table 26: Service Level Benchmarks (as per MoHUA) Targeted and Calculated for Haldwani cum Kathgodam by the UUSDA Team for the Draft CMP of Haldwani cum Kathgodam

S.No.	Facility	LOS Targeted	LOS Calculated	Inferences
01.	Public-Transport Facilities (Buses)	<12	22	<ul style="list-style-type: none"> The city has very poor/no organized public transport system
02.	Pedestrian Infrastructure Facilities	3-5	10	<ul style="list-style-type: none"> The city has pedestrian facilities which may need considerable improvements.
03.	Non-Motorized Transport Facilities	3-5	10	<ul style="list-style-type: none"> The city has NMT facilities which may need considerable improvements as many parts of the city are not served by it.
04.	Level of usage of ITS Facilities.	5-7	16	<ul style="list-style-type: none"> The city lacks adequate ITS facilities
05.	Travel Speeds (Motorized & Public Transport)	1 (≥ 30 kmph)	6 (≥ 15 kmph)	<ul style="list-style-type: none"> Significant approach delays & extensive queuing at critical intersections
06.	Availability of Parking Spaces	2	6	<ul style="list-style-type: none"> Paid parking spaces provided in the city need to be improved upon and to cater to the demand some differential parking rates for the CBD have been adopted. The city authorities need to imitative considerable improvements measures.
07.	Road Safety	2	4	<ul style="list-style-type: none"> Need some improvements in road design and available road infrastructure, traffic management and in other such reasons which significantly contribute to road safety.
08.	Pollution Levels	≤ 5	8	<ul style="list-style-type: none"> Moderate levels of pollution. Need some improvements in emission standards, checking pollution etc.
09.	Integrated Land Use Transport System.	≤ 8	22	<ul style="list-style-type: none"> Inconsistency in the city structure and public transport system leading to lesser ridership and high dependence on personalized motor vehicles

Source: (UUSDA, Government of Uttarakhand, 2023)

8.2. Present Government Policies for Urban Transportation and Parking in Haldwani cum Kathgodam Town

At present in NN, Haldwani cum Kathgodam for Urban Transport and Parking no specific State Level policy is being implemented.

8.3. Issues/Challenges

The Table 27 below highlights the issues/challenges identified along with the inferences for urban transport and parking in NN, Haldwani cum Kathgodam.

Table 27: Issues/Challenges Identified for Urban Transport and Parking in NN, Haldwani cum Kathgodam

S.No.	Issues/Challenges	Inferences
01.	 <p>Urban expansion and development</p>	<ul style="list-style-type: none"> • Rapid urbanization and development in Haldwani cum Kathgodam have led to increase in the number of private vehicles in the city i.e. more than 84% mode share is of Private Vehicles (as per the Draft CPM, 2023, UUSDA). • This leads to changes in traffic patterns and increased pressure on existing road infrastructure. • Thus, leading to increase in congestion and accidents points in the city. • Planning for sustainable transportation solutions in rapidly growing areas can be challenging.
02.	 <p>Lack of Public Transport Options</p>	<ul style="list-style-type: none"> • The city lacks a reliable and efficient public transportation system. • While taxis, are available, they only add on to the existing traffic congestion in the city. • This encourages reliance on private vehicles that further exacerbates congestion and parking issues in the city.
03.	 <p>Traffic Congestion and Management Measures</p>	<ul style="list-style-type: none"> • Haldwani cum Kathgodam may experience significant traffic congestion, especially during peak hours and in commercial or residential areas. • This congestion due to vehicles lead to delays in trip, increased fuel consumption, air pollution, and frustration among commuters.

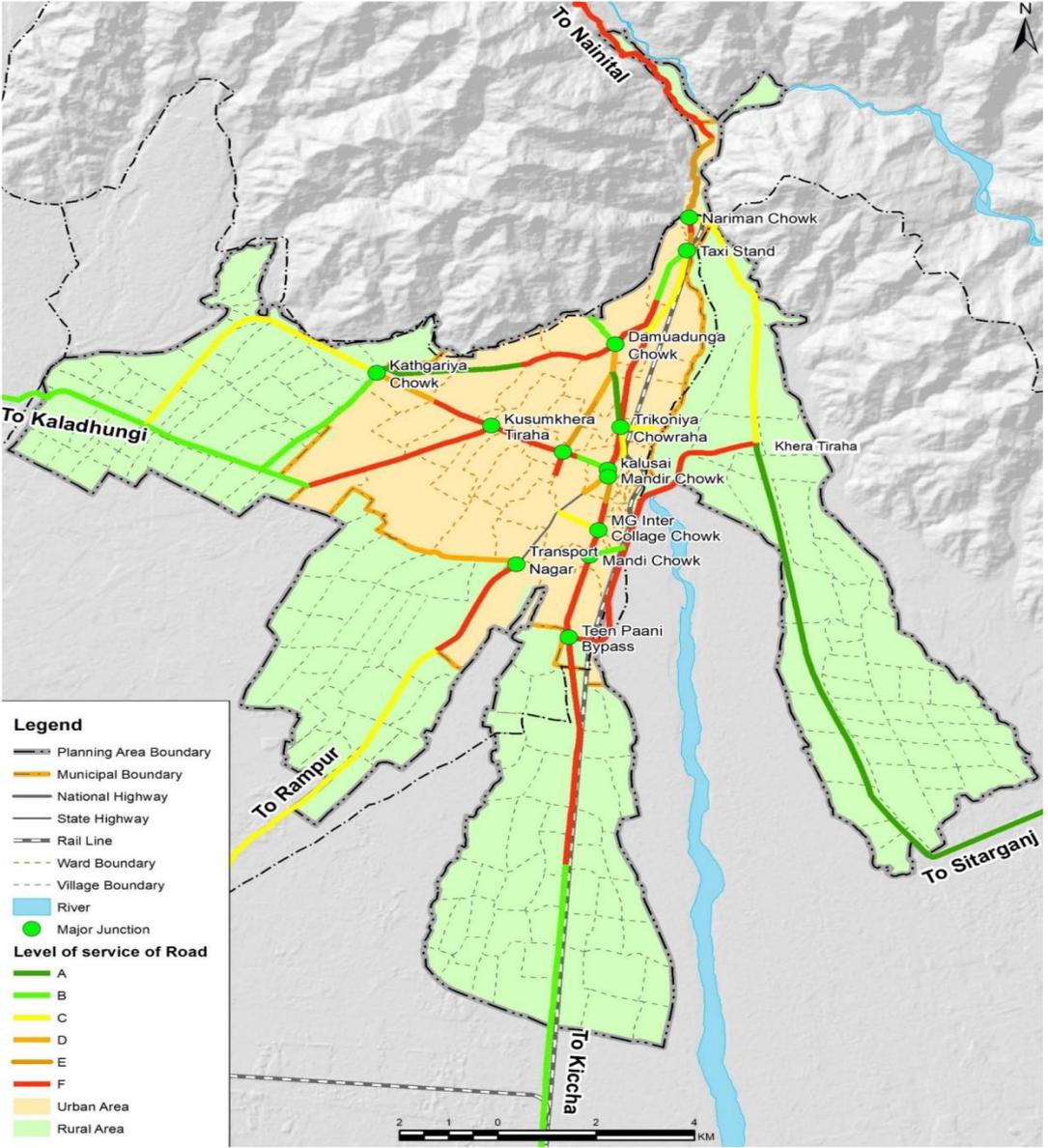
04.		Parking Issues	<ul style="list-style-type: none"> Limited parking spaces and illegal parking further contributes to congestion and traffic flow problems in Haldwani cum Kathgodam. Unauthorized parking on streets and sidewalks obstructs the traffic and create safety hazards for pedestrians.
05.		Limiting the number of vehicles	<ul style="list-style-type: none"> There is a huge influx of vehicles in the city during tourist season (especially wedding season) as Haldwani being the Gateway to Kumaon is also one of the popular wedding destinations in the State.
		Tourism Management Measures	<ul style="list-style-type: none"> The increasing floating population is also increasing the number of vehicles entering the city. This needs immediate interventions to prevent another hazardous situation in the State of Uttarakhand.
06.		Registered vehicles	<ul style="list-style-type: none"> The growing pattern in the annual registered vehicles (as per the Draft CPM, 2023, UUSDA), shows dependency on personal vehicle in the city. More than 84% mode share is of Private Vehicles (as per the Draft CPM, 2023, UUSDA). Interventions are required to reduce congestion and promote public transit in the city.
07.		Integration of technology	<ul style="list-style-type: none"> Incorporating technology such as traffic signals, CCTV cameras, and intelligent transportation systems (ITS) into traffic management efforts may face challenges such as high implementation costs, technical issues, and resistance to change.
08.		Encouraging Pedestrian Movement	<ul style="list-style-type: none"> To reduce the traffic in the parts of old city and major market areas, it is important to encourage pedestrian movements and limit the number of vehicles entering this area.
		Pedestrian safety	<ul style="list-style-type: none"> Ensuring the safety of pedestrians can be a challenge in Haldwani cum Kathgodam, especially in areas with heavy traffic and inadequate pedestrian infrastructure. Insufficient crosswalks, poorly maintained sidewalks, and speeding vehicles can pose

			risks to pedestrians.
09.		Inadequate Enforcement	<ul style="list-style-type: none"> Enforcement of traffic rules and regulations may be inadequate in Haldwani cum Kathgodam, leading to violations such as reckless driving, illegal parking, and non-compliance with traffic signals. Lack of enforcement can undermine efforts to improve road safety and reduce congestion.
		Regulatory Issues	<ul style="list-style-type: none"> Inadequate enforcement of parking regulations and traffic rules exacerbates the transport and parking problems in Haldwani cum Kathgodam. Illegal parking on roadsides, and lack of designated parking zones contribute to the chaos on the streets
10.		Environmental Concerns	<ul style="list-style-type: none"> Vehicle emissions from traffic congestion contributes to air pollution and noise pollution, this can lead to can have detrimental effects on the local environment and public health. Thus, lading to environmental degradation. Implementing measures to reduce vehicle emissions and promote sustainable transportation options can be important for addressing these concerns.

8.4. Possible Solutions/Suggested Projects for Urban Transport and Parking in NN, Haldwani cum Kathgodam

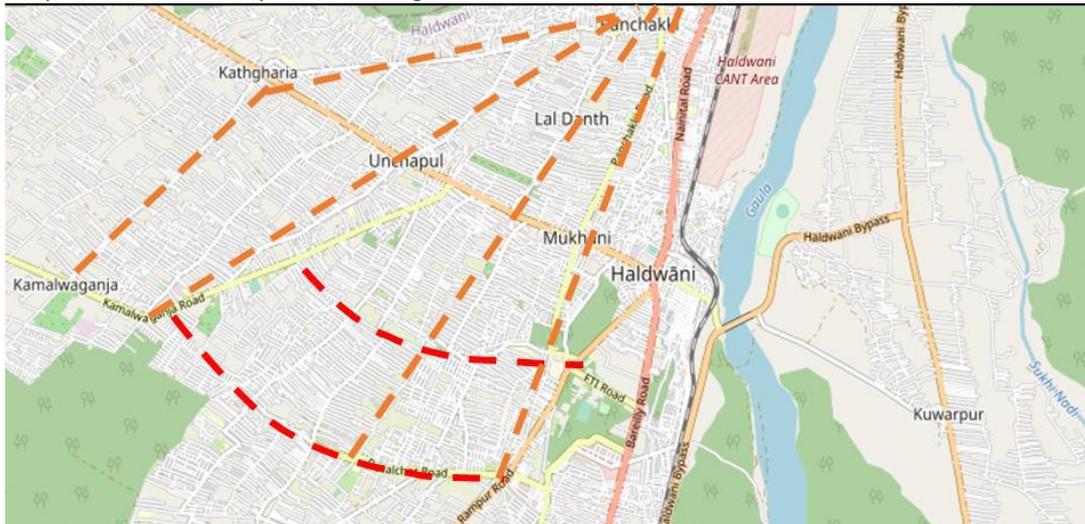
A Stakeholder Consultation Meeting was held on 25th April 2024 in NN, Haldwani cum Kathgodam. Based on the feedback provided by the official’s possible solutions and suggested projects for improvement are proposed for Haldwani cum Kathgodam Town in Table 28 below.

Table 28: Possible Solutions/Suggested Projects for Urban Transport and Parking in NN, Haldwani cum Kathgodam

S.No.	Possible Solutions/Suggested Projects
01.	Urban expansion and development
	<p>As per the Draft CMP report by UUSDA the following have been proposed:</p> <p>a) LOS Map have been prepared under the Draft CMP for Haldwani cum Kathgodam by the UUSDA, as shown in Map 22 below.</p> <p>Map 22: Prevailing Level of Service Map-Haldwani Road Network</p>  <p>The map displays the Haldwani road network with various levels of service (LOS) indicated by different colors. Major junctions are marked with green dots. The map includes a legend for boundaries, roads, and areas, and a scale bar in kilometers.</p> <p>Legend</p> <ul style="list-style-type: none"> Planning Area Boundary Municipal Boundary National Highway State Highway Rail Line Ward Boundary Village Boundary River Major Junction Level of service of Road <ul style="list-style-type: none"> A B C D E F Urban Area Rural Area <p>Scale: 0 to 4 KM</p> <p>(UUSDA, Government of Uttarakhand, 2023)</p>

b) Road Development in Ring Radial Pattern, as shown in Map 23 below.

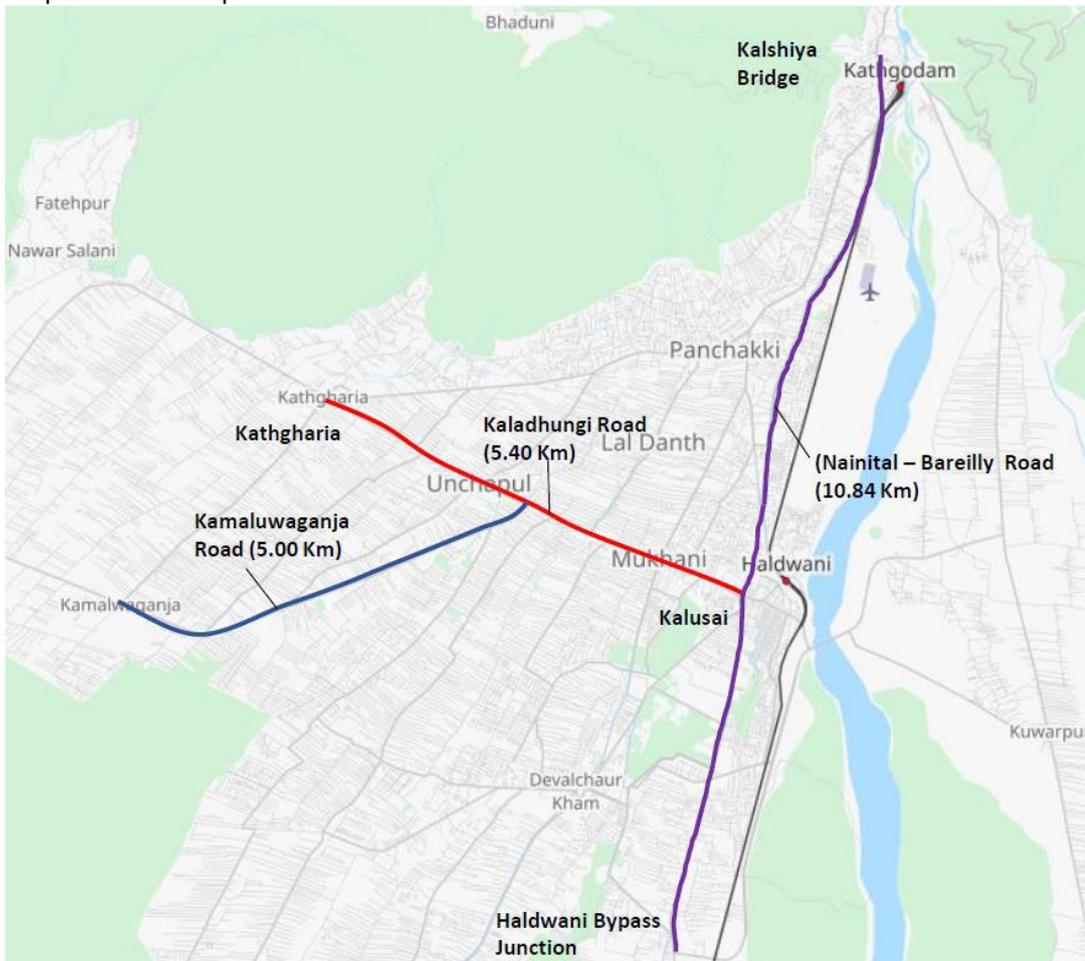
Map 23: Road development in Ring radial Pattern



Source: (USDA, Government of Uttarakhand, 2023)

c) Redevelopment of Arterial Road Network, as shown in Map 24 below.

Map 24: Redevelopment of Arterial Road Network



Source: (USDA, Government of Uttarakhand, 2023)

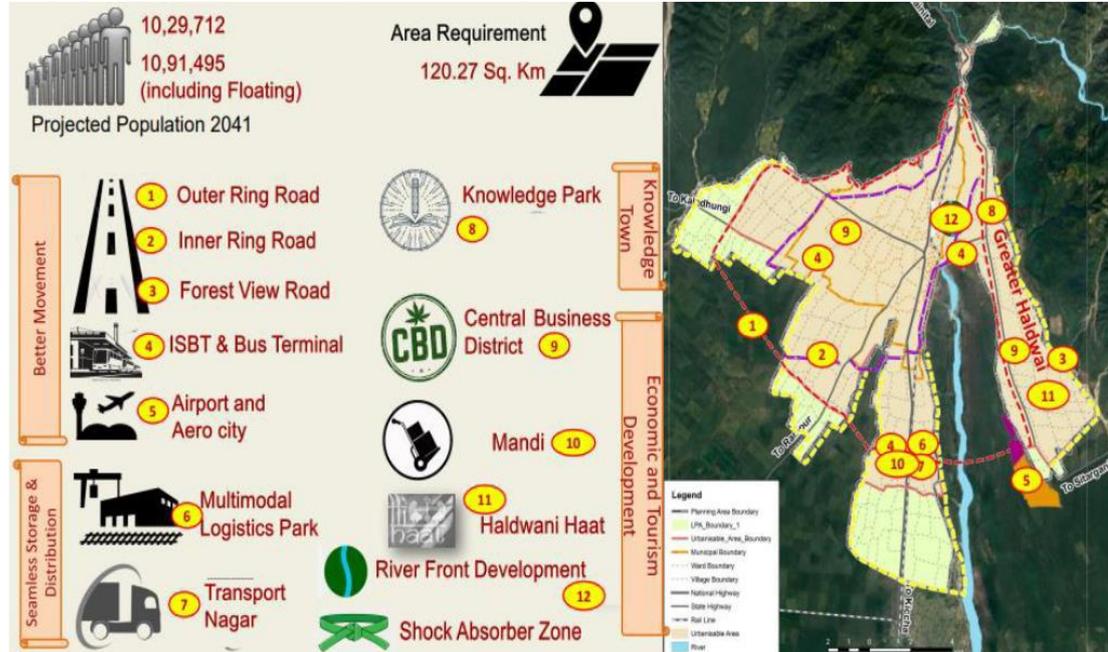
	<p>d) Development of missing link roads.</p> <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p> <p>a) The State Government of Uttarakhand should undertake the following:</p> <ul style="list-style-type: none"> i. Implementation of strict Zoning laws to prevent haphazard urban development and to ensure that residential areas are close to workplaces, reducing commuting distances. ii. Expand and improve the city’s road network, incorporating dedicated lanes and cycling lanes for public buses and non-motorized transport. <p>b) NN, Haldwani cum Kathgodam should do regular inspection and repair of vulnerable road sections prone to accidents and traffic congestion.</p>
02.	Lack of Public Transport Options
	<p><u>As per the Draft CMP report by UUSDA the following have been proposed to improve the transportation network in the city:</u></p> <ul style="list-style-type: none"> a) Public Transport Strategy b) Integrated land use and c) Urban Transportation Policy for Densification along the Public Transport (PT) <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p> <ul style="list-style-type: none"> a) The State Government of Uttarakhand should develop and implement Transit-Oriented Development (TOD) Policies to reduce the need for long commutes and enhance public transport accessibility. b) The NN, Haldwani cum Kathgodam should decrease the reliance on private vehicles through enhancing the Public Transportation in Haldwani cum Kathgodam city by: <ul style="list-style-type: none"> i. Developing Multi-Modal Integration: Integrate different modes of transport (e.g., buses, shuttles, taxis) to offer seamless travel experiences to the floating population in the city. ii. Standardizing and regulating taxi fare: Establish a standardized fare structure for taxis, including base fares and per-km charges and install a digital fare meter system in all the registered taxi and develop a mobile app for fare payment and complaints to ensure transparent and consistent fare. iii. Forming a regulatory body in collaboration with the Traffic Police Department, Haldwani cum Kathgodam to supervise fare regulation, monitor compliance and address disputes. iv. Introducing Subsidized Passes on monthly or weekly basis for frequent travelers including residents and the daily floating population. v. Offer Tourist Passes that provide unlimited access to public transport within a specified duration, to reduce the use of private vehicles in the Town. vi. Coordinate between different transport service providers to ensure smooth integration and scheduling of traffic in the Town. c) The NN, Haldwani cum Kathgodam should work with local businesses to offer discounts and incentives for pass holders to encourage public transport in the Town.

03. Traffic Congestion and Management Measures

As per the Draft CMP report by UUSDA the following have been undertaken/proposed:

- a) About 38% of the Traffic has no business in the city and passes through the Central Business District (CBD).

Map 25: Haldwani cum Kathgodam Masterplan 2041 Proposals



Source: (UUSDA, Government of Uttarakhand, 2023)

- b) To tackle the issue of Traffic Congestion the Master Plan of Haldwani cum Kathgodam, 2043 has proposed:

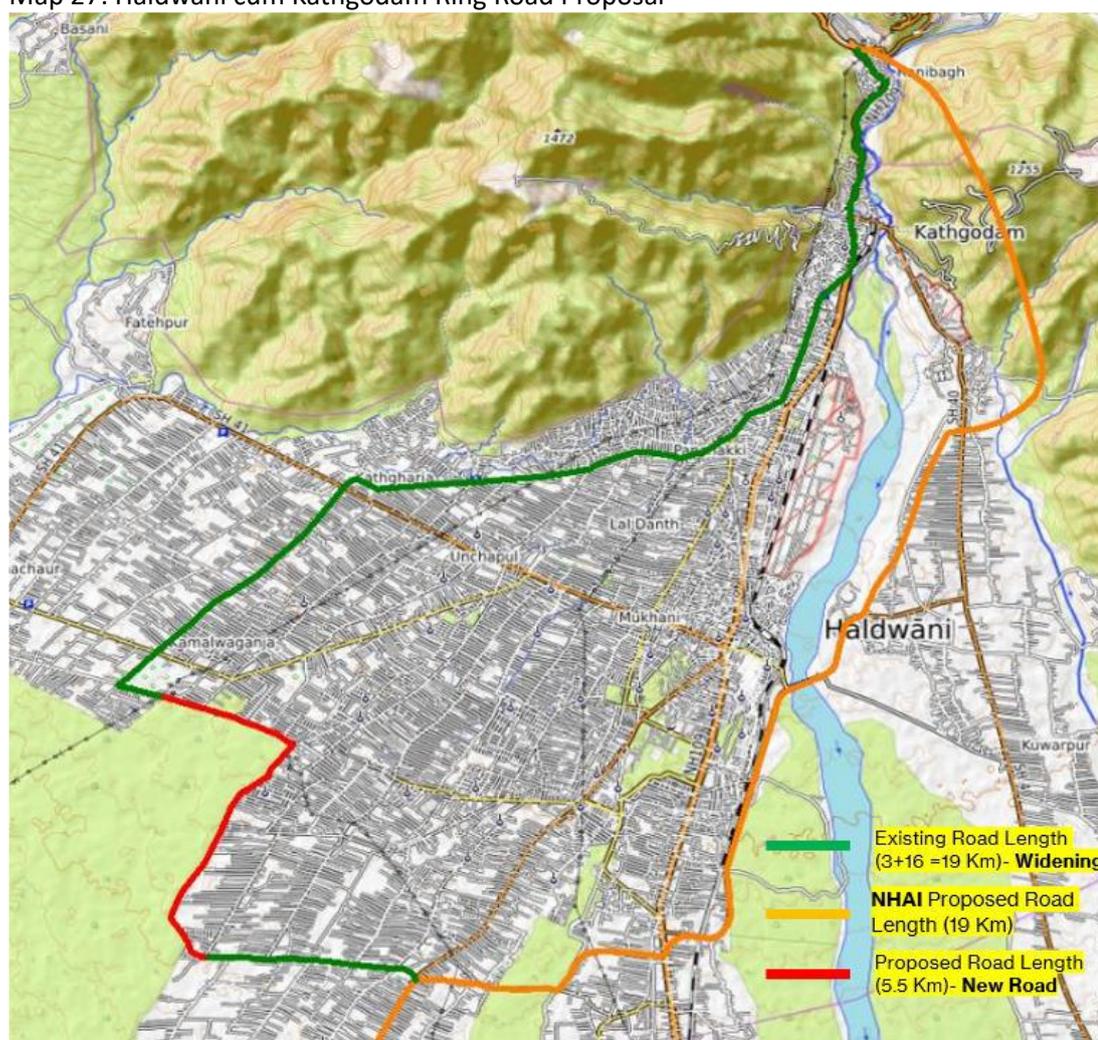
- i. Outer Ring Road (at present: on the implementation stage as a By-Pass Road)
- ii. Inner Ring Road to divert the heavy traffic outside the main city and develop better mobility inside the city.

Map 26: Haldwani – Kathgodam Bypass NH-109 connecting Bhimtal Junction



Source: (UUSDA, Government of Uttarakhand, 2023)

Map 27: Haldwani cum Kathgodam Ring Road Proposal



Source: (UUSDA, Government of Uttarakhand, 2023)

- c) Encroachment and hawker management plan is proposed this will help to increase the existing ROW at present encroached by the street hawkers and enhance the present authorized surface parking availability.

The above may be implemented. Further along with this it is proposed that:

- a) **The NN, Haldwani cum Kathgodam should undertake the following:**
- i. **An online camera system or any such advanced digital system should be installed on locations prone to traffic congestion** so as to correctly capture the number of incoming and outgoing vehicles so as to enable better management.
 - ii. **Promote the use of carpooling and ride-sharing services** to decrease the number of vehicles on the road.
 - iii. **Introduce stricter regulations and incentives** for the use of electric vehicles (EVs) to reduce pollution and traffic.
 - iv. **Establish a traffic accident reporting and analysis system** to identify and address

	<p>accident hotspots.</p> <p>v. Integrate urban planning and transportation planning to ensure that new developments support sustainable travel modes.</p>
<p>04.</p>	<p>Parking Issues</p>
	<p>As per the Draft CMP report by UUSDA the following have been proposed:</p> <p>a) Parking is proposed around the CBD and for commercial purposes to reduce the present parking congestion faced by the authorities.</p> <p>Map 28: Existing and Proposed Parking location in Haldwani cum Kathgodam</p>  <p>Source: (UUSDA, Government of Uttarakhand, 2023)</p> <p>The above may be implemented. Further alongwith this it is proposed that:</p> <p>a) The NN, Haldwani cum Kathgodam in collaboration with the Police Department and the Traffic Police Department should undertake the following:</p> <ol style="list-style-type: none"> i. Enforce parking restrictions in critical areas identified by the authorities. ii. Enforce strict regulations and penalties for unauthorized street and sidewalk parking to deter illegal parking practices and enhance pedestrian safety. iii. Develop and enforce designated loading and unloading zones to prevent obstruction by parked delivery vehicles. iv. Introduce a residential parking permit system to control parking in residential neighborhoods and reduce unauthorized street parking. v. Implement smart parking solutions with real-time occupancy data and mobile

payment options to streamline parking space usage and reduce search time for parking.

- vi. **Introduce park-and-ride facilities** to encourage commuters to use public transport instead of driving into congested urban areas.
- vii. **Install single stack automated car parking** wherever required in parking areas as shown in Image 16 below.

Image 16: Image of an example of Single Stack Automated Car Parking



Source: (Google Images, 2024)

- viii. **Establish a hotline or app-based reporting system** for residents to report illegal parking, enhancing enforcement efficiency.
- ix. **Surge pricing** should be introduced for parking by the NN, Haldwani cum Kathgodam.

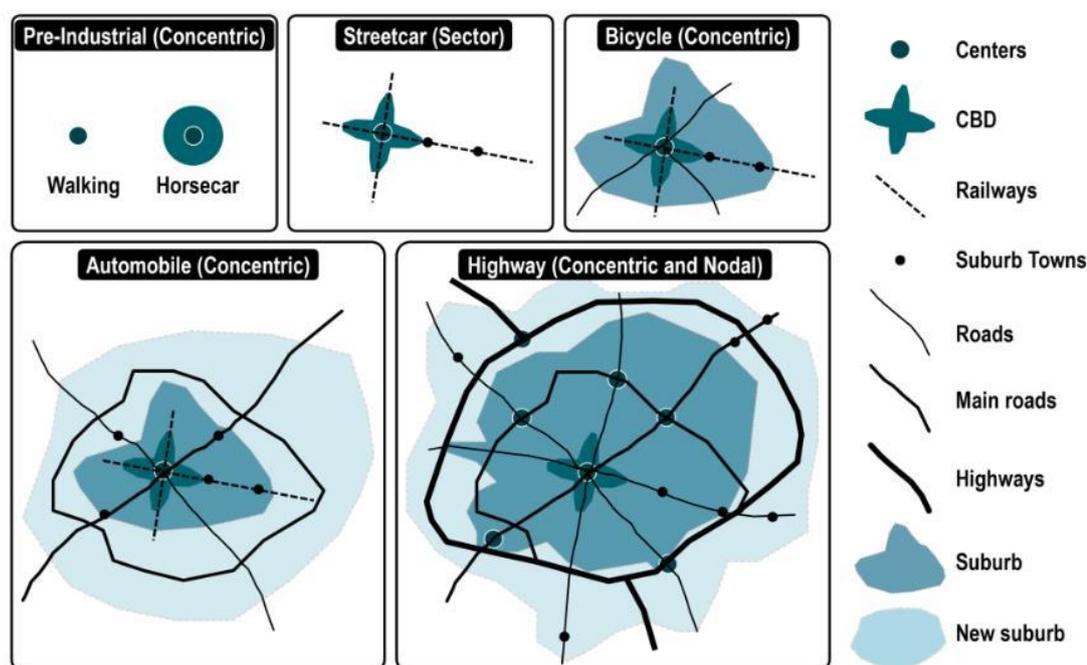
05. Limiting the Number of Vehicles and Tourism Management Measures

It is proposed that:

- a) **NN, Haldwani cum Kathgodam should undertake the following:**
 - i. Regulate strict norms for private vehicles entering the city.
 - ii. **Implement a seasonal traffic management plan**, including designated routes and temporary parking regulations, to efficiently handle increased vehicle flow.
 - iii. **Create a digital parking reservation system for tourists and event attendees** to pre-book parking spaces, reducing the search for parking and traffic congestion.
 - iv. **Develop partnerships with local businesses and institutions** to use their parking facilities for overflow during high-demand periods.

	<ul style="list-style-type: none"> v. Introduce temporary car-free zones in congested areas during peak tourist seasons to enhance traffic flow and pedestrian safety. vi. Deploy additional traffic enforcement personnel during peak seasons to manage illegal parking and ensure smooth traffic flow. vii. Coordinate with event organizers to provide dedicated parking arrangements and information for wedding guests and tourists, reducing ad hoc parking. viii. Implement a traffic re-routing system for tourists using GPS-based applications to minimize congestion in popular areas during peak times. ix. Prepare and publish a government tourist brochure highlighting the local traffic rules to be followed.
06.	Registered Vehicles
	<p><u>It is proposed that:</u></p> <ul style="list-style-type: none"> a) NN, Haldwani cum Kathgodam along with the Traffic Police Department should undertake the following: <ul style="list-style-type: none"> i. Offer Tourist Passes that provide unlimited access to public transport within a specified duration, to reduce the use of private vehicles in the city. ii. Introduce Congestion Pricing in areas identified by the ULBs as prone to congestion areas. This will help to reduce the number of private vehicles entering those area. iii. Designate low-emission zones where only vehicles meeting specific environmental standards are allowed, encouraging the use of cleaner modes of transport. iv. Monitor that all the registered public and private vehicles should comply with the emission regulations. v. Support Car-Free Days by organizing regular car-free days to raise awareness and demonstrate the benefits of reduced private vehicle use in the city. vi. Offer incentives such as reduced fares, subsidies, or discounts for regular public transit users to encourage the shift from private vehicles to public transport. vii. Coordinate between different transport service providers to ensure smooth integration and scheduling of traffic in the Town.
07.	Integration of Technology
	<ul style="list-style-type: none"> a) As per the Draft CMP report by UUSDA Land and Transport Integration (LUTI) have been proposed with the development, management and operation of urban transport systems that provides sustainable to the Haldwani city. <p>The figure below represents the development of the conceptual plan of the Hybrid Land Use Model for the Transportation and the Formation of Urban Landscapes in NN, Haldwani cum Kathgodam.</p>

Figure 19: The Hybrid Land Use Model: Transportation and the Formation of Urban Landscapes



Source: (UUSDA, Government of Uttarakhand, 2023)

The above may be implemented. Further alongwith this it is proposed that:

- a) The NN, Haldwani cum Kathgodam should undertake the following:
- i. **Prioritize investments in cost-effective technologies** that provide significant impact with lower initial costs, such as **smart traffic signals or cloud-based ITS solutions**.
 - ii. **Implement sensor-based smart parking guidance systems** that detect available parking spaces and direct drivers to them via mobile apps or digital signage, reducing time spent searching for parking.
 - iii. **Use big data analytics and machine learning algorithms** to analyze historical and real-time traffic data. Predict traffic patterns, optimize signal timings, and make data-driven decisions to improve traffic flow and reduce delays.
 - iv. **Introduce mobile payment options and parking reservation systems** that allow users to pay for parking electronically and reserve parking spaces in advance, promoting convenience and reducing congestion around parking areas.
 - v. **Utilize CCTV cameras and automated license plate recognition (ALPR) systems** for effective enforcement of parking regulations and monitoring of unauthorized parking in restricted areas.
 - vi. **Install EV charging stations and dedicated lanes for electric vehicles** to promote sustainable transportation options and reduce emissions in urban areas.
 - vii. **Establish communication channels**, such as mobile apps or websites, for residents and commuters to provide feedback on traffic issues and suggest improvements. This promotes transparency and community involvement in traffic management.

	efforts.
08.	Encouraging Pedestrian Movement and Pedestrian Safety
	<p><u>It is proposed that:</u></p> <p>a) NN, Haldwani cum Kathgodam should undertake the following:</p> <ul style="list-style-type: none"> i. Improve and redevelop the road geometrics as complete streets with high quality footpaths, paving, street furniture, lighting and other road aesthetics so that women, children and the elderly feel safe and comfortable to walk. ii. Introduce traffic calming measures such as speed bumps, raised crosswalks, chicanes, and narrowed streets to slow down vehicles and create safer environments for pedestrians in high-traffic areas. iii. Increase enforcement of traffic regulations, particularly speed limits and pedestrian right-of-way laws, through regular patrols and the use of automated enforcement technologies like speed cameras. iv. Launch campaigns to educate drivers, pedestrians, and local businesses about the importance of pedestrian safety and the benefits of reducing vehicle traffic in congested areas. Promote alternative transportation modes such as walking, cycling, and public transit. v. Regularly monitor pedestrian safety metrics, traffic flow and public feedback to assess the effectiveness of implemented measures. Use data-driven insights to adjust strategies and improve outcomes over time. vi. Deploy technological solutions such as smart traffic lights with pedestrian priority features, real-time pedestrian and vehicle traffic monitoring systems and mobile apps for reporting safety concerns. These technologies can enhance safety and efficiency in pedestrian-heavy areas.
09.	Inadequate Enforcement and Regulatory Issues
	<p><u>It is proposed that:</u></p> <p>a) The State Government of Uttarakhand should allocate sufficient government funding for the implementation and maintenance of transportation infrastructure.</p> <p>b) Traffic Police Department along with the Police Department of Haldwani cum Kathgodam should undertake the following:</p> <ul style="list-style-type: none"> i. Deploy more traffic police officers to patrol critical areas, intersections and high-traffic zones regularly. Ensure visibility and proactive enforcement of traffic laws to deter violations. ii. Utilize technology for enforcement systems such as speed cameras, red-light cameras and license plate recognition (LPR) systems to monitor and penalize traffic violations consistently and impartially. iii. Provide comprehensive training programs for traffic police officers on modern enforcement techniques, traffic management strategies and use of enforcement

	<p>technologies. Equip them with the skills and knowledge to enforce laws effectively.</p> <ul style="list-style-type: none"> iv. Strengthen collaboration with judicial authorities to streamline legal processes related to traffic violations. Ensure swift and fair adjudication of traffic cases to uphold accountability and deter future violations. v. Engage local communities, neighborhood associations, schools, and businesses in promoting road safety and supporting enforcement efforts. Encourage reporting of violations and collaborate on neighborhood watch initiatives. vi. Introduce incentives for adherence to traffic rules, such as recognition programs for safe drivers. Simultaneously, enforce strict penalties for violations to deter reckless driving, illegal parking and signal non-compliance effectively. vii. Establish a system for ongoing monitoring and evaluation of enforcement efforts and their impact on road safety and congestion. Adjust strategies based on performance metrics and stakeholder feedback to continuously improve effectiveness.
10.	Environmental Concerns
	<p><u>It is proposed that:</u></p> <ul style="list-style-type: none"> a) The NN, Haldwani cum Kathgodam in collaboration with the Traffic Police, Haldwani cum Kathgodam and the Police Department, Haldwani cum Kathgodam should undertake the following: <ul style="list-style-type: none"> i. Encourage Electric Vehicle (EV) Adoption by providing incentives and infrastructure support as per the area feasibility. ii. Identify and Designate Low-Emission Zones in the Town where only EVs and low-emission vehicles are allowed. iii. Offer Subsidies or Tax Incentives for the purchase and use of EVs and hybrid vehicles to the local residents. iv. Install EV charging stations at key locations, including public parking areas and tourist spots. v. Develop policies and incentives for EV adoption, including reduced parking fees and tax benefits. vi. Set up emission testing centres and create a compliance monitoring system. vii. Develop and enforce policies for noise control, including fines for non-compliance. viii. Provide incentives for residents and tourists who participate in pollution reduction activities, such as using public transport or EVs. b) NN, Haldwani cum Kathgodam in collaboration with local NGOs, SHGs, Government Institutes and other willing volunteers to undertake the following: <ul style="list-style-type: none"> 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. <p>Engaging the community through programs that encourage carpooling, walking, and cycling.</p>

Chapter 9

Haldwani cum Kathgodam: Water Availability and Supply

Chapter 9. Haldwani cum Kathgodam: Water Availability and Supply

9.1. System Infrastructure

As shown in Image 17, NN, Haldwani cum Kathgodam is situated near the banks of River Guala. The primary source of water for the residents of NN, Haldwani cum Kathgodam is the natural source of water i.e. surface water and groundwater to meet their everyday water needs. In NN, Haldwani cum Kathgodam the construction of water supply network is under the UKPJN, the World Bank and UUSDA.

Image 17: Image of Guala River the Main Source of Natural Water in Haldwani cum Kathgodam



Source: (Primary Survey, 2024)

As shown in Table 29, the construction of the water distribution network for Ward number 1 to 33 is the done by UKPJN, Haldwani cum Kathgodam for Ward number 44 to 45(80%), 57(70%) to 60 is done by the World Bank and from Ward number 34 to 43,45(20%), 46 to 56, 57(30%) is being done (under process) by the UUSDA.

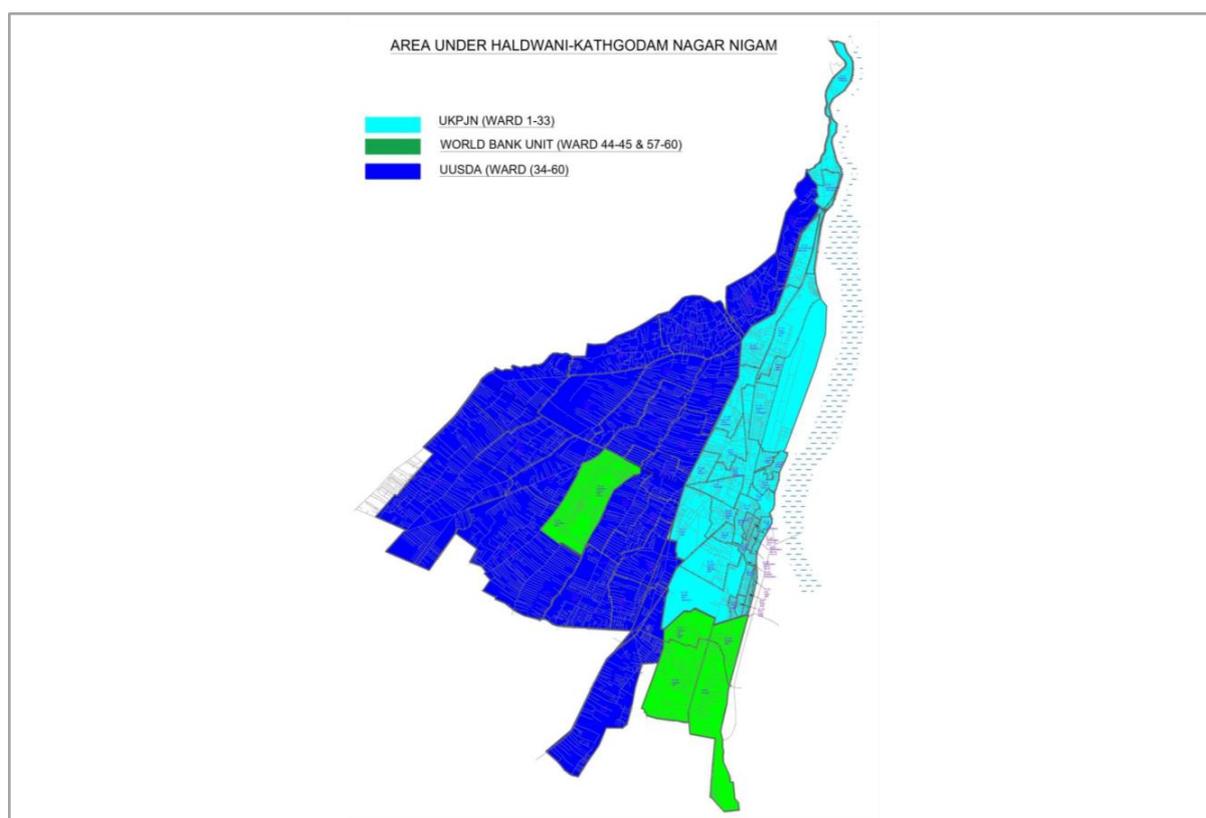
Table 29: Authorities Responsible for the Construction of the Water Supply Network in Haldwani cum Kathgodam

S.No.	Authorities Responsible for Construction of Water Distribution Network for Haldwani cum Kathgodam	Ward Number
01.	UKPJN, Haldwani cum Kathgodam	1 to 33
02.	World Bank	44 to 45(80%), 57(70%) to 60
03.	UUSDA	34 to 43,45(20%), 46 to 56, 57(30%)

Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani)

The Map 29 shows the thematic representation of the areas under the UKPJN, Haldwani cum Kathgodam, World Bank and UUSDA for the construction of Water Supply Network.

Map 29: Areas under UKPJN, World Bank and UUSDA for Water Supply in Haldwani cum Kathgodam



Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani)

Under BOT (Build-Operate-Transfer), after the completion of construction and operation along with maintenance for a fixed number of years (as per the contract) the agency needs to transfer the operational rights of the water supply network to the UJS, Haldwani cum Kathgodam. Afterwards the complete operation of the distribution of water supply in the city will be the responsibility of the UJS, Haldwani cum Kathgodam. At present the UUSDA is looking after the construction and maintenance of the water supply network for Wards number 34 to 43,45(20%), 46 to 56, 57(30%) and will hand over the rights to UJS, Uttarakhand after 18 years of operation and maintenance.

As shown in Table 30: Authorities Responsible for the Water Supply Network in Haldwani cum Kathgodam, as per the discussions with the officials met (as attached in Annexure C) and the data provided by the officers, at present in NN, Haldwani cum Kathgodam the water is being supplied by the UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam. UJS, Haldwani cum Kathgodam supplies water from Ward Number 1 to 43 and 46 to 56. While to the remaining wards i.e. Ward number 44 to 45 and 57 to 60 the water is being supplies by the UKPJN, Haldwani cum Kathgodam. For the wards 44 to 45 and 57 to 60 the maintenance of the water supply network along with the water supply is done by the UKPJN, Haldwani cum Kathgodam.

Table 30: Authorities Responsible for the Water Supply Network in Haldwani cum Kathgodam

S.No.	Authorities Responsible for Maintenance of Water Supply Network in Haldwani cum Kathgodam	Ward Number
01.	UJS, Haldwani cum Kathgodam	1 to 43 and 46 to 56
02.	UKPJN, Haldwani cum Kathgodam	44 to 45 and 57 to 60

Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani), (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024), (Post Study Workshop, 2024)

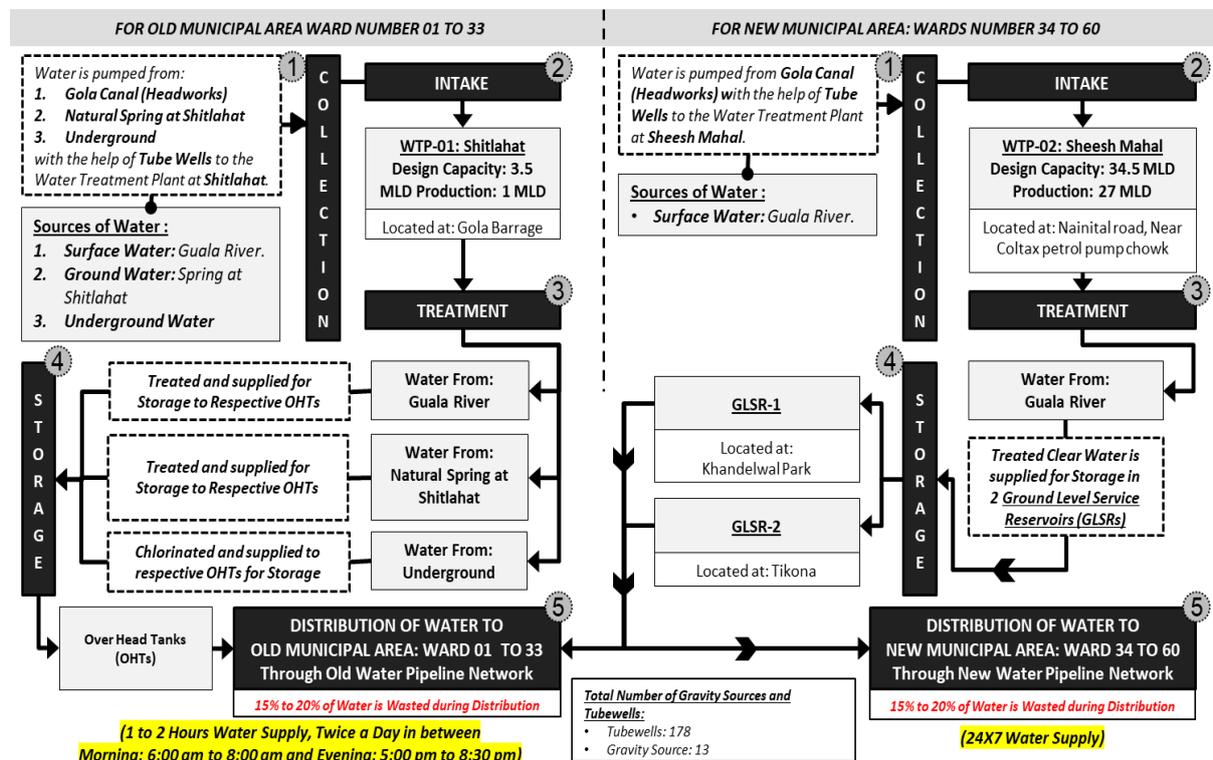
9.1.1. Process of Water Supply in Haldwani cum Kathgodam City

The distribution of water can be defined into two parts:

- I. For Old Municipal Area consisting of Wards number 1 to 33
- II. For New/Added Municipal Area consisting of Wards number 34 to 60.

The Figure 20 below shows the flow chart for the process of distribution of water for old municipal area (Ward number 1 to 33) and new municipal area (Ward number 34 to 60) i.e. from Ward number 1 to 60.

Figure 20: Flowchart of Process of Water Supply System in NN, Haldwani cum Kathgodam



Source: Source: (SPA, New Delhi, 2024), based on data provided by (Uttarakhand Pey Jal Nigam, Haldwani cum Kathgodam , 2024), (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024), (Post Study Workshop, 2024), Author

a) Step-01: Collection of Water

I. For Old Municipal Area consisting of Wards number 1 to 33:

The main sources of water are surface water i.e. Guala River, ground water i.e. spring at Shitlahat and underground water. These sources are available throughout the year but dries up to 60% during summers. Thus, increasing pressure on the natural water source available.

II. For New/Added Municipal Area consisting of Wards number 34 to 60:

The main sources of water are surface water i.e. Guala River. This source is available throughout the year but dries up to 60% during summers. Thus, increasing pressure on the natural water source available.

b) Step-02: Intake of Water

I. For Old Municipal Area consisting of Wards number 1 to 33:

For intake by the help of tubewells the collected water is pumped to the intake at Water Treatment Plant (WTP) i.e. WTP-01: Shitalahat. This plant is located at the Gola Barrage and has a design capacity of 3.5 MLD (Million Liters Day) and production of 1 MLD.

II. For New/Added Municipal Area consisting of Wards number 34 to 60:

For intake by the help of tubewells the collected water through the natural source is pumped to the intake at Water Treatment Plant (WTP) i.e. WTP-02: Sheesh Mahal. This plant is located at the Nainital Road, near Coltax Petrol Pump Chowk and has a design capacity of 34.5 MLD (Million Liters Day) and production of 27 MLD.

c) Step-03: Treatment of Water

I. For Old Municipal Area consisting of Wards number 1 to 33:

The water collected from Guala River and the natural spring at Shitalahat in the intake plant is then treated at the WTP-01: Shitalahat and is further transported for storage. While water collected from underground is just chlorinated and then further transported for storage.

II. For New/Added Municipal Area consisting of Wards number 34 to 60:

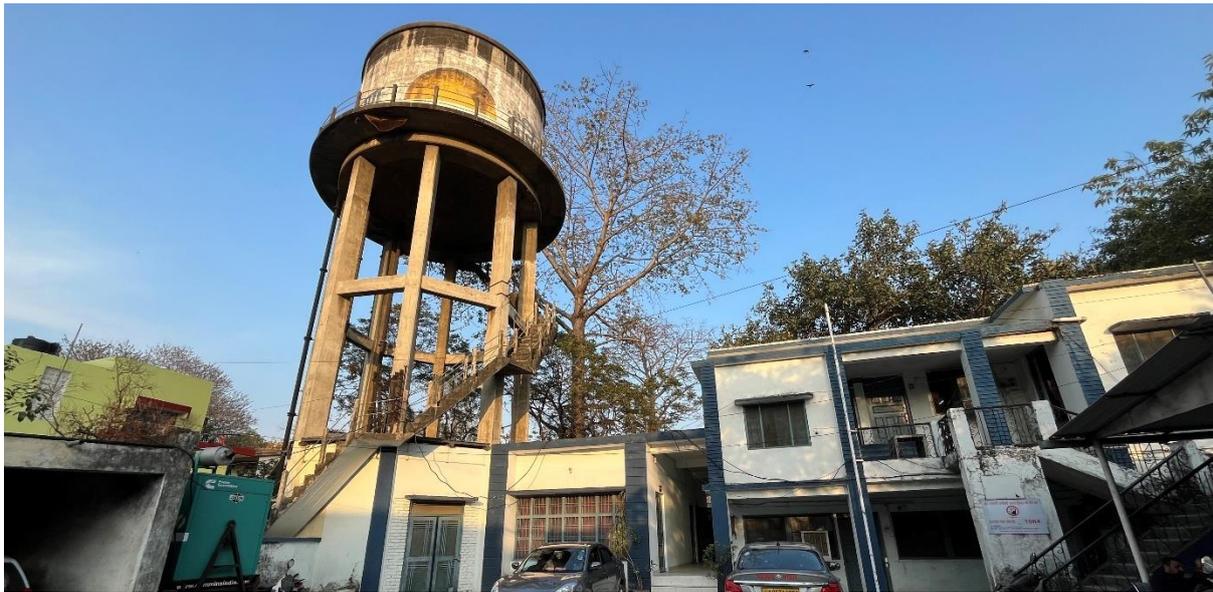
The water collected from Guala River in the intake plant is then treated at the WTP-02: Sheesh Mahal and is further transported for storage.

d) Step-04: Storage of Treated Water

I. For Old Municipal Area consisting of Wards number 1 to 33:

The treated water with the help of rising mains is then pumped and send for storage in the existing Over Head Tanks (OHTs) located in various wards in the city.

Image 18: Image of Existing OHT in NN, Haldwani cum Kathgodam

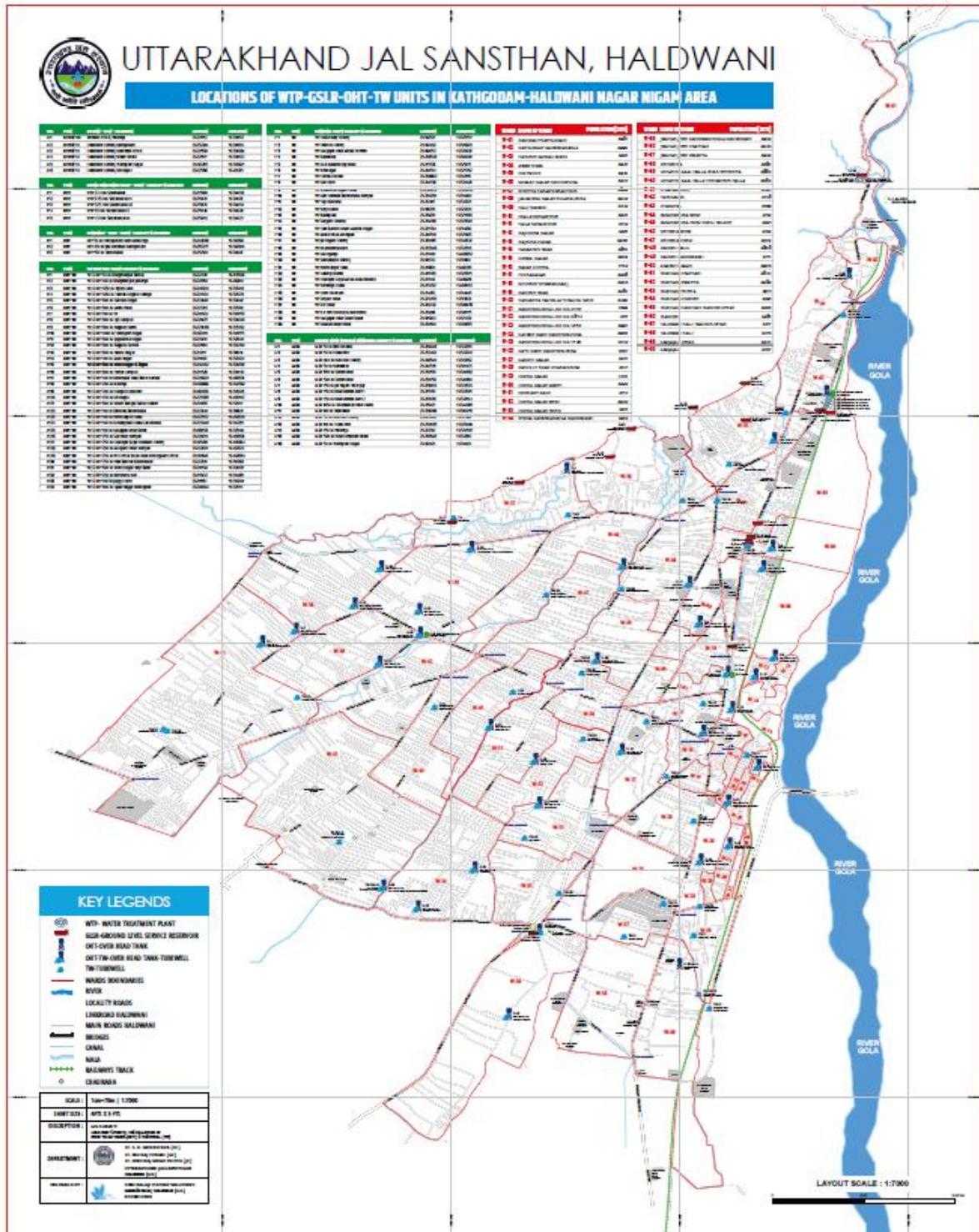


Source: (SPA, New Delhi, 2024) primary survey

II. For New/Added Municipal Area consisting of Wards number 34 to 60:

The treated clear water is then pumped to two Ground Level Service Reservoirs (GLSRs) i.e. GLSR-1 and GLSR-2. Located at Khandelwal Park and Tikona Park Respectively.

Map 30: Locations of OHT, WTP, GSLR, TW in Haldwani cum Kathgodam as per the UJS, Haldwani cum Kathgodam



Source: (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024)

e) Step-05: Distribution of Water

The treated water from WTP-01 (Shitlahat), stored in the OHTs then by the help of gravity sources (13) and tubewells (178) is supplied for 1 to 2 hours twice a day anytime in between 06:00am to

08:30 pm in Ward number 1 to 33. During the distribution of water through the old water pipeline network of the city approximately up-to 20% of the water is wasted. Thus, resulting in reducing the pressure of water supplied and leads to contamination of water.

While the treated clear water from WTP-02 (Sheesh Mahal), stored in the 2 GLSR by the help of gravity sources (13) and tubewells (178) is supplied for 24X7 in the day through the new constructed water pipeline network from Ward number 1 to 60. During this distribution of water 15% of the water is wasted. Thus, resulting in reducing the pressure of water supplied.

9.1.2. Demand and Supply of Water in Town

The Table 31 below shows the existing water demand-supply gap in the city as per the projected population by the UKPJN, Haldwani cum Kathgodam.

Table 31: Water Demand-Supply Gap as per the Projected Population by the UKPJN, Haldwani cum Kathgodam

NN, Haldwani cum Kathgodam: Water Demand Supply for Year 2024 (4,77,655 Projected Population as per the UKPJN, Haldwani cum Kathgodam) (As per the UJS, Haldwani cum Kathgodam)			
Indicator	2024 Water Demand	2024 Water Supply	Inferences (based on discussions with the Officials met and the Data Provided by them)
Total (MLD)	75.42 MLD	70.26 MLD	<ul style="list-style-type: none"> A gap of 5.16 MLD exists as per the projected population for year 2024 by the UKPJN, Haldwani cum Kathgodam.
Liter Per Capita Per Day (LPCD)	158 LPCD	147 LPCD	<ul style="list-style-type: none"> A gap of 11 LPCD exists in the city. As per the Officials and the Stakeholder Consultation Meeting held on 25th April 2024, the implementation of Jamrani Water Supply Scheme will help in fulfilling the water demand-supply gap in the city. On ground the gaps existing are higher than the gaps calculated by the projected population by the UKPJN. Therefore, the projected population needs to be revised as per the amalgamations by the NN, Haldwani cum Kathgodam.

Source: (Uttarakhand Pey Jal Nigam, Haldwani cum Kathgodam , 2024), (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani), (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024)

The Table 32 below shows the comparative analysis of the existing water situation in NN, Haldwani cum Kathgodam and the Benchmark as per CPHEEO.

Table 32: Comparative Analysis of Benchmark (as per CPHEEO) and Existing Situation of Water Availability and Supply (as per ULBs) in NN, Haldwani cum Kathgodam

NN, Haldwani cum Kathgodam: Water Supply: Existing Situation (As per the Discussions with the Officials Met and the Data Collected)			
Indicator	Benchmark (as per CPHEEO)	Existing (as per UJS, Haldwani cum Kathgodam and UKPJM, Haldwani cum Kathgodam)	Inferences (based on discussions with the Officials met and the Data Provided by them)
Per Capita Water Supply	135 LPCD	147 LPCD	<ul style="list-style-type: none"> The projected population by the UKPJM, Haldwani cum Kathgodam needs to be revised to get the exact on ground water demand-supply gap. As per the data collected, the UJS is supplying over the benchmark by the CPHEEO
Gap in Water Supply	0 LPCD	11 LPCD	
Water Pipeline Coverage (HHs Covered)	100 %	-	-
Water Supply Coverage (HHs Covered)	100 %	-	-
Continuity of Water Supply	24/7 Hours/Day	1 to 2 Hours/Day to HHs getting water supplied from WTP-01 while 24X7 day to HHs getting water supplied from WTP-02	<ul style="list-style-type: none"> For Wards number 1 to 33 getting water supplied from WTP-01 at Shitlahat the water is supplied for 1 to 2 hours twice a day anytime in between 06:00am to 08:30 pm. For Wards number 1 to 60 getting water supplied through WTP-02 at Sheesh Mahal the water is available 24X7 day.
Extent of metering of Water Connection	100 %	-	<ul style="list-style-type: none"> Water Metering is required in the city.
Extent of Non-Revenue Water	20 %	-	-

Source: (Handbook of Service Level Benchmarking), (Uttarakhand Pey Jal Nigam, Haldwani cum Kathgodam , 2024), (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani), (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024)

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 33, 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 Nagar Nigam, Haldwani cum Kathgodam i.e. ULB of the Town.

Table 33: Minimum Charges (Water Price) ₹ Per Month as per the Annual Assessment of Building for Water Supply in Urban Residential Area by the Uttarakhand Jal Sansthan, Haldwani cum Kathgodam

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	254.60
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, Haldwani cum Kathgodam , 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 is reduced from an amount of ₹6,000/- to only ₹100/- by the UJS.

As shown in Table 34: Water Price Rates for Metered Domestic Water Connections (in ₹ per Kilo Liter Per Month) by UJS, Haldwani cum Kathgodam, the 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 Liters 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). 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 34: Water Price Rates for Metered Domestic Water Connections (in ₹ per Kilo Liter Per Month) by UJS, Haldwani cum Kathgodam

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, Haldwani cum Kathgodam , 2024)

As shown in Table 35, 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 Liters 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 35: Water Price Rates (Non-Domestic Metered Connections) ₹ Per Kilo Liter by the Uttarakhand Jal Sansthan, Haldwani cum Kathgodam

Water Price Rates (Non-Domestic Metered Connections) ₹ Per Kilo Liter				
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	25.25	30.00	41.25
02.	Nagar Panchayat	25.25	25.25	41.25

Source: (Uttarakhand Jal Sansthan, Haldwani cum Kathgodam , 2024)

9.1.4. Tourism and water supply:

The hotels and guest house in Haldwani cum Kathgodam Town meets the additional water demand by the help of water tankers provided on request by the UJS, Haldwani cum Kathgodam. UJS, Haldwani cum Kathgodam hires water tankers over additional requirements.

The tourist influx during the Tourist Season (i.e. April, May, June, July, December and January) and up to 60% of drying up of the natural water source during summers creates huge strain on the present infrastructure of the water supplied.

As per the discussions with the Officials met, after the completion of Jamrani Dam Project and implementation of Jamrani Water Supply Scheme and the completion of the Integrated Urban Infrastructure Development Project, Haldwani by the UUSD New Wards Yojana for the Peri-Urban Areas (Wards No. 34 to 60) the water supply issue will be resolve completely.

9.2. Present Government Policies for Water Supply in Haldwani cum Kathgodam Town

- The mandatory fees for one-time registration for water connection through annual assessment of building is provided only in ₹100/- to the BPL beneficiaries by the UJS.
- The implementation of Jamrani Water Supply Scheme will be helpful to resolve the water issues present in the city.
- Under the Integrated Urban Infrastructure Development Project, Haldwani by the UUSDA has targeted to provide 24X7 water supply to the urban areas of Haldwani cum Kathgodam District.
- This Policy aims to:
 - a) implement metering in the city to monitor the water supplied,
 - b) provide piped water to 39,716 households in the city from ward number 34 to 43,45(20%), 46 to 56, 57(30%),
 - c) create new water pipeline network of 766 km length,
 - d) construct 14 new water storage tanks and utilize 25 existing tanks and
 - e) construct 8 new tubewells and rehabilitate 37 existing tubewells in the city.

This policy also aims to rejuvenate the natural gravity source of water.

9.3. Issues/Challenges

The Table 36 below, highlights the issues/challenges identified along with the inferences for water availability and supply in NN, Haldwani cum Kathgodam.

Table 36: Issues/Challenges Identified for Water Availability and Supply in NN, Haldwani cum Kathgodam

S.No.	Issues/Challenges	Inferences
01.	 Population growth and Urbanization	<ul style="list-style-type: none"> • Rapid urbanization and population growth in Haldwani cum Kathgodam can strain existing water supply infrastructure and exacerbate water scarcity issues. • Authorities may struggle to keep up with the increasing demand for water services.
02.	 Dependency on Natural Sources	<ul style="list-style-type: none"> • At present NN, Haldwani cum Kathgodam is completely depended on Natural sources of water, as the ground water levels are very low. • The increasing population and rapid urbanization create extreme pressure on these natural resources to full-fill the present population's water demand. Especially during summers season when these natural resources are dried up. • Afforestation and reforestation efforts in the catchment areas to maintain the health of natural water sources along with Groundwater Management to regulate and monitor the extraction of groundwater can be implemented to reduce the pressure on the natural resources. • However, these sources are vulnerable to pollution, over-extraction, and environmental degradation, affecting both water quality and quantity. • Also, during summers 60% of these sources dries up. This creates immense pressure to meet the water needs of the people in the city.
03.	 Water Scarcity	<ul style="list-style-type: none"> • Haldwani cum Kathgodam faces issues with water scarcity, especially during dry seasons or due to inadequate rainfall. • This scarcity could be exacerbated by factors such as climate change, population growth, and mismanagement of water resources. • Silt deposition due to heavy rains also adds up the pollution of the Natural water resources.

04.		Water Quality Issues	<ul style="list-style-type: none"> Ensuring safe and clean drinking water is a significant challenge for authorities in Haldwani cum Kathgodam. Contamination from industrial discharge, agricultural runoff, and inadequate wastewater treatment can compromise water quality and pose health risks to the population.
05.		Upgradation of Water Supply Infrastructure	<ul style="list-style-type: none"> Piped water supply scheme dates back to 1948-49. The Distribution System mainly consists of cast iron pipe (CI), galvanized iron pipes (GI) and mild steel pipe (MS) pipelines which are very old and dilapidated. The existing system has outlived their service life. Thus, the system needs upgradation and improvement. Also, the newly added wards: 33 to 60 includes Peri-Urban Areas and have their water demand calculated as per the Rural Standards. Therefore, it is important to upgrade the water demands of the added wards as per the Urban Water Supply Standards. Thus, the water supply infrastructure needs to be updated accordingly with regular inspections and monitoring by the authorities. The records for the projected and present population needs to be updated by the respective authorities to get a clear picture about the on-ground situation.
06.		Trained Professionals	<ul style="list-style-type: none"> Lack of trained professionals to treat the leakage and contamination of water supplied (if any) through underground water pipeline network.
07.		Climate Change Impacts	<ul style="list-style-type: none"> Climate change is likely to worsen existing water challenges in Haldwani cum Kathgodam. Increased temperatures, changing precipitation patterns, and melting glaciers in the Himalayas can further stress water resources, leading to more frequent and severe water shortages.
08.		Illegal Connections and Water Theft and Water Governance and Management	<ul style="list-style-type: none"> Unauthorized connections to the water supply network and instances of water theft can further strain the resources available for legitimate users. Apart from this as per the discussions with the officials met: the un-authorized habitations

			<p>along the Guala River have been reported with stealing of water by connecting direct supply from the main source and tube wells itself.</p> <ul style="list-style-type: none">• The UUSDA has proposed Consumer connection with Automatic Meter Reading (AMR) to provide water to consumers and measure water usage.• Along with this, intensive monitoring and regular inspections should be conducted by the authorities to prevent any water theft.
--	---	--	--

9.4. Possible Solutions/Suggested Projects for Water Availability and Supply in NN, Haldwani cum Kathgodam

A Stakeholder Consultation Meeting was held on 25th April 2024 in NN, Haldwani cum Kathgodam. Based on the feedback provided by the official's possible solutions and suggested projects for improvement are proposed for Haldwani cum Kathgodam Town in Table 37 below.

Table 37: Possible Solutions/Suggested Projects for Water Availability and Supply in NN, Haldwani cum Kathgodam

S.No.	Possible Solutions/Suggested Projects
01.	Population growth and Urbanization
	<p><u>It is proposed that:</u></p> <p>a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i. Plan and invest in efficient water infrastructure management strategies by allocating funds for expanding and upgrading water supply infrastructure in Haldwani cum Kathgodam. ii. Develop a comprehensive Water Management Plan that includes efficient distribution systems, real time monitoring of water levels, and predictive modelling for water demand. iii. Promote Water Conservation Practices by launching public awareness campaigns and educational programmes to encourage residents, businesses, and industries to adopt water-saving technologies and practices. iv. Conduct Water Conservation Campaigns to overcome future water crisis (if any) due to tourism in NN, Haldwani cum Kathgodam. v. Invest in sustainable infrastructure projects, including green buildings, energy-efficient public transit and resilient water and waste systems, to support growing urban populations.
02.	Dependency on Natural Sources
	<p><u>It is proposed that:</u></p> <p>a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i. Implementing afforestation and reforestation efforts in the catchment areas to maintain the health of natural water sources along with Groundwater Management to regulate and monitor the extraction of groundwater. ii. Regulate and Monitor groundwater extraction to reduce the pressure on the natural resources. iii. Mandate and incentivize Rainwater Harvesting in residential, commercial and institutional buildings to capture and store rainwater for non-potable and potable uses, reducing reliance on natural sources. iv. Construct artificial recharge structures such as percolation tanks, recharge wells, and check dams to enhance groundwater recharge and stabilize groundwater

levels.

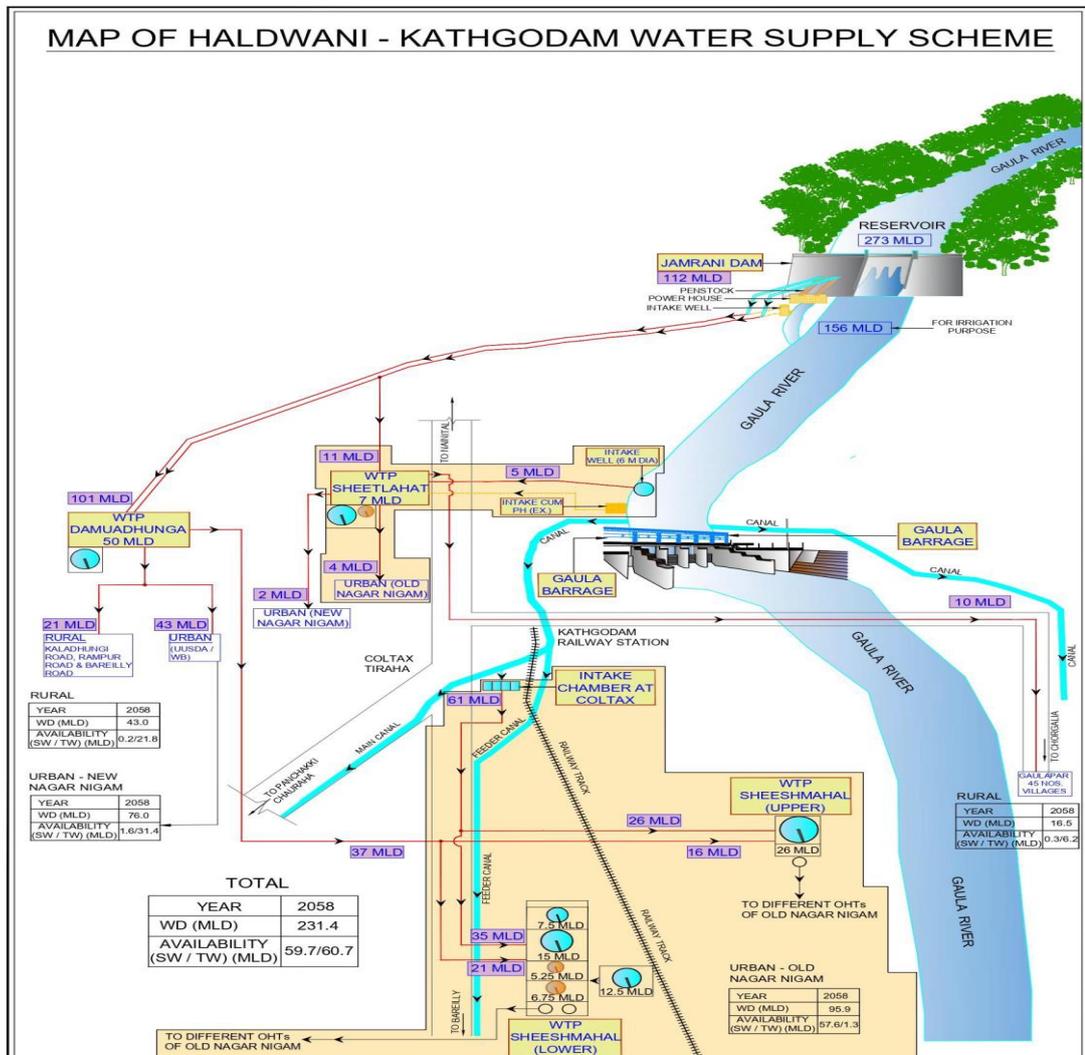
- v. **Enforce regulations** on surface-water and groundwater extraction including the issuance of permits and the installation of meters for large users, to manage sustainable use and prevent over-extraction.

03. Water Scarcity

a) **As per the UKPJN, Haldwani cum Kathgodam the following has been proposed/undertaken:**

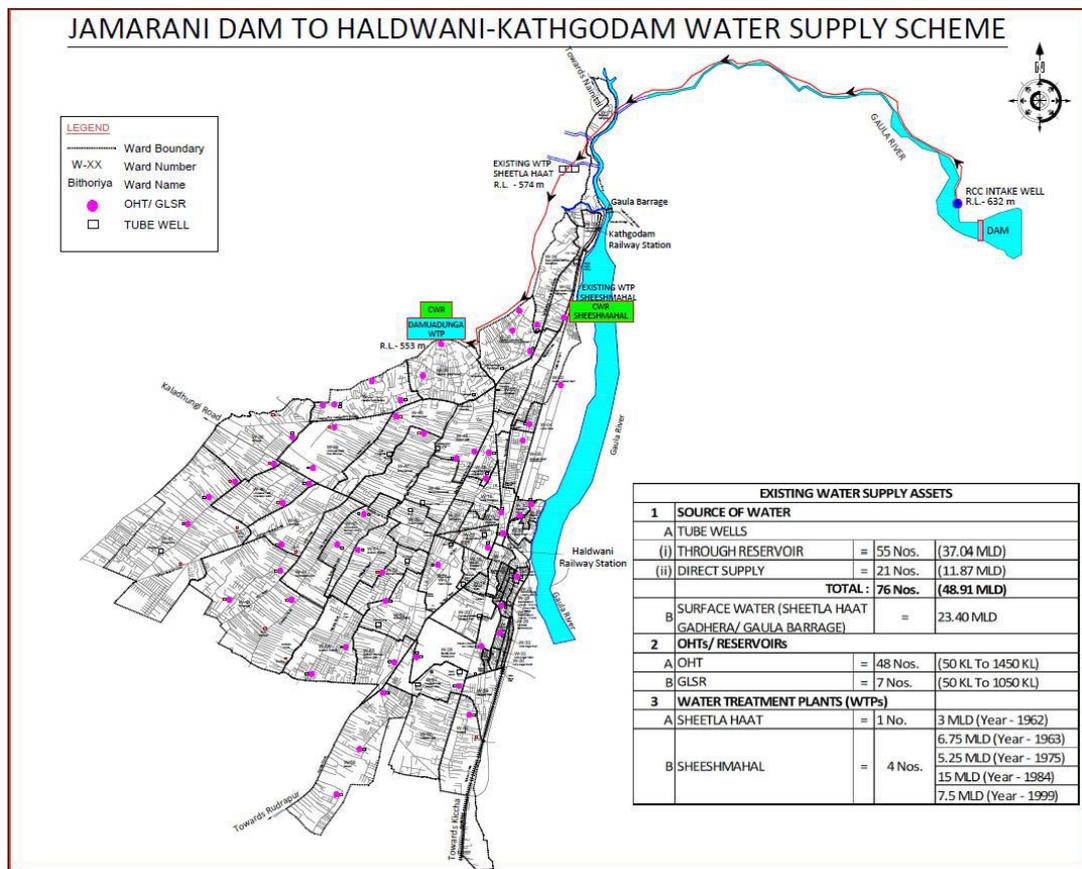
- i. Construction of ground water recharge pits.
- ii. Conversion of existing soak pits into ground water recharge structure.
- iii. The implementation of Jamrani Water Supply Scheme will be helpful to resolve the water issues present in the city.

Map 31: Map of Haldwani cum Kathgodam Water Supply Scheme



Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani)

Map 32: Jamarani Dam to Haldwani cum Kathgodam Water Supply Scheme



Source: (Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani)

The above may be implemented. Further alongwith this it is proposed that:

- a) **The State Government of Uttarakhand should undertake the following:**
 - i. **Enforce regulations on groundwater extraction** including the issuance of permits and the installation of meters for large users, to manage sustainable use and prevent over-extraction.
 - ii. **Develop a comprehensive groundwater and surface-water monitoring program** to regularly assess water quality, identify contamination sources, and take corrective actions to protect groundwater resources.
- b) **UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following:**
 - i. **Create protected buffer zones** around natural water sources to prevent pollution and encroachment, ensuring that water quality and ecosystem health are maintained.
 - ii. **Establish advanced water treatment facilities** to recycle and reuse wastewater for non-potable purposes such as gardening, cleaning, and industrial uses should be encouraged.

	<p>c) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam on PPP model should collaborate with the local NGOs, SHGs, Government Institutes and other willing volunteers to conduct Water Conservation Campaigns to overcome any possible future water crisis (if any) due to overtourism or overextraction of water.</p>
04.	Water Quality Issues
	<p>a) <u>As per the UUSDA the following has been proposed for the screening of Water Quality based on the standards:</u></p> <ol style="list-style-type: none"> i. On Drinking Water Quality Standards by WHO ii. Surface Water Quality Classification Criteria by Central Pollution Control Board. <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p> <p>a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following:</p> <ol style="list-style-type: none"> i. Develop strict measures to protect water sources from pollution and encroachment by establishing Buffer Zones around water bodies, restrict human activities near water sources, and prevent illegal dumping of waste. ii. Implement a robust water quality monitoring program to regularly test and analyze the water. iii. Encourage community participation in water quality monitoring and protection initiatives. iv. Conducting Public Awareness Campaigns to educate residents about the importance of water quality and the risks associated with contaminated water. v. Providing training and capacity building programs for the staff involved in water quality management and monitoring. vi. Regular maintenance and cleaning of water supply infrastructure. Investing in advanced water treatment technologies. vii. Develop emergency response plan to deal with water quality incidents promptly. Like protocols for issuing advisories, conducting investigations, and providing alternative water sources if necessary. viii. Install Water Recycling Plants so that wastewater can be recycled and used again. ix. Upgrade Wastewater Treatment Plants to ensure all sewage and wastewater undergo proper treatment before being discharged into the natural source of water.
05.	Upgradation of Water Supply Infrastructure
	<p>a) <u>Under the Integrated Urban Infrastructure Development Project, Haldwani, UUSDA has proposed to:</u></p> <ol style="list-style-type: none"> i. Implement metering in the city to monitor the water supplied, ii. Provide piped water to 39,716 households in the city from ward number 34 to 43,45(20%), 46 to 56, 57(30%), iii. Create new water pipeline network of 766 km length,

	<ul style="list-style-type: none"> iv. Construct 14 new water storage tanks and utilize 25 existing tanks and v. Construct 8 new tubewells and rehabilitate 37 existing tubewells in the city. vi. This policy also aims to rejuvenate the natural gravity source of water. <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p> <ul style="list-style-type: none"> a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following for the entire city of Haldwani cum Kathgodam (i.e. from Ward 1 to Ward 60): <ul style="list-style-type: none"> i. Installation of pressure management systems to optimize water pressure and reduce leakages in the distribution network. ii. Integrated Asset Management plan can help to prioritize and schedule the maintenance, repair, and replacement of water supply infrastructure for the future. iii. GIS Mapping to accurately map the water supply network helps in better planning, maintenance, and management of the infrastructure. iv. Training and capacity building programs for the staff involved in the operation and maintenance of the water supply system. v. Implementation of smart water management technologies such as SCADA (Supervisory Control and Data Acquisition) systems for real-time monitoring and control of the water supply network. These systems can detect leaks, monitor pressure, and optimize the distribution system. vi. Regular Maintenance and Inspections by the Authorities.
06.	Trained Professionals
	<p><u>It is proposed that:</u></p> <ul style="list-style-type: none"> 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, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should develop and implement: <ul style="list-style-type: none"> ✓ Capacity Building and Training Programmes among the local government employees. ✓ Knowledge Dissemination Programmes among the local government employees and the local residents.
07.	Climate Change Impacts
	<p><u>It is proposed that:</u></p> <ul style="list-style-type: none"> a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam in collaboration should undertake the following: <ul style="list-style-type: none"> 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.

	<p>iii. Implement Integrated Water Resource Management (IWRM) by:</p> <ul style="list-style-type: none"> ✓ 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. ✓ Develop Early Warning Systems for floods and water shortages using real-time data and forecasting tools.
08.	Illegal Connections and Water Theft and Water Governance and Management
	<p>a) <u>As per the UUSDA the following has been proposed:</u></p> <ul style="list-style-type: none"> i. Consumer connection with Automatic Meter Reading (AMR) to provide water to consumers and measure water usage. <p>• <u>Along with this, for the entire city solutions like:</u></p> <ul style="list-style-type: none"> a) Intensive monitoring and regular inspections should be conducted by the authorities to prevent any water theft. <p><u>The above may be implemented. Further alongwith this it is proposed that:</u></p> <p>a) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam should undertake the following:</p> <ul style="list-style-type: none"> i. Invest in Smart Water Management System by: <ul style="list-style-type: none"> ✓ 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.

	<ul style="list-style-type: none">iv. Enforce Strict Regulations and Penalties on industries, businesses and households to prevent the direct discharge of untreated wastewater into the natural source of water.b) UJS, Haldwani cum Kathgodam and UKPJN, Haldwani cum Kathgodam on PPP model should collaborate with the Police Department, local NGOs, SHGs, Government Institutes and other willing volunteers to:<ul style="list-style-type: none">i. Identify Defaulters and Implement Strict Fines for activities like theft of water from the natural source of water or littering waste in the natural source of water.ii. Build and Implement Awareness Campaigns and Workshops at Community Level to educate people about:<ul style="list-style-type: none">✓ Rainwater Harvesting System and its benefits to reduce dependency on natural source of water and promote conservation of water.✓ Community Based Water Management Initiatives.
--	---

Annexure A

Annexure A

Details of Documents Collected from Various Departments in Haldwani cum Kathgodam

Figure 21: Ward Details and Ward Wise Population List of Municipal Corporation, Haldwani cum Kathgodam

नगर निकाय का नाम :- नगर निगम हल्द्वानी-काठगोदाम (नैनीताल)
प्रारूप -1

क. सं.	वार्ड का नाम	जनसंख्या 2011 के अनुरूप	वार्ड की सीमा		वार्ड में सम्मिलित मोहल्लों का नाम
1	रानीबाग काठगोदाम	4987	पूरब	गौला नदी का पश्चिमी किनारा / नगर निगम की सीमा ।	रानीबाग ,काठगोदाम ,हाजी मोहल्ला नईबस्ती बद्रीपुरा ।
			पश्चिम	नैनीताल मोटर मार्ग एवं नगर निगम की सीमा लाईन ।	
			उत्तर	नगर निगम की सीमा लाईन ।	
			दक्षिण	हल्द्वानी काठगोदाम बाईपास रोड एवं वार्ड नं.2 की सीमा लाईन ।	
2	काठगोदाम दमुवाढूंगा	4990	पूरब	सिचाई विभाग की नहर एवं नैनीताल मोटर मार्ग ।	रेलवे कालोनी काठगोदाम दमुवाढूंगा ।
			पश्चिम	नगर निगम की पुरानी सीमा लाईन एवं नहर कवरिंग सडक मार्ग ।	
			उत्तर	हल्द्वानी काठगोदाम बाई पास एवं वार्ड नं. एक की सीमा लाईन ।	
			दक्षिण	वार्ड नम्बर पांच की उत्तरी सीमा ।	
3	हरीपुर कर्नल वार्ड	4421	पूरब	गोला नदी का पश्चिमी किनारा / नगर निगम सीमा लाईन ।	श्रमिक बस्ती शीस महल वैशाली कालोनी वेलेजली लाज ।
			पश्चिम	नैनीताल मोटर मार्ग	
			उत्तर	कोलटेक्स / वार्ड नम्बर दो एवं वार्ड नम्बर एक की सीमा लाईन ।	
			दक्षिण	हरिपुर कर्नल वार्ड की बाउण्डरी एवं वेलेजली लाज की दक्षिणी बाउण्डरी ।	
4	आवास विकास	4947	पूरब	गोला नदी / नगर निगम की सीमा लाईन	आवास विकास नालापार मुखर्जी कम्पाण्ड एवं न्यू पार्क ।
			पश्चिम	वा0 न0 3 की सीमा लाईन एवं नैनीताल मोटर मार्ग	
			उत्तर	हरिपुर कर्नल वार्ड की दक्षिणी बाउण्डरी एवं वेलेजली लाज की दक्षिणी बाउण्डरी	
			दक्षिण	आवास विकास को जाने वाली सडक व वार्ड नं.6 को उत्तरी बाउण्डरी ।	

1

पोलीसीट	4910	पूरब	नैनीताल मोटर मार्ग	दमुवाढूंगा पोलीसीट ।
		पश्चिम	नहर कवरिंग सडक मार्ग ।	
		उत्तर	वार्ड नम्बर दो की दक्षिणी बाउण्ड्री ।	
		दक्षिण	वार्ड नम्बर सात की उत्तरी बाउण्ड्री ।	
6 सुभाष गोबिन्दपुरा	नगर 4433	पूरब	गोला नदी का पश्चिमी किनारा/नगर निगम की सीमा लाईन ।	सुभाष नगर गोबिन्दपुरा आदर्श कालोनी गुरुनानाकपुरा ।
		पश्चिम	नैनीताल मोटर मार्ग एवं वार्ड नम्बर सात की बाउण्डरी ।	
		उत्तर	आवास विकास को जाने वाली सडक/वार्ड नम्बर चार की दक्षिणी बाउण्डरी	
		दक्षिण	वार्ड नम्बर सात की बाउण्डरी एवं आर्मी कैन्ट की दक्षिणी बाउण्डरी ।	
7 भोटिया गोरखपुर	पडाव 4849	पूरब	नैनीताल मोटर मार्ग /वार्ड नम्बर छः बारह एवं पन्द्रह की बाउण्डरी ।	भोटियापडाव मल्लागोरखपुर सारत्रीकुंज ।
		पश्चिम	कैनाल सडक एवं वार्ड नम्बर दस -ग्यारह की बाउण्डरी ।	
		उत्तर	वार्ड नम्बर प्रांच की दक्षिणी सीमा लाईन	
		दक्षिण	वार्ड नम्बर सोलह,वार्ड न0 11, वार्ड न0 8 की सीमा लाईन ।	
8 जगदम्बा कुल्यालपुरा	नगर 4952	पूरब	दमुआढूगां,कैनाल रोड एवं नवाबी रोड	जौहार नगर जबदम्बानगर कुल्यालपुरा ।
		पश्चिम	मुखानी नहर	
		उत्तर	वार्ड न0 7 की सीमा ।	
		दक्षिण	वार्ड नम्बर नौ की उत्तरी सीमा ।	
9 तल्ली बमौरी ।	4352	पूरब	नवाबी रोड	महेश नगर आनन्दपुरी ।
		पश्चिम	मुखानी नहर	
		उत्तर	वार्ड नम्बर आठ की सीमा	
		दक्षिण	बर्षाती नहर ।	
10 मल्ला गोरखपुर	4901	पूरब	मल्ला गोरखपुर	सखावतगंज गुरुतेग बहादुर मार्ग ।
		पश्चिम	नवाबी रोड ।	
		उत्तर	नवाबी रोड एवं कैनाल सडक का मिलान बिन्दु ।	
		दक्षिण	वार्ड नम्बर सात की सीमा लाईन एवं बर्षाती नहर ।	

11	तल्लागोरेखपुर	4732	पूरब	नैनीताल मोटर मार्ग	आनन्दबाग बट्टीपुरा ,पाण्डे निवास खाम बंगला ।
			पश्चिम	वर्षाती नहर एवं कालाढूंगी का मिलान बिन्दु (मुखानी चौराहा)	
			उत्तर	वर्षाती नहर ।	
			दक्षिण	कालाढूंगी रोड	
12	राजेन्द्र नगर	4461	पूरब	वार्ड नम्बर तेरह की सीमा लाईन ।	राजेन्द्र नगर लाईन नम्बर एक ,लाईन नम्बर दो लाईन नम्बर तीन ।
			पश्चिम	रेलवे लाईन ।	
			उत्तर	आर्मी कैंन्ट की दक्षिणी सीमा ।	
			दक्षिण	रेलवेफाटक / टनकपुर रोड	
13	राजपुरा पडाव	4900	पूरब	गोला नदी का पश्चिमी किनारा /नगर निगम की सीमा लाईन ।	चौथराम का पडाव राजपुरा नई बस्ती ।
			पश्चिम	वार्ड नम्बर बारह की पूर्वी लाइन ।	
			उत्तर	आर्मी कैंन्ट की दक्षिणी सीमा	
			दक्षिण	वार्ड नम्बर चौदह की उत्तरी सीमां ।	
14	टनकपुर रोड	4870	पूरब	गोला नदी का पश्चिमी किनारा /नगर निगम की सीमा लाईन ।	टनकपुर रोड वासी कालोनी गोलचा कमपाण्ड जाम फौवट्टी और बजरी कम्पनी ।
			पश्चिम	वार्ड नम्बर बारह की बाउण्डरी एवं रेलवे लाईन ।	
			उत्तर	वार्ड नम्बर बारह एवं तेरह की सीमा लाईन	
			दक्षिण	वार्ड नम्बर पन्द्रह की सीमा लाईन ।	
15	किदवई नगर ।	4939	पूरब	गोला नदी का पश्चिमी किनारा /नगर निगम की सीमा लाईन ।	रेलवे कालोनी जवाहर नगर डोलक बस्ती किदवई नगर ।
			पश्चिम	तिकोनिया वर्कशाप लाईन एवं वार्ड नम्बर सोलह सीमा लाईन ।	
			उत्तर	वार्ड नम्बर चौदह की सीमा लाईन एवं रेलवे लाईन ।	
			दक्षिण	चोरगलिया रोड /वार्ड नम्बर सोलह एवं चौबीस की सीमा लाईन ।	
16	बाजार क्षेत्र	3702	पूरब	वार्ड नम्बर पन्द्रह की सीमा लाईन एवं गन्दा जाला ।	पटेल चौक तहसील क्षेत्र रेलवे बाजार बढई लार्डन सदर बाजार मीर. मार्ग मंगल पडाव ।
			पश्चिम	नैनीताल बरेली मोटर मार्ग एवं वार्ड नम्बर 18 की सीमा लाईन	
			उत्तर	वार्ड नम्बर 07 की सीमा लाईन एवं आर्य समाज रोड ।	

3

17	हीरानगर	4468	दक्षिण	अम्बेदकर नगर की उत्तरी सडक/वार्ड न0 27 की सीमा ।	हीरा नगर गुसाई नगर सतीश कालोनी संजय कालोनी सांगुडी गार्डन हरीपुर सूखा ।
			पूरब	वार्ड नम्बर 18 की सीमा लाईन ।	
			पश्चिम	नहर कवरिंग मार्ग एवं हरीपुर सूखा सीमा लाईन ।	
			उत्तर	कालाढूगी रोड	
18	शिवपुरी भवानी गंज	4404	दक्षिण	रामपुर रोड एवं आईटी आई रोड ।	भोलानाथ गार्डन भवानी गंज शिवपुरी आर के गार्डन कारखाना बाजार ।
			पूरब	कारखाना बाजार रोड एवं नैनीताल बरेली मोटर मार्ग ।	
			पश्चिम	वार्ड नम्बर सत्तरह की सीमा लाईन ।	
			उत्तर	कालाढूगी रोड	
19	रामपुर रोड	4285	दक्षिण	रामपुर रोड एवं वार्ड नम्बर 19 उत्तरी सीमा ।	रामपुर रोड गली एक सें ग्याह तक ।
			पूरब	नैनीताल बरेली मोटर मार्ग	
			पश्चिम	रामपुर रोड	
			उत्तर	वार्ड नम्बर 18 की सीमा लाईन ।	
20	पर्वतीय मोहल्ला हिमालया फार्म ।	4390	दक्षिण	वार्ड नम्बर 20 उत्तरी सीमा ।	पर्वतीय मोहल्ला हिमालय फार्म मेडिकल कालेज एफटीआई धर्मपाल का बगीचा ।
			पूरब	नैनीताल बरेली मोटर मार्ग एवं वार्ड नम्बर 28 की सीमा ।	
			पश्चिम	रामपुर रोड	
			उत्तर	वार्ड नम्बर 19 की दक्षिणी सीमा लाईन	
21	बनभूलपुरा लाईन नम्बर 01से 07 तक ।	4199	दक्षिण	गाधी स्कूल की उत्तरी सडक बरेली रोड सें रामपुर रोड तक ।	लाईन नम्बर एक सें सात तक बनभूलपुरा ।
			पूरब	वार्ड नम्बर बाईस की पश्चिमी सीमा लाईन	
			पश्चिम	गंदा नाला ।	
			उत्तर	नयाबाजार रोड/चोर गलियां रोड	
22	बनभूलपुरा लाईन नम्बर 08से 13 तक ।	4711	दक्षिण	वार्ड नम्बर सत्ताईस की सीमा लाईन ।	लाईन नम्बर आठ सें चौदह बनभूलपुरा ।
			पूरब	वार्ड नम्बर तेईस की पश्चिमी सीमा लाईन	
			पश्चिम	वार्ड नम्बर 21 की पूर्वी सीमा ।	
			उत्तर	चोर गलियां रोड ।	
23	बनभूलपुरा लाईन नम्बर 14 सें 16 तक ।	4997	दक्षिण	वार्ड नम्बर सत्ताईस की सीमा लाईन ।	लाईन नम्बर पन्द्रह सोलह बनभूलपुरा ।
			पूरब	वार्ड नम्बर चौबीस की पश्चिमी सीमा/लाईन नम्बर सत्तरह की सडक ।	
			पश्चिम	वार्ड नम्बर बाईस की पूर्वी सीमा एवं वार्ड नम्बर सत्ताईस की सीमा लाईन ।	

4

24	गफूर बरती बनभूलपुरा ।	4906	उत्तर	चोर गलियां रोड	गफूर बरती चिराग अली शाह बनभूलपुरा । लाईन नम्बर सोलह सत्तरह का पार्ट ।
			दक्षिण	वार्ड छब्बीस एवं सत्ताईस की सीमा लाईन	
			पूरब	गोला नदी का पश्चिमी किनारा/नगर निगम सीमा लाईन एवं रेलवे लाईन ।	
			पश्चिम	वार्ड नम्बर तेईस एवं पन्द्रह की सीमा लाईन ।	
			उत्तर	वार्ड नम्बर पन्द्रह की सीमा लाईन ।	
25	बनभूलपुरा लाईन नम्बर 17 -20 तक	5032	पूरब	रेलवे लाईन ।	नई बस्ती बनभूलपुरा पार्ट
			पश्चिम	वार्ड नम्बर चौबीस की सीमा लाईन एवं लाईन नम्बर सत्तरह की मुख्य सडक ।	
			उत्तर	वार्ड नम्बर चौबीस की दक्षिणी सीमा	
			दक्षिण	वार्ड नम्बर छब्बीस की उत्तरी सीमा ।	
26	नई बस्ती बनभूलपुरा	5067	पूरब	रेलवे लाईन एवं इंदिरा नगर की पहली सडक ।	नई बस्ती बनभूलपुरा
			पश्चिम	वार्ड नम्बर तेईस,सत्ताईस एवं अठठाईस की सीमा लाईन	
			उत्तर	वार्ड तेईस एवं पच्चीस की सीमा लाईन ।	
			दक्षिण	ठोकर लाईन एवं वार्ड नम्बर इकतीस की उत्तरी सीमा लाईन ।	
27	गाधी नगर ।	4237	पूरब	वार्ड नम्बर तेईस एवं छब्बीस की पश्चिमी सीमा	गाधी नगर अम्बेदकर नगर ।
			पश्चिम	बरेली रोड एवं गंदा नाला	
			उत्तर	वार्ड नम्बर सोलह इक्कीस,बाईस की दक्षिणी सीमा ।	
			दक्षिण	गन्दा नाला एवं वार्ड नम्बर अठठाईस की सीमा लाईन	
28	बरेली रोड धर्मपुरा	4157	पूरब	गंदा नाला एवं वार्ड नम्बर 29 की सीमा लाईन ।	धर्मपुरा सब्बर का बागीचा कब्रिस्तान क्षेत्र उजाला नगर पार्ट उत्तर उजाला दानसिंह मोहन सिंह बगीचा कृष्णा कालोनी एफटीआई एवं शीसम बाग ।
			पश्चिम	वार्ड नम्बर बीस की सीमा लाईन ,बरेली रोड-रामपुर रोड ।	
			उत्तर	गंदा नाला ,गाधी स्कूली की उत्तरी सडक बरेली रोड सें रामपुर रोड तक ।	
			दक्षिण	मण्डी के सामने गोला नदी को जाने वाली सडक,मण्डी के उत्तर की सडक जो	

नगर आयुक्त

5

				ट्रांसपोर्ट नगर को जाती है ।	
	इंदिरा नगर	5051	पूरब	गंदा नाला	इन्द्रा नगर पश्चिमी पार्ट ।
			पश्चिम	वार्ड नम्बर अठ्ठाईस की सीमा लाईन	
			उत्तर	कब्रिस्तान की बाउण्डरी वाल ।	
			दक्षिण	गंदा नाला / मण्डी से गोला सडक ।	
30	इंदिरा नगर दक्षिणी	4422	पूरब	इंदिरा नगर की छोटी सडक	काबुल का बगीचा पार्ट इन्द्रा नगर पप्पू का बगीचा पार्ट ।
			पश्चिम	गंदा नाला	
			उत्तर	वार्ड नम्बर इकतीस की दक्षिणी सीमा	
			दक्षिण	मण्डी से गोला सडक ।	
31	कम्पनी बाग ।	4713	पूरब	इंदिरा नगर की छोटी सडक ।	मलिक का बगीचा कम्पनी बाग और इंदिरा नगर ।
			पश्चिम	गंदा नाला ।	
			उत्तर	वार्ड नम्बर छब्बीस की सीमा लाईन	
			दक्षिण	वार्ड तीस की उत्तरी सीमा लाईन ।	
32	इंदिरा नगर पश्चिमी	4922	पूरब	इंदिरा नगर की बड़ी सडक	इंदिरानगर , मोहम्मदी चौक , दुर्गा मंदिर ।
			पश्चिम	इन्दिरा नगर की छोटी सडक	
			उत्तर	वार्ड नम्बर छब्बीस की सीमा लाईन	
			दक्षिण	मण्डी से गोला सडक ।	
33	इंदिरा नगर पूर्वी ।	4911	पूरब	रेलवे लाईन	इंदिरा नगर बड़ी सडक से पूर्व ।
			पश्चिम	इंदिरा नगर की बड़ी सडक एवं छोटी सडक	
			उत्तर	ठोकर लाईन ।	
			दक्षिण	मण्डी से गोला सडक ।	
34	ब्यूरा दमुआडूंगा बन्दो बरती ।	4912	पूरब	नहर कवरिंग रोड	हीरागढ दलीप सिंह ब्यूराखाम बन्दोबरती कोर्ता दमुआडूंगा बंदोबरती भाग ।
			पश्चिम	जंगल की सीमा	
			उत्तर	नगर निगम की पुरानी बाउण्डरी वार्ड नम्बर एक व दो की सीमा लाईन ।	
			दक्षिण	वार्ड नं. 35 की सीमा लाईन ।	
35	जवाहर ज्योति आंशिक दमुआडूंगा बन्दो बरती ।	4954	पूरब	नहर कवरिंग रोड	दमुआडूंगा बन्दोबरती भाग जवाहर ज्योति भाग दमुआडूंगा खाम भाग ।
			पश्चिम	जमरानी को जाने वाली रोड ।	
			उत्तर	वार्ड नं.34 की सीमा व जंगल की सीमा	

6

36	जवाहर ज्योति प्रथम	4950	दक्षिण	नहर कवरिंग रोड ।	जवाहर ज्योति भाग दमुआडूंगा बन्दोबस्ती भाग ।
			पूरब	जमरानी को जाने वाली रोड ।	
			पश्चिम	जे.डी.एम. को जाने वाली रोड	
			उत्तर	जंगल की सीमा लाईन ।	
37	जवाहर ज्योति द्वितीय	4954	दक्षिण	चम्बल को जाने वाली रोड ।	जवाहर ज्योति भाग हरिपुर सील . हरिपुर गांगू बिठौरिया नम्बर दो भाग ।
			पूरब	जे.डी.एम. स्कूल को जाने वाली सडक	
			पश्चिम	पनियाली तोक को जाने वाली सडक	
			उत्तर	जंगल की फायर लाईन ।	
38	बिठौरिया ।	4683	दक्षिण	चौपला को जाने वाली सडक ।	पनियाली तोक बिठौरिया नम्बर दो भाग बिठौरिया नम्बर एक भाग ।
			पूरब	पनियाली तोक को जाने वाली सडक ब्लाक कार्यालय के सामने उत्तर को जापने वाली सडक एवं भगवानपुर को जाने वाली सडक ।	
			पश्चिम	धुनी नं.एक की रोड व कटधरियां रोड ।	
			उत्तर	जंगल की फायल लाईन सागौन बृक्षारोपड छोडते हुये	
39	लोहरिया साल मल्ला धार बिठौरियां ।	4880	दक्षिण	पानी की टंकी वाली दक्षिण वाली रोड जो धुनी सडक से मिलती है ।	बिठौरिया नम्बर एक भाग लोहरिया साल मल्ला भाग चीनपुर भाग ।
			पूरब	चीनपुर के मध्य की सडक ततपश्चात उचापुल से चौपलें को जाने वाली सडक	
			पश्चिम	ब्लाक के सामने से नहर तक जाने वाली सडक ।	
			उत्तर	नहर एवं सडक चम्बलपुर वाली ।	
40	लोहरिया साल तल्ला हिम्मतपुर मल्ला ।	4680	दक्षिण	कालादूगी मुख्य मार्ग	लोहरिया साल तल्ला भाग ।
			पूरब	उचापुल चौराहे से दक्षिण को जाने वाली सडक जो कमलुआगांजा को मिलती है ।	
			पश्चिम	ब्लाक कार्यालय के पूरब से भगवानपुर को जाने वाली सडक ।	
			उत्तर	कालादूगी मुख्य मार्ग	
41	भगवानपुर	4393	दक्षिण	प्राथमिक विद्यालय के उत्तर से जाने वाली सडक जो भगवानपुर मार्ग में मिलती है ।	भगवानपुर जयसिंह भाग भगवानपुर बिचला भगवानपुर तल्ला हिम्मतपुर
			पूरब	कमलुआ गांजा नरसिंह तल्ला की पूर्वी सीमा की सडक	
			पश्चिम	धुनी की पक्की सडक ।	

नम्र आभार

7

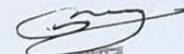
			उत्तर	प्राथमिक विद्यालय से पश्चिम दिशा की ओर धुनी मार्ग के मिलान बिन्दु तक	तल्ला कमलुआगांजा नरसिंह तल्ला कमलुआ गांजा नरसिंह मल्ला कमलुआगांजा गौड ।
			दक्षिण	जंगल की सीमा तक	
42	हरिनगर	4738	पूरब	कमलुआ गांजा मुख्य मोटर मार्ग व आरटीओ रोड ।	हरिनगर भाग हिम्मतपुर मल्ला हरिपुर नायक भाग ।
			पश्चिम	उंचापुल से हिम्मतपुर को जाने वाला मार्ग	
			उत्तर	कालादूगी मुख्य मोटर मार्ग	
			दक्षिण	आर.टी.ओ.रोड होमगार्ड को जाने वाली सडक ।	
43	छडायल	4799	पूरब	रकसिया बर्षाती नाला ।	हरिपुर नायक भाग जयदेवपुर छडायल नयाबाद छडायल सुयाल छडायल नायक ।
			पश्चिम	कमलुआ गांजा हरिपुर को जाने वाला मार्ग ।	
			उत्तर	कमलुआगांजा रोड होमगार्ड कार्यालय से आर.टी.ओ.रोड तक	
			दक्षिण	ग्राम जयदेवपुर के दक्षिण से आरटीओ रोड हाते हुये बिरला स्कूल की रोड जो रकसिया नाले में मिलती है ।	
44	कुसुम खेडा पश्चिमी	4712	पूरब	गैस गोदाम रोड व आर के टैन्ट रोड	कुसुम खेडा भाग एकता बिहार भूमियां बिहार उत्तरांचल बिहार जोशी बिहार मोती नगर मधुबन संगम बिहार ।
			पश्चिम	ग्राम कमलुआगांजा रोड व आरटीओ आफिस रोड ।	
			उत्तर	कालादूगी मुख्य रोड ।	
			दक्षिण	ग्राम कुसुमखेडा की दक्षिणी सीमा पक्की सडक ।	
45	कुसुम खेडा पूर्वी व कोहली कालोनी ।	4621	पूरब	रकसिया नाला ।	कुसुमखेडा भाग आनन्दीपुर कृष्णा बिहार शिव बिहार गुरुकुल बिहार ।
			पश्चिम	आर.के.टैन्ट रोड गैस गोदाम रोड तथा कालादूगी रोड से यूनियन बैंक को जाने वाली रोड ।	
			उत्तर	राम मंदिर रोड ।	
			दक्षिण	छडायल नायक की उत्तरी सीमा ।	
46	बिठौरियां पश्चिमी	4512	पूरब	नारायण नगर रोड	बिठौरिया नम्बर एक भाग चीनपुर भाग
			पश्चिम	उचापुल को जाने वाली सडक व चीनपुर की सडक ।	
			उत्तर	नहर व चम्बलपुर की सडक ।	

	बिठौरिया पूती	4632	पूरब	रकसिया नाला ।	बिठौरिया नम्बर एक भाग ।
			पश्चिम	नारायण नगर रोड	
			उत्तर	नारायण नगर रोड	
			दक्षिण	कालाढूगी रोड व राम मंदिर रोड ।	
48	बमौरी मल्ली	4868	पूरब	पनचक्की से दक्षिण की ओर जाने वाली नहर कवरिंग रोड ।	बमौरी तल्ली दमुआडूगां बन्दोबरस्ती भाग बमौरी तल्ली बन्दोबरस्ती भाग ।
			पश्चिम	रकसिया नाला	
			उत्तर	पनचक्की से चम्बलपुल को जाने वाली रोड	
			दक्षिण	गोबिन्द सिंह कुंजवाल के घर को जाने वाली व बमौरी मल्ली की दक्षिणी सीमा मार्ग ।	
49	बमौरी बन्दोबरस्ती ।	4777	पूरब	नहर कवरिंग रोड	बमौरी तल्ली बन्दोबरस्ती भाग
			पश्चिम	रकसिया नाला ।	
			उत्तर	बमौरी मल्ली की दक्षिणी सीमा व गोबिन्द सिंह कुंजवाल के घर को जाने वाला मार्ग	
			दक्षिण	पप्पू पान भण्डार से पश्चिम को जाने वाली सडक व श्याम बिहार फेज -2 से लालडांग को मिलने वाली सडक ।	
50	आदर्श नगर ।	4906	पूरब	नहर कवरिंग रोड ।	बमौरी तल्ली खाम बमौरी तल्ली बन्दोबरस्ती श्याम बिहार फेज दो मुखानी बसन्त बिहार एवं शिवपुरम ।
			पश्चिम	रकसिया नाला व पीली कोठी रोड ।	
			उत्तर	पप्पू पान भण्डार से पश्चिम को जाने वाली सडक व श्याम बिहार फेज -2 से लालडांग को मिलने वाली सडक ।	
			दक्षिण	खडिया फैक्ट्री रोड ।	
51	मुखानी प्रथम ।	4855	पूरब	गूल व पीली कोठी रोड ।	बमौरी तल्ली खाम भाग मुखानी शिवपुरम चन्द्रावती कालोनी देवेन्द्र पुरी । बृजवासी कालोनी भगत देशराज कालोनी ।
			पश्चिम	रकसिया नाला ।	
			उत्तर	कालाढूगी रोड	
			दक्षिण	छडायल रोड ।	
52	मुखानी द्वितीय	4984	पूरब	नहर कवरिंग रोड व जज फार्म के मध्य की रोड ।	छोटी मुखानी जज फार्म पश्चिमी ।
			पश्चिम	गूल व पीलीकोठी रोड ।	
			उत्तर	खडिया फैक्ट्री रोड	
			दक्षिण	आई.टी. आई. रोड ।	



9

54	मुखानी तृतीय	4671	पूरब	नहर कवरिंग रोड जंगलात रोड रामपुर रोड।	रूप नगर जज फार्म पूर्वी गब्दा डहरिया हरीपुर सूखा आईटीआई क्षेत्र।
			पश्चिम	जज फार्म के मध्य की रोड धान मिल से दक्षिण की जाने वाली रोड	
			उत्तर	खडिया फ़ैक्ट्री रोड पर भूपाल सिंह नेगी के घर से पूर्व की ओर नहर कवरिंग से मिलने वाली रोड।	
			दक्षिण	वार्ड- 55 की उत्तरी सीमा।	
54	मुखानी चतुर्थ	4491	पूरब	धान मिल से सेन्ट लारेन्स स्कूल को जाने वाली सडक।	छडायल सुयाल भाग नीलियम कालोनी फार्म नम्बर तीन।
			पश्चिम	रकसिया नाला।	
			उत्तर	धान मिल में छडायल को जाने वाली सडक।	
			दक्षिण	महर्षि स्कूल में विडला स्कूल को जाने वाली रोड।	
55	मुखानी पंचम मानपुर उत्तर।	4466	पूरब	रामपुर रोड	मानपुर उत्तर भाग डहरिया मुखानी सीएमटी कालोनी गोपीनाथ पार्क।
			पश्चिम	धान मिल में सेन्ट लारेन्स को जाने वाली रोड।	
			उत्तर	पार्वती विहार से डहरिया को जाने वाली रोड।	
			दक्षिण	रामपुर रोड से महर्षि स्कूल को जाने वाली सडक।	
56	मानपुर	4924 (4287+637)	पूरब	वन भूमि।	मानपुर उत्तर भाग, मानपुर पूरब, मानपुर पश्चिम, जीतपुर नेगी।
			पश्चिम	ग्राम जीतपुर (वार्ड सं0 56)	
			उत्तर	मानपुर पूरब	
			दक्षिण	गौरापडाव बाईपास सडक बाद राजस्व ग्राम बैडापोखरा/वन क्षेत्र।	
57	हल्द्वानी तल्ली मानपुर उत्तर	4317	पूरब	बरेली रोड।	मानपुर उत्तर भाग हल्द्वानी तल्ली भाग मण्डी समिति अलकनन्दा कालोनी मोरारजी नगर।
			पश्चिम	रामपुर रोड।	
			उत्तर	मण्डी बाईपास रोड जंगल।	
			दक्षिण	मेरारजी नगर से सतवाल पेट्रोल पम्प को जाने वाली रोड व टीपी नगर रोड।	
58	हल्द्वानी तल्ली	4576	पूरब	बरेली रोड।	हल्द्वानी तल्ली भाग ओल्ड आई0टी0आई0 खन्ना फार्म।
			पश्चिम	मण्डी बाईपास।	
			उत्तर	मेरारजी नगर से सतवाल पेट्रोल पम्प को जाने वाली सडक।	
			दक्षिण	ग्राम धौलाखेडा व हल्द्वानी तल्ली की सीमा।	
59	गौजा जाली उत्तर	4235	पूरब	रेलवे लाईन।	गौजाजाली उत्तर भाग।
			पश्चिम	बरेली रोड।	
			उत्तर	शनि बजार।	
			दक्षिण	गूल व पक्का खडन्जा।	


 नगर आयुक्त
 हल्द्वानी

10

60	गौजाजाली	4507	पूरब	तीनपानी काठगोदाम बाईपास रोड।	गौजाजाली उत्तर भाग गौजाजाली बिचली गौजाजाली दक्षिण।
			पश्चिम	बरेली रोड।	
			उत्तर	गूल व पक्का खडन्जा।	
			दक्षिण	ग्राम हरिपुर पूर्णानन्द व हाथीखाल की सीमा।	

(धीराज सिंह गर्ब्याल)
जिलाधिकारी,
नैनीताल।

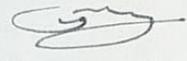

(पंकज उपाध्याय)
नगर आयुक्त
नगर निगम हल्द्वानी-काठगोदाम।

Figure 22: List of Slums in Municipal Corporation, Haldwani cum Kathgodam

नगर निगम, हल्द्वानी-काठगोदाम के अन्तर्गत श्रेणीवार मलिन बस्तियों का विवरण

कार्यालय नगर निगम हल्द्वानी-काठगोदाम
नैनीताल रोड, हल्द्वानी पिन कोड- 263139
(www.Nagarnigamhaldwani.in) toll free no- 8882610000
E-Mail- haldwaninagarnigam@gmail.com दूरभाष- 05946-220035

पत्रांक :- 1600 / दिनांक :- 26-11-2021

सेवा में,
मुख्य विकास अधिकारी,
नैनीताल।
स्थित- विकास भवन,
भीमताल, जिला-नैनीताल।
विषय- प्रधानमंत्री नवीन 15 सूत्रीय कार्यक्रम हेतु बिन्दु संख्या-12 से सम्बन्धित
सूचना का प्रेषण।
महोदय,
उपरोक्त विषयक काम में अवगत कराना है कि नगर निगम हल्द्वानी-काठगोदाम
की सीमान्तर्गत कुल 22 चिन्हित व वर्गीकृत मलिन बस्तियां अवस्थित है, जिनका
विवरण निम्नवत् है।

क्र.सं.	मलिन बस्ती का नाम	श्रेणी	परिवारों की संख्या
1	अम्बेडकर नगर	1	224
2	गौधीनगर	1	665
3	गुसाई नगर	1	130
4	कुल्यालपुरा	1	233
5	बेलेजली लॉज	1	675
6	देवलडुंगा काठगोदाम	1	33
7	बाराछप्पर हीरानगर	1	50
8	मुनगली गार्डन	1	60
9	इन्द्रानगर पश्चिम-ए	1	1850
10	नई बस्ती काठगोदाम	1	440
11	जवाहर नगर-ए	1	334
12	राजेन्द्र नगर-ए	1	180
13	बद्रीपुरा काठगोदाम-ए	1	275
14	बद्रीपुरा काठगोदाम-बी	2	80
15	चिराग अली साह	3	642
16	ढोलक / गफूर बस्ती	3	746
17	इन्द्रानगर पश्चिम-बी	3	640
18	इन्द्रानगर पूर्वी	3	1364
19	जवाहर नगर-बी	3	760
20	नई बस्ती काठगोदाम-बी	3	80
21	राजेन्द्र नगर -बी	3	1651
22	बद्रीपुरा काठगोदाम-सी	3	195
कुल			11307

S. N. A. / N. A.

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Figure 23: Category wise List of Slums in Municipal Corporation, Haldwani cum Kathgodam

सहायक नगर आयुक्त / उप नगर आयुक्त / नगर आयुक्त,

कृपया प्रस्तुत पत्रावली में सलंगन पत्र संख्या 675/सूडा/म0ब0-155/2016 दिनांक 26.11.2016 का अवलोकन करने का कष्ट करें। दिनांक 25.11.2016 को मुख्य सचिव उत्तराखण्ड शासन की अध्यक्षता में आहूत बैठक में निकायों में अवस्थित मलिन बस्तियों की नियमावली के तहत चिन्हित/वर्गीकृत कर दिनांक 29.11.2016 को निदिष्ट प्रारूप पर जिला स्तरीय समिति से अनुमोदन कराकर मेल के माध्यम से प्रेषित करने के निर्देश है।

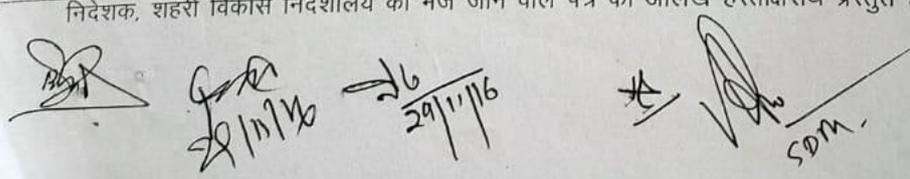
आदेश के अनुपालन में निगम सर्वेयर प्रत्येक टीम प्रगणक, सुपरवाइजर, पटवारी, उपजिलाधिकारी तथा विभिन्न विभागों के तैनात कर्मचारियों द्वारा मलिन बस्ती चिन्हिकरण/वर्गीकरण प्रपत्र तीन प्रतियों में तैयार कर हस्ताक्षर किये गये हैं, विवरण निम्नवत है।

श्रेणी-1			श्रेणी-2			श्रेणी-3		
क्र. सं.	मलिन बस्ती का नाम	अनुमानित परिवार की संख्या	क्र. सं.	मलिन बस्ती का नाम	अनुमानित परिवार की संख्या	क्र.सं.	मलिन बस्ती का नाम	अनुमानित परिवार की संख्या
1	अम्बेडकर नगर	224	01	बद्रीपुरा काठगोदाम-बी	80	01	चिराग अली साह	642
2	गौधीनगर	665				02	ढोलक / गफूर बस्ती	746
3	गुसाई नगर	130				03	इन्दिरा नगर पश्चिम-बी	640
4	कुल्यालपुरा	233				04	इन्दिरा नगर पूर्वी	1364
5	बैलेजली लॉज	675				05	जवाहर नगर-बी	760
6	देवलदूंगा काठगोदाम	33				06	नई बस्ती काठगोदाम-बी	80
7	बाराछप्पर/ हीरानगर	50				07	राजेन्द्र नगर-बी	1651
8	मुनगली गार्डन	60				08	बद्रीपुरा काठगोदाम-सी	195
9	इन्दिरा नगर पश्चिम-ए	1850						
10	नई बस्ती काठगोदाम-ए	440						
11	जवाहर नगर-ए	334						
12	राजेन्द्र नगर-ए	180						
13	बद्रीपुरा काठगोदाम-ए	275						
कुल परिवार		5169	कुल परिवार		80	कुल परिवार		6078

अतः प्रपत्रों पर हस्ताक्षर करने का कष्ट करें। ताकि प्रपत्र जिलाधिकारी कार्यालय को प्रेषित किया जा सके, साथ ही निदेशक, शहरी विकास को भेजी जाने वाली सूचनाएं निम्नवत है।

वर्गीकृत मलिन बस्तियों							
श्रेणी-1		श्रेणी-2		श्रेणी-3		योग	
मलिन बस्तियों की सं०	अनुमानित परिवार की संख्या	मलिन बस्तियों की सं०	अनुमानित परिवार की संख्या	मलिन बस्तियों की सं०	अनुमानित परिवार की संख्या	मलिन बस्तियों की सं०	अनुमानित परिवार की संख्या
13	5169	01	80	08	6078	22	11377

निदेशक, शहरी विकास निदेशालय को भेजे जाने वाले पत्र का आलेख हस्ताक्षरार्थ प्रस्तुत है।



Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Figure 24: List of Vehicles of Municipal Corporation, Haldwani cum Kathgodam

नगर निगम के वाहनों की सूची				
क्र. सं०	वाहन संख्या	वाहन प्रकार		
1	UK 04 CA- 5805	टाटा एस हाइड्रोलिक टिप्पर	}	
2	UK 04 CA- 5808	रिफ्यूज कलेक्टर/ काम्पैक्टर		
3	UK 04 CA- 6732	टाटा 1109		
4	UK04 CB 1803	बैक हो लोडर		
5	UK04 CB 2148	एनिमल कैचर		
6	UK04AE4174	सोनालिका टैक्टर		
7	UK04AE4172	सोनालिका टैक्टर		
8	UK04TB3089	Utility vehicle		only when Req.
9	UK04TB3088	Utility vehicle		
10	UK04CB9223	Garbage Tipper		Plot's garbage removal
11	UK04CB9219	Garbage Tipper		
12	UK04CB9221	Garbage Tipper		
13	UK04CB9226	Garbage Tipper		
14	UK04CB9224	Garbage Tipper		
15	UK04CB9220	Garbage Tipper		
16	UK04AL2799	सोनालिका टैक्टर		
17	UK04CC0587	जटायू वाहन		}
18	6 vechile	Garbage Tipper	- commercial	
	Door to Door waste Colletion ward 34 to 60	Garbage Tipper	35	
	Compactor	7cum	3	
	Door to Door waste Colletion ward 01 to 33 (Magic Gini smartech Solution)	Garbage Tipper	33	
	Compactor	7cum	5	

Handwritten notes:
 - "Burst" written next to rows 3, 12, and 13.
 - "Transportation of waste" written next to row 18.
 - "does to does collection" written next to row 18.
 - "Compa outsourced" written next to row 18.

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Figure 25: Details of Vehicles used by Municipal Corporation, Haldwani cum Kathgodam

नगर निगम हल्द्वानी-काठगोदाम के वाहन का विवरण:-

क्र०स०	वाहन सं०	वाहन का प्रकार	वाहन की स्थिति
✓1	UK04CB8718	बैकहो लोडर	पूर्ण रूप से क्षतिग्रस्त
✓2	UK04AE4173	सोनालिका टैक्टर	पूर्ण रूप से क्षतिग्रस्त
✓3	UK04TB3089	Utility vehicle	पूर्ण रूप से क्षतिग्रस्त
✓4	UK04TB3088	Utility vehicle	पूर्ण रूप से क्षतिग्रस्त
✓5	UK04AL2802	सोनालिका टैक्टर	पूर्ण रूप से क्षतिग्रस्त
✓6	UK04CB9221	Garbage Tipper	पूर्ण रूप से क्षतिग्रस्त
✓7	UK04CB9226	Garbage Tipper	पूर्ण रूप से क्षतिग्रस्त
8	UK04 N- 7801	महेन्द्रा बोलेरो	आंशिक क्षतिग्रस्त
9	UK04 N- 7818	महेन्द्रा बोलेरो	आंशिक क्षतिग्रस्त
10	UK 04 GA 0212	महेन्द्रा बोलेरो	आंशिक क्षतिग्रस्त
✓11	UK04 CB 1803	बैक हो लोडर	आंशिक क्षतिग्रस्त
✓12	Trolley	-	पूर्ण रूप से क्षतिग्रस्त
✓13	Trolley	-	पूर्ण रूप से क्षतिग्रस्त

नगर निगम हल्द्वानी-काठगोदाम द्वारा किराये पर लिये गये:-

क्र०स०	वाहन सं०	वाहन का प्रकार	वाहन की स्थिति
✓1	UK04CB4867	बैकहो लोडर	पूर्ण रूप से क्षतिग्रस्त
✓2	UK04CB4081	बैकहो लोडर	पूर्ण रूप से क्षतिग्रस्त

Rented {

Source: (Nagar Nigam, Haldwani cum Kathgodam , 2024)

Figure 26: Water Tariff: Municipal Corporation, Haldwani cum Kathgodam

कुल जल संयोजन		Dom.	Non-Dom.
		घरेलू	गैर घरेलू
63212		58952	4260

क्र०	भवन मूल्यांकन ASSESSMENT	प्रभावी दरें (Per Month)	
		1/4/2013	1/4/2023 (Per month)
1	मूल्यांकन 360 से कम	102.00	199.92
2	मूल्यांकन 361 से 2000 तक	110.00	215.60
3	मूल्यांकन 2001 से 3500 तक	135.00	264.60
4	मूल्यांकन 3501 से 6000 तक	187.00	407.66
5	मूल्यांकन 6001 से 8000 तक	224.00	488.32
6	मूल्यांकन 8001 से 10000 तक	239.00	521.02
7	मूल्यांकन 10001 से 12000 तक	260.00	566.80
8	मूल्यांकन 12001 से 14000 तक	275.00	599.50
9	मूल्यांकन 14001 से अधिक	375.00	817.50

जल संयोजन शुल्क 250 वर्गमीटर connection charges :

घरेलू जल संयोजन हेतु	7477.00	10577.00	15650.00
अघरेलू/भवन निर्माण जल संयोजन हेतु	8277.00	11377.00	16450.00

जल संयोजन शुल्क 100 वर्गमीटर

घरेलू जल संयोजन हेतु	3350.00	4950.00	7400.00
अघरेलू/भवन निर्माण जल संयोजन हेतु	4150.00	5750.00	8200.00

2 ग्रामीण क्षेत्र	गुरुत्व	लो-हेड	हाई हेड
घरेलू जल संयोजन हेतु	3050.00	5732.00	8077.00
अघरेलू/भवन निर्माण जल संयोजन हेतु	3850.00	6532.00	8877.00

जलमूल्य दरें (अघरेलू मीटरयुक्त संयोजन) ₹0 प्रति किलोलीटर प्रतिमाह

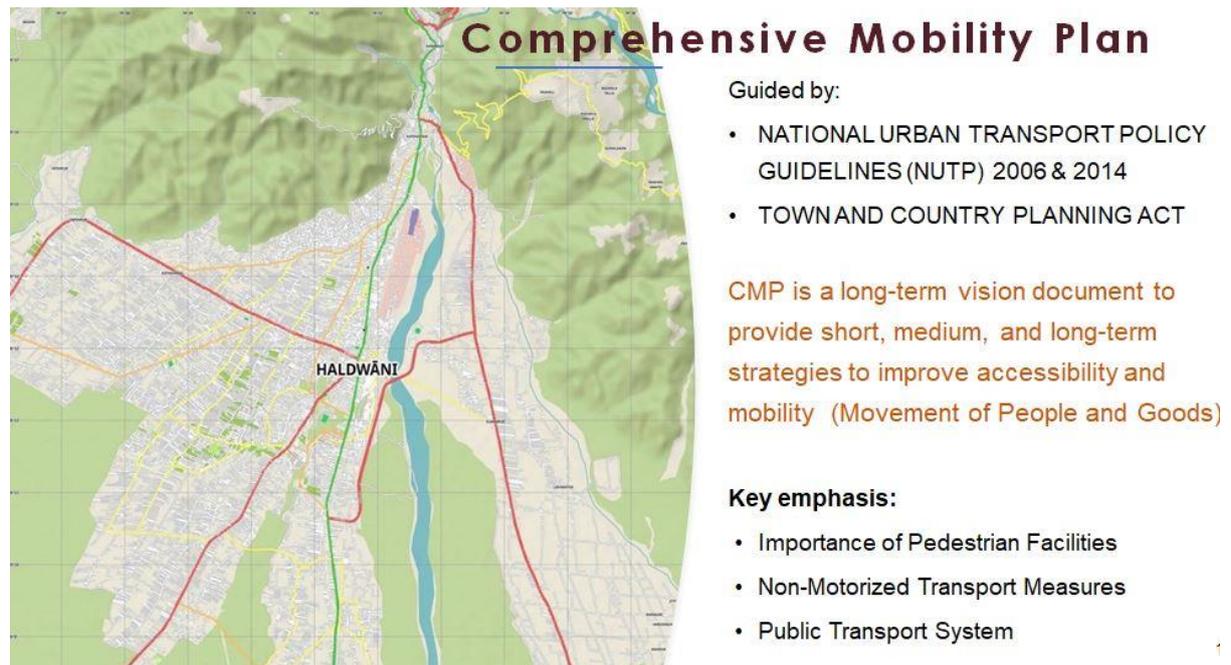
	1/4/2013	1/4/2023
1 नगरपालिका परिषद क्षेत्र	1/4/2013	1/4/2023
क विशेष श्रेणी एवं औद्योगिक	18.75	46.88
ख अन्य व्यवसायिक प्रतिष्ठान	16.50	41.25
ग अन्य सरकारी/ अर्द्धसरकारी एवं संस्थागत प्रतिष्ठान/ छावनी परिषद	16.50	41.25
2 नगर पंचायत क्षेत्र/ म्यूनि० बहुउद्देशीय	16.50	41.25
3 ग्रामीण क्षेत्र	16.50	41.25

न्यूनतम प्रभार (अनमीटर्ड) ₹0 (15मि०मी० अघरेलू जलापूर्ति हेतु) min. Charges - [10,000 L / month]

	1/4/2013	1/4/2023
1 नगरपालिका परिषद क्षेत्र	1/4/2013	1/4/2023
क विशेष श्रेणी एवं औद्योगिक	700.00	1750.00
ख अन्य व्यवसायिक प्रतिष्ठान	520.00	1300.00
ग अन्य सरकारी/ अर्द्धसरकारी एवं संस्थागत प्रतिष्ठान/ छावनी परिषद	485.00	1212.50
2 नगर पंचायत क्षेत्र/ म्यूनि० बहुउद्देशीय	350.00	875.00
3 ग्रामीण क्षेत्र	235.00	587.50

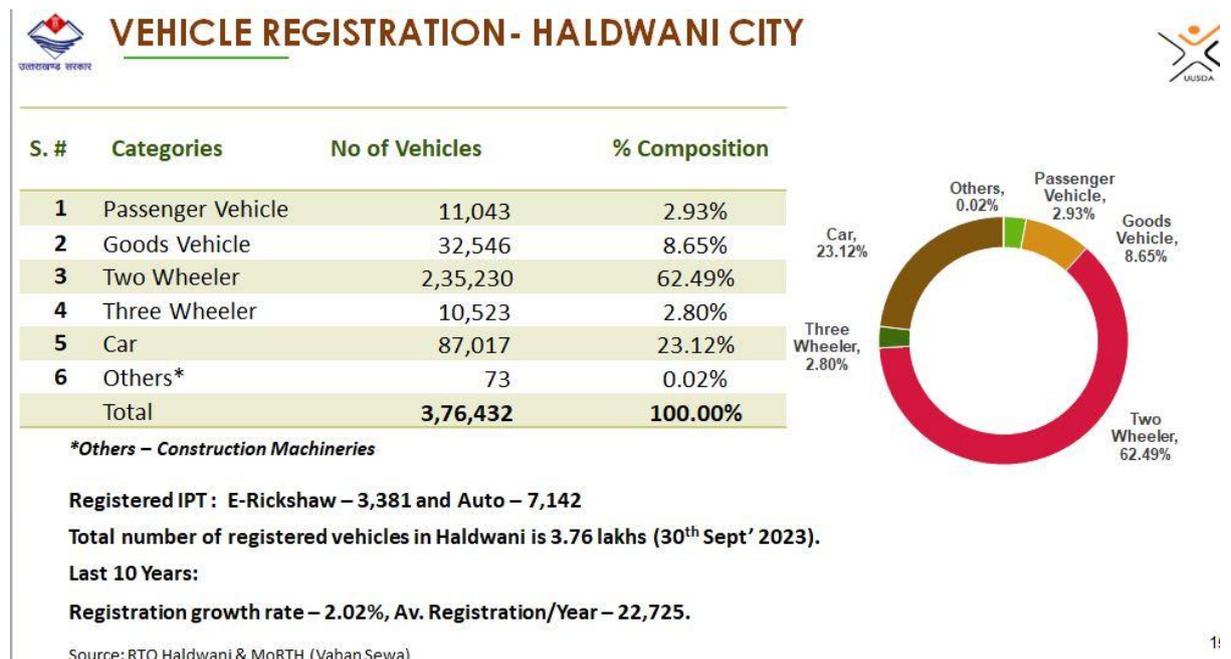
Source: (Nagar Nigam, Haldwani cum Kathgodam, 2024)

Figure 27 Comprehensive Mobility Plan (CMP)



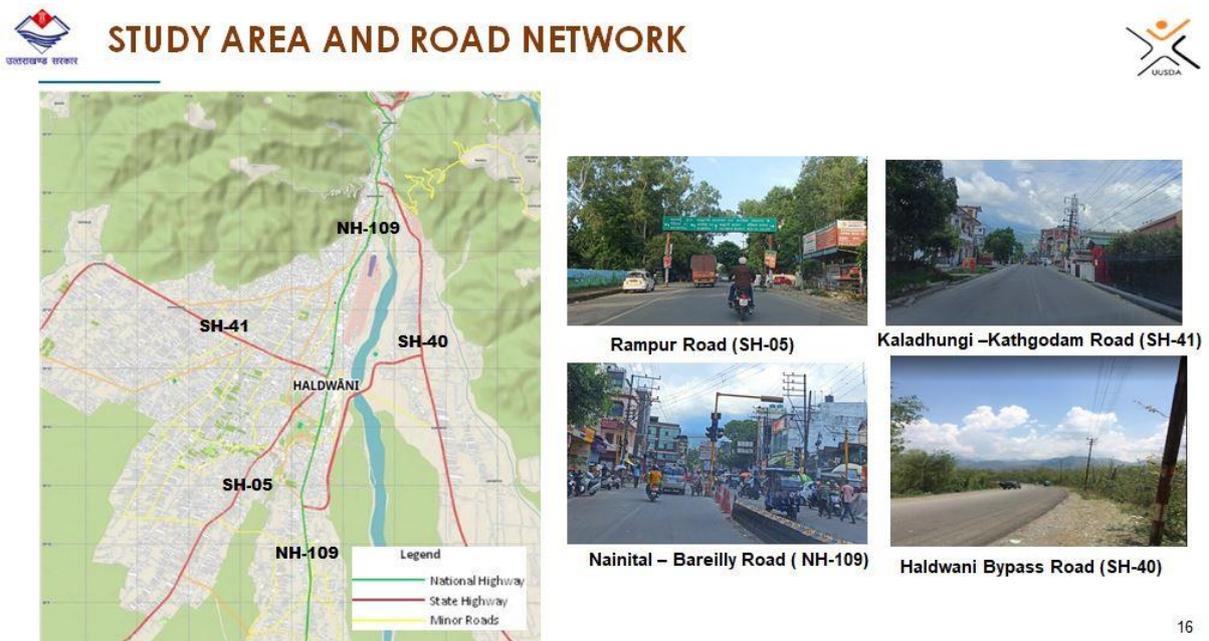
Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 28 Comprehensive Mobility Plan (CMP)



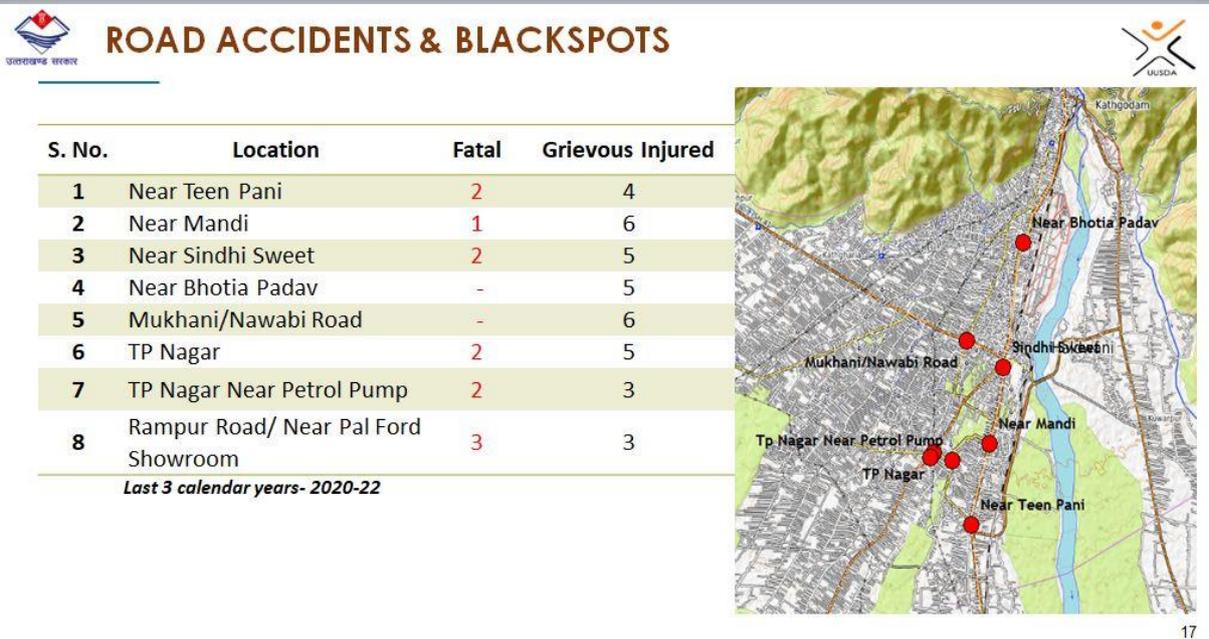
Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 29 Comprehensive Mobility Plan (CMP)



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 30 Comprehensive Mobility Plan (CMP)



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 31 Comprehensive Mobility Plan (CMP)



उत्तराखण्ड सरकार

COMPREHENSIVE MOBILITY PLAN – TRAFFIC SURVEYS CONDUCTED

Completed on 21st October 2022.

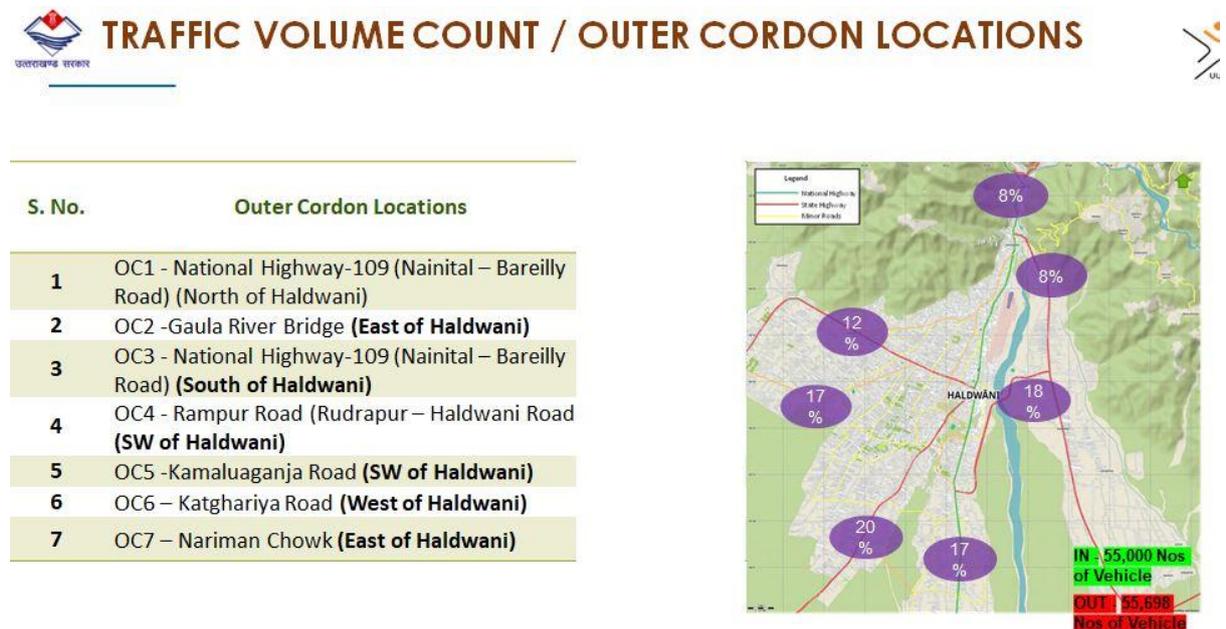


UUSDC

Sl No	Description	Unit	Qty	Survey Duration (Hours)
1.	Road Network Inventory Survey (Manual)	Km	81	-
2.	Speed and Delay survey (Manual)	Km	81	Morning and Evening Peak Hour
3.	Lux meter Survey (Manual)	Km	40	Night
4.	Classified Traffic Volume Count at Cordon (Videography)	Locations	6	24
5.	Classified Volume Count Surveys at Screen Line Locations (Videography)	Locations	6	24
6.	Classified Volume Count Surveys at Mid-block (Videography)	Locations	8	16
7.	OD/RSI Survey at Cordon (Manual) Survey sample to be collected is account for 15% of total Traffic Volume.	Locations	6	24
8.	OD/RSI Surveys at Screen-line (Manual) Survey sample to be collected is account for 15% of total Traffic Volume.	Locations	8	24
9.	OD/RSI Surveys at Mid-block (Manual) Survey sample to be collected is account for 15% of total Traffic Volume	Locations	8	16
10.	Classified Turning Movement count at Major Junctions including Pedestrians (Videography)	Locations	5	24
11.	Classified Turning Movement count at Minor Junctions including Pedestrians (Videography)	Locations	16	4 Hrs @ Morning and Evening Peak
12.	Parking survey- Off street (Manual)	Locations	3	12
13.	Parking survey- On street (Manual)	Locations	10	12
14.	On board passenger survey cum Willingness to Shift (Manual)	Sample	150	16
15.	Intermediate Public Transport (IPT) cum Willingness to Shift & Taxi Operator Survey (Manual)	Sample	100	16
16.	Goods Movement/Terminal Survey (Manual)	Sample	100	16
17.	Household Interview survey 1.5 % of 2011 Census Population (Manual)	Sample	3500	-

Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 32 Comprehensive Mobility Plan (CMP)



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 33 Comprehensive Mobility Plan (CMP)



OVERALL VEHICLE (PASSENGER + GOODS) TRIP FLOW

Overall Vehicle Trip flow

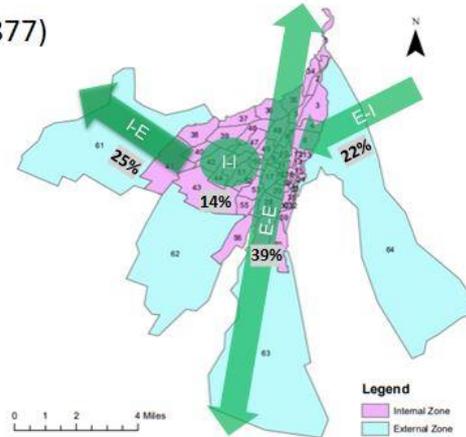
- External to External Zone flow - 39% (47,877)
- External to Internal Zone flow - 22%
- Internal to External Zone flow - 25%
- Internal to internal Zone flow - 14%

Total Trip (Passenger + Goods) = 108,551

NMT Trip = 2,147

External to External Zone Trip flow

- Passenger -37% (42,335)
- Goods – 60% (5,542)

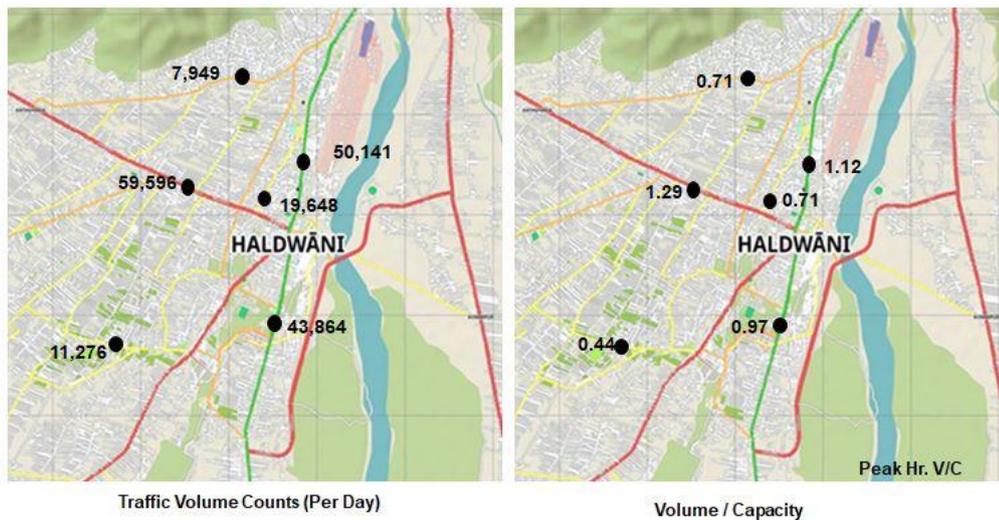


Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 34 Comprehensive Mobility Plan (CMP)

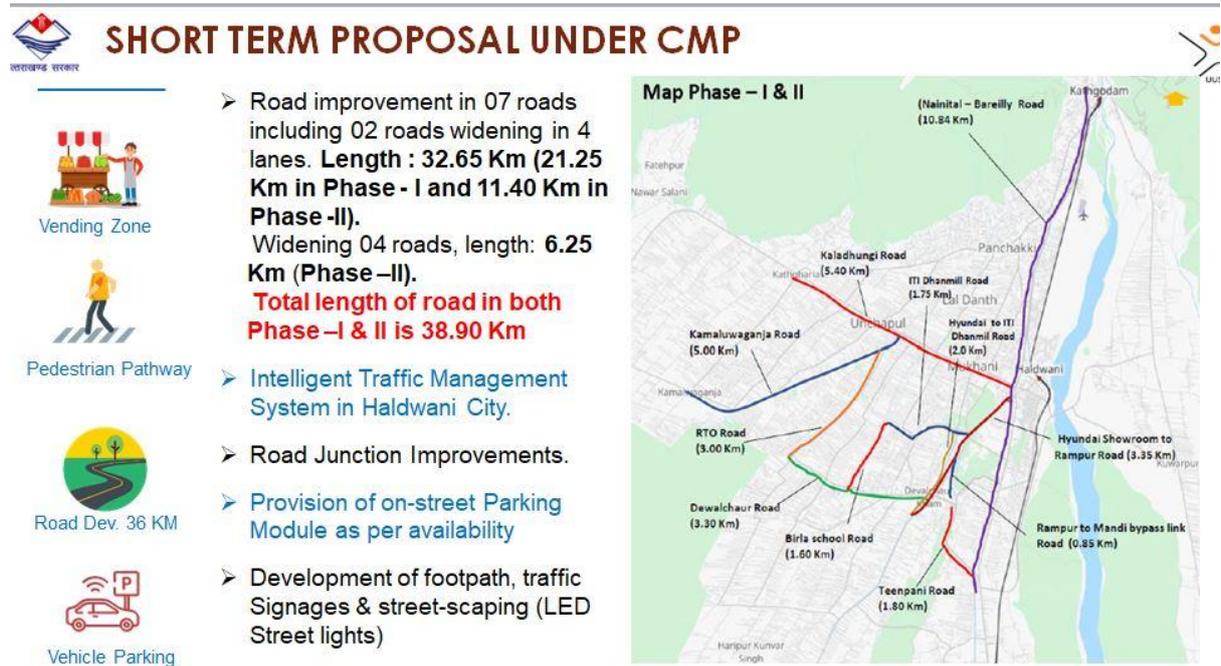


TRAFFIC VOLUME COUNT AT MAJOR ROADS & V/C



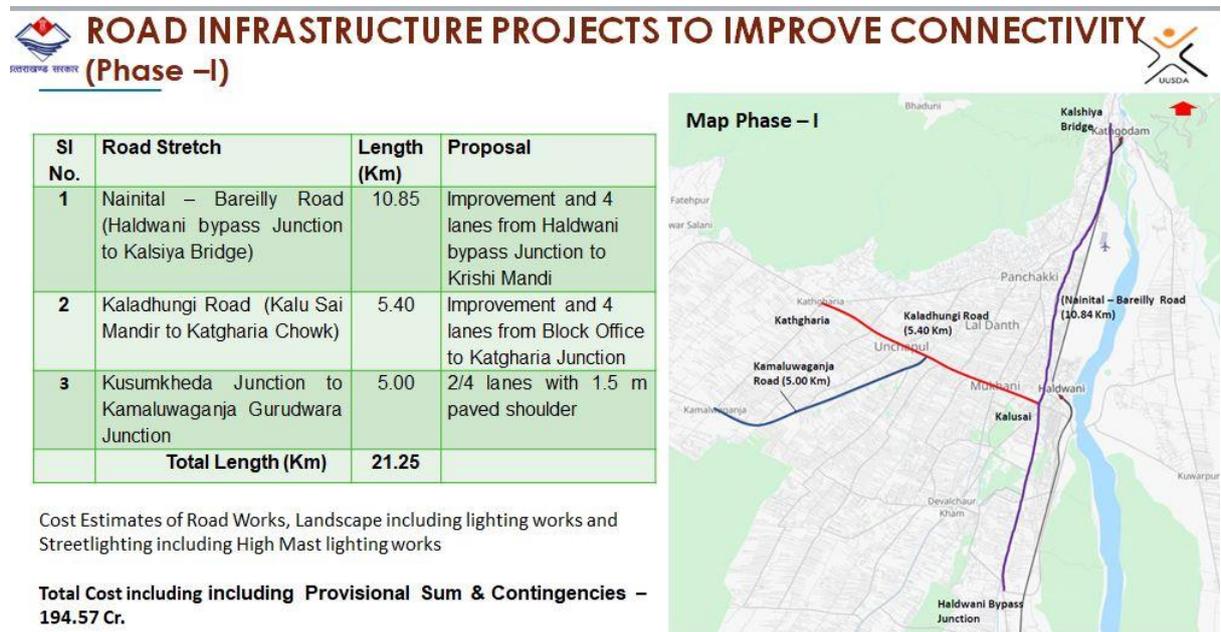
Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 35 Comprehensive Mobility Plan (CMP)



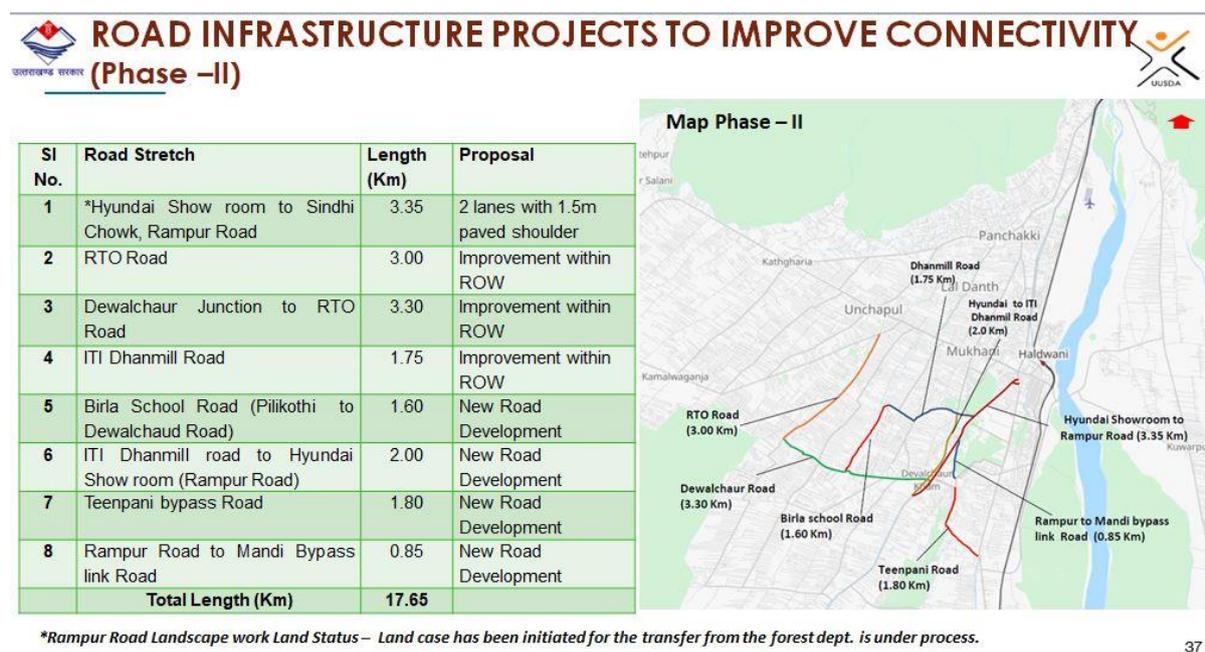
Source: (USDA, Government of Uttarakhand, 2023)

Figure 36 Comprehensive Mobility Plan (CMP)



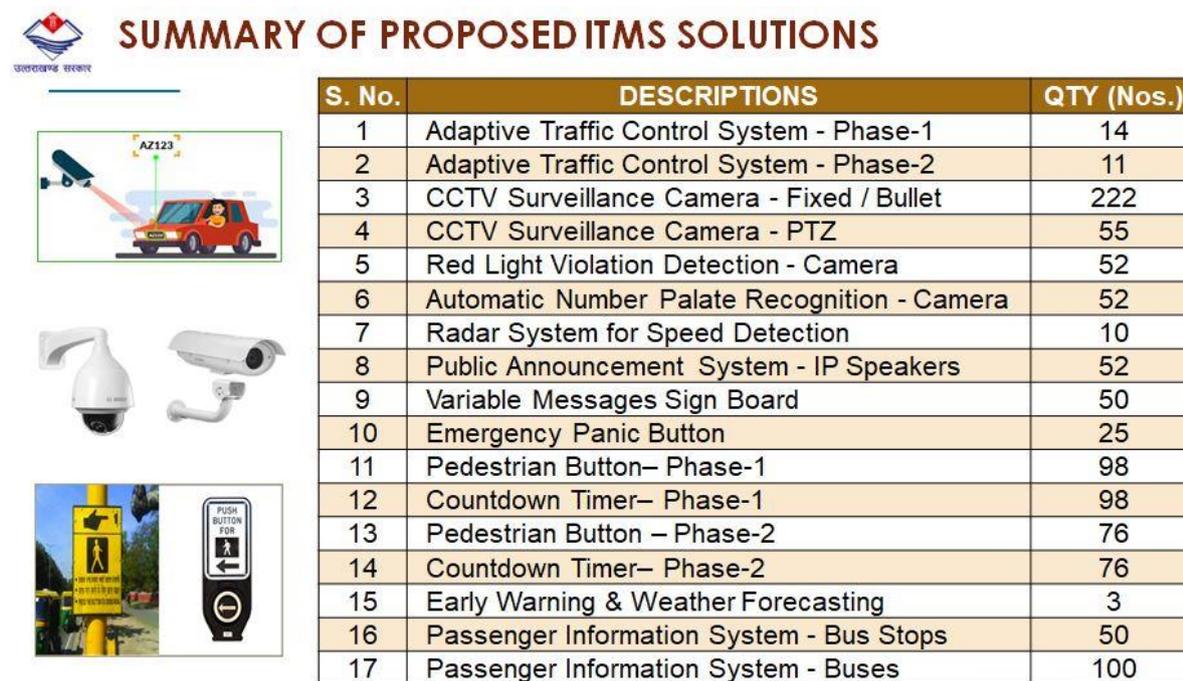
Source: (USDA, Government of Uttarakhand, 2023)

Figure 37 Comprehensive Mobility Plan (CMP)



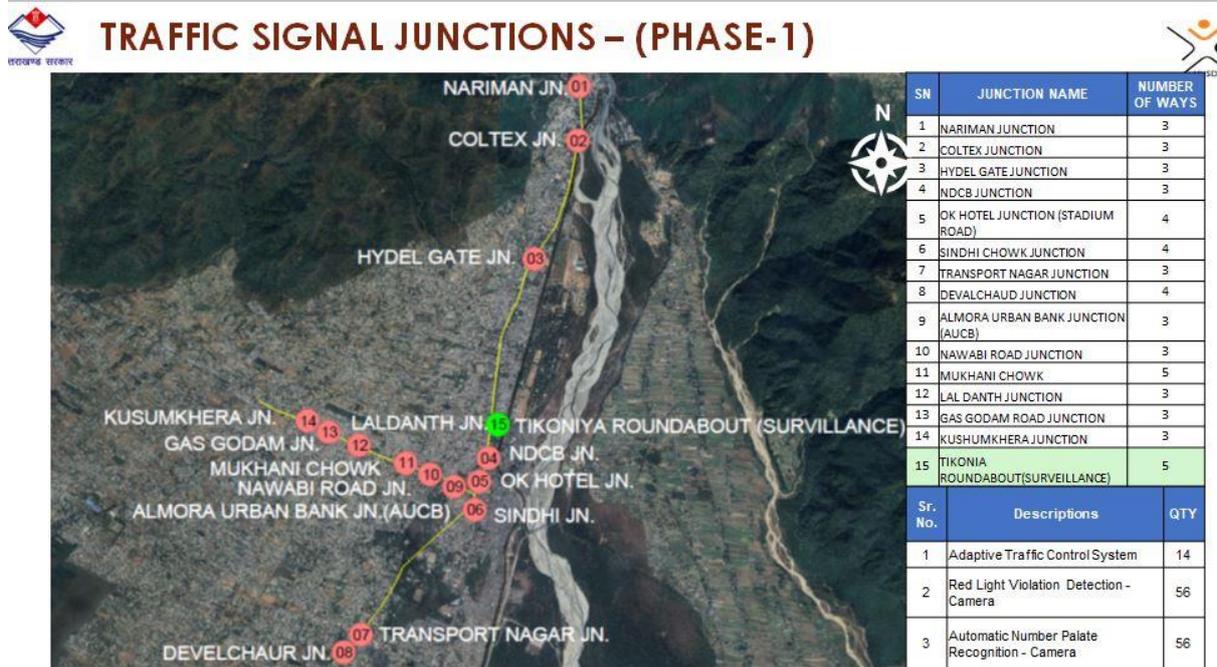
Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 38 Intelligent Traffic Management System (ITMS)



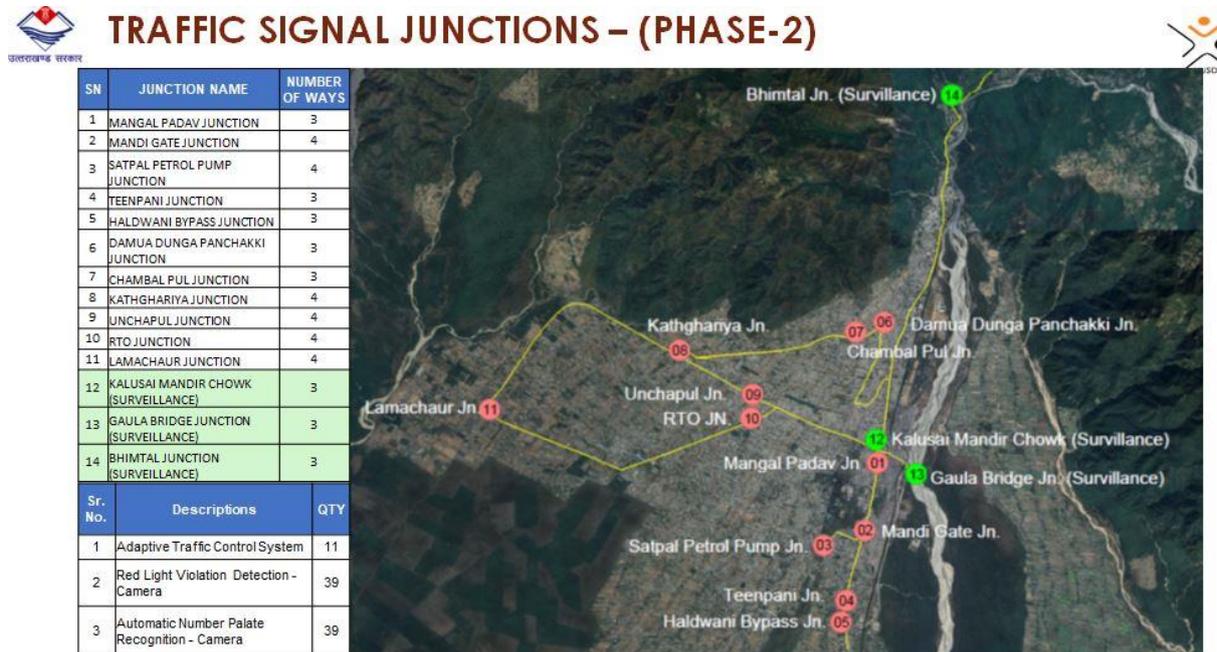
Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 39 Intelligent Traffic Management System (ITMS)



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 40 Intelligent Traffic Management System (ITMS)



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 41 Water Supply Scheme by UUSDA

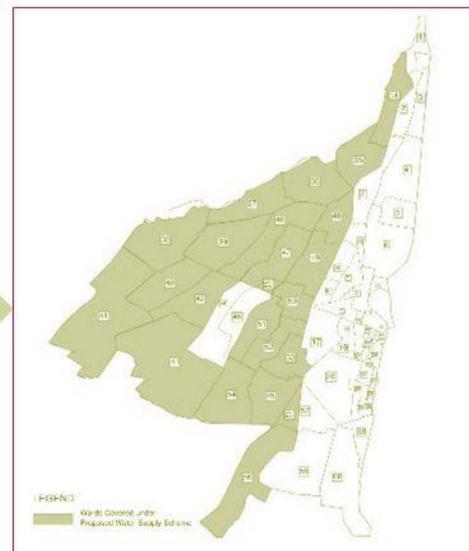
Capital Cost :-

Old municipal wards covered under **AMRUT** - ward 1 to 33

Wards Covered Under **World Bank Project** are:
ward 44, 80% of 45, 70% of ward 57, 58, 59 & 60

Wards Covered under ADB project by UUSDA (23 Wards)
Ward 34 to 43, 46 to 56, 20% of ward 45, & 30% of ward 57

Design Period	30 Years	
	Population Covered	Water Demand
Base Year - 2025	202616	36.70 MLD
Mid Year - 2040	260219	47.07 MLD
Design Year - 2055	342013	61.82 MLD



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 42 Water Supply Scheme by UUSDA



Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 43 Storm Water Drainage Scheme by UUSDA

STORM WATER DRAINAGE

Estimated Project Cost:-

Approved under P1 & P2 :-

DPR Submitted:-

- **Proposed Sewerage area to be covered under Storm Water Drainage project.**
- Construction of drains along main roads
- Renovation works & construction of outfall for **Raksiya Nallah**
- Construction of Recharge pits.



10

Source: (UUSDA, Government of Uttarakhand, 2023)

Figure 44 Storm Water Drainage Scheme by UUSDA

STORM WATER MANAGEMENT COVERED UNDER CMP DPR



Other areas include:

- Drains along the Roads proposed under CMP component of the project.
- Critical flooding points mentioned in Irrigation DPR mainly along Nainital Road.
- Interconnection to the Nala from Kapilaz sweets to Raksiya Nullah area, Kaladhungi Road.



Critical Flooding Points Addressed:

- Walkway Mall area (Devkhadi Nallah)
- Tikonja Chowraha
- Neelkanth hospital, Area near Raj palace hotel, Blue Sapphire Hotel, & Deval chawd Chowk along Rampur Road
- Pandey Newar Chowraha

Source: (UUSDA, Government of Uttarakhand, 2023)

Annexure B

Annexure B**Questionnaire for Data Collection on Solid Waste Management in Haldwani cum Kathgodam**

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:	
<p>1. What is the estimated daily/weekly/monthly volume of Solid Waste Generated in the Town?</p>	
<p>2. What are the Major Sources of Solid Waste Generation in the Town?</p> <p>a) Residential</p> <p>b) Commercial</p> <p>c) Industrial</p> <p>d) Medical</p> <p>e) Any Other (Please Mention)</p>	
<p>3. Are there any seasonal variations in the Solid Waste Generation patterns?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please specify in details.</p>	

<p>4. What are the Garbage Dumping Areas in the Town?</p> <ul style="list-style-type: none">a) Garbage Binsb) Road Sidec) Open Landd) Waste Vanse) Any Other (Please Mention)
<p>5. What is the frequency of Solid Waste Collection in the Town?</p> <ul style="list-style-type: none">a) Once a Dayb) Every Alternative Dayc) Once a Weekd) Once a Monthe) Other (Please Mention)
<p>6. What are the current methods used for Solid Waste Collection in the Town?</p> <ul style="list-style-type: none">a) Door to Door by Departmentb) Door to Door by Private Organizationc) Individuald) Any Other (Please Mention)
<p>7. Are there any separate Collection Systems for Recyclable and Non-Recyclable Waste?</p> <ul style="list-style-type: none">a) Yesb) No <p>If YES, please describe in details.</p>
<p>8. Is there any segregation of Waste at Household Level?</p> <ul style="list-style-type: none">a) Yesb) No
<p>9. Are there any Methods used for Waste Segregation at Source-Level in the Town?</p> <ul style="list-style-type: none">a) Yesb) No <p>If YES, what are the methods used? Please describe in details.</p>

<p>10. Is the Medical Waste Collected Separately?</p> <p>a) Yes</p> <p>b) No</p> <p>If NOT, then how is the Medical Waste or Hazardous Waste separated from the Solid Waste Collected? Please describe in Details.</p>
<p>11. Is the Medical Waste Incinerated?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please mention the location of the Incineration Site(s) in town?</p>
<p>12. Which are the Major Markets in the Town? Kindly name them and mention their location(s).</p>
<p>13. What is the amount of Waste Generated from these Major Markets?</p>
<p>14. How is the Waste collected and transported from these Major Markets?</p>
<p>15. How the Waste from these Major Markets treated? Kindly mention in details.</p>
<p>16. Where is the Waste from these Major Markets disposed? Kindly mention in details.</p>
<p>17. What is the Total Number of Sweepers in:</p> <p>a) Town</p> <p>b) Each Ward</p>
<p>18. What is the Total Number of Garbage Bins in:</p> <p>a) Town</p> <p>b) Each Ward</p>

<p>19. Are all the Garbage Bins in the Town covered?</p> <p>a) Yes</p> <p>b) No</p> <p>If NOT, then kindly provide the number of Uncovered Garbage Bins in:</p> <p>a) Town</p> <p>b) Each Ward</p>
<p>20. What are the Timings of Cleaning the Roads and Streets of the Town? (Please Specify the Time as Well)</p> <p>a) Early Morning At _____ a.m.</p> <p>b) Afternoon At _____ p.m.</p> <p>c) Evening At _____ p.m.</p> <p>d) Late At Night At _____ p.m.</p> <p>e) If NOT, Please Specify the Reason.</p>
<p>21. What is the frequency of cleaning the roads and streets in the Town?</p> <p>a) Once Every Day</p> <p>b) Once Every Week</p> <p>c) Once Every Month</p> <p>d) Other (Please Mention in Details)</p>
<p>22. What is the Total Volume of the Solid Waste Collected from the Town?</p>
<p>23. How is the Solid Waste transported to the Disposal Site? Describe in details.</p>
<p>24. How many waste-management vehicles are used for the transportation of Solid Waste to the Disposal Site?</p>
<p>25. What are the types of waste-management Vehicles used for the collection and transportation of Solid Waste to the Disposal Site?</p> <p>a) Garbage Trucks</p> <p>b) Auto-Tippers</p> <p>c) Garbage Cycle Rickshaw</p> <p>d) Pushcart</p> <p>e) Any Other (Please Mention)</p>

<p>26. What amount or percentage of Solid Waste collected from the Town is Treated before its disposal?</p>
<p>27. What are the Treatment Facilities Available and Proposed for Solid Waste Management of the Town? Kindly mention in details.</p>
<p>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.</p>
<p>29. What is the Current Capacity of Solid Waste Disposal Site(s)? (*Please provide details for each Site as well)</p>
<p>30. Are there any methods/system adopted by the department for sorting and processing of waste before disposal?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please describe in details.</p>
<p>31. Are there any designated recycling centers or facilities for composting of the Solid Waste?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please specify its location.</p>
<p>32. What is the current condition of the existing Solid Waste Management Infrastructure in the Town? Please describe in details.</p>
<p>33. What are the potential health risks associated with exposure to waste, including open dumping sites or uncollected waste?</p>
<p>34. Are there any reported cases of vector-borne diseases or other health issues linked to inadequate waste management?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please mention in details.</p>
<p>35. Is fogging regularly done in the town?</p> <p>a) Yes</p> <p>b) No</p>

<p>36. Are there any Government Policies for Solid Waste Management in the Town?</p> <p>a) Yes</p> <p>b) No</p> <p>If YES, please describe them in details.</p>
<p>37. What challenges are faced by the Department in managing Solid Waste effectively? Please describe in details.</p>
<p>38. What challenges are faced by the Department to ensure public participation in Solid Waste Management? Please describe in details.</p>
<p>39. What are the challenges faced by the Department for Solid Waste Management during the tourist season? Please describe in details.</p>
<p>40. Is there any additional information or feedback you would like to provide regarding solid waste management in the Town?</p>
<p>MAPS AND PLANS REQUIRED:</p>
<p>City Development Plan</p>
<p>Municipal Boundary Map</p>
<p>Treatment facilities available & proposed, their capacity & location Map</p>
<p>Location and Network Maps of Drains and Nallahs in the Town</p>

Questionnaire for Data Collection on Urban Transport and Parking in Haldwani cum Kathgodam

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

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

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 Availability and Supply in Haldwani cum Kathgodam

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	
<p>1. What is the source of water in the town?</p> <p>a) Ground water resources</p> <p>b) Surface Water Resources</p> <p>c) Other (please specify):</p>	
<p>2. Is the above source of water available all throughout the year? Please mention its location and distance.</p>	
<p>3. What is the demand and supply of water for the entire town as per the population? (In million litres/ day (MLD))?</p>	
<p>4. What is the coverage of Water Supply (% Area covered, %population serviced)</p>	
<p>5. How many Water Treatment plants are there for supplying water in town? (existing & proposed)</p>	

<p>6. What is the capacity of Water Treatment Plant for daily water production? (MLD)</p>
<p>7. What amount of water gets wasted during daily distribution of water from Water Treatment Plant? (MLD)</p>
<p>8. What is the source of drinking water supply in the households?</p> <ul style="list-style-type: none">a) Wellsb) Municipal connectionc) Hand pumpd) Tankere) Bore wellf) Others (please specify):
<p>9. What is the number of individual house tap connections in the town?</p>
<p>10. For how many hours water is supplied daily to tap connections?</p>
<p>11. What is the timing of water supply for household supply?</p> <ul style="list-style-type: none">a) Morning: ___ am to ___ amb) Evening: ___ pm to ___ pmc) Other (please specify):

<p>12. What is the daily frequency of water supply for household supply?</p> <p>a) Once a day b) Twice a day c) There is no fixed supply schedule d) Other (please specify):</p>				
<p>13. How many households do not have access to tap water connections?</p>				
<p>14. What is the source of water supply for household with no water connection?</p>				
<p>15. How many community taps are there?</p>				
<p>16. Where are those community taps located in the town?</p>				
<p>17. How much are users in following land-use charged for water per month by municipal authority?</p>	<p>Residential</p>	<p>Commercial</p>	<p>Industrial</p>	<p>Irrigation</p>
<p>18. Is rainwater harvesting compulsory in residential land use?</p> <p>a) Yes b) No</p>				
<p>19. Is rainwater harvesting compulsory in industrial/commercial land use?</p> <p>a) Yes b) No</p>				

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

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 Haldwani cum Kathgodam:**

S.No.	Name	Designation	Department	Contact Details (Mobile No., Email ID)
1	Mr. Vishal Mishra	Municipal Comissioner	Municipal Corpoartion, Haldwani cum Kathgodam	9548240589
2	Mr. Ganesh Bhatt	Assistant Municipal Comissioner		7906581261
3	Mr. Chandan Singh Sizwali	Surveyor		7500978034
4	Mr. Vijay Lohana	Senior Clerk		-
5	Mr. Naval Nautiyal	Assistant Engineer	Public Work Cell (PWC), Municipal Corporation, Haldwani cum Kathgodam	9410712023
6	Mr. Y. S. Laspal	Assistant Engineer	Payjal, Haldwani cum Kathgodam	9410950880
7	Mr. R. S. Loshali	Executive Engineer	Uttarakhand Jal Sansthan, Haldwani cum Kathgodam	9412086776
8	Mr. Ravinder Kumar	Assistant Engineer		8936982097
9	Mr. P. N. Mishra	Data Entry Operator		8077294487
10	Mr. Kamal Pandey	Data Entry Operator		7500987740
11	Mr. Prakash Fulara		District Level Development Authority, Haldwani	
12	Mr. Amit Bansal	Assistant Engineer	Irrigation Department, Haldwani cum Kathgodam	8302976868
13	Er. Bhuwan Chandra Nainwal	Executive Engineer		9410591711
14	Er. Kuldeep Singh	Project Manager	Uttarakhand Urban Development Agency (UUDA)	9456595468
15	Mr. Nasir Khan	Deputy Team Leader	TATA Consultancy Engineers Ltd.	7607366996

List of Stakeholders/Participants attended the Stakeholder Consultation Meeting held on 25th April, 2024 in NN, Haldwani cum Kathgodam:

List of Stakeholders/Participants attended the Stakeholder Consultation Meeting held on 25th April, 2024 in NN, Haldwani cum Kathgodam				
S.No.	Name	Designation	Department	Contact Details (Mobile No., Email ID)
1	Prof. Dr. P. S. N. Rao	Research Project Co-ordinator	SPA, New Delhi	+91-7042227021 drpsnrao@hotmail.com psnrao.dr@gmail.com
2	Shri Manoj Pande	Urban Development Cell, In-Charge	Dr. R. S. Tolia Uttarakhand Academy of Administration	+91-9897510978 urbandevp.uaoa@gmail.com manojpande64@gmail.com
3	Shri Ganesh Bhatt	Assistant Municipal Commissioner	Nagar Nigam, Haldwani cum Kathgodam	+91- 906581261 haldwaninagarnigam@gmail.com
4	Shri Naval Nautiyal	Assistant Engineer, Pubic Work Cell (PWC)		+91-94107120334 navalnautiyal@gmail.com
5	Dr. Manoj Kandpal	Swatch Bharat Mission		+91- 9410119773 drmanojkandpal@yahoo.co.in
6	Meenakshi Sigotiya	GIS Expert		+91-7582069558
7	B.K. Singh	ARTO (Administration)	RTO, Haldwani	+91-9837941680 rtohal-trans-uk@nic.in
8	Neeraj Tewari	Assistant Engineer	UJS, Haldwani cum Kathgodam	+91-8755327012 neeraj_mech12@rediffmail.com
9	Abhishek Gusain	Junior Engineer	PJNU, Haldwani cum Kathgodam	+91-9548514733
10	Shri Amit Bansal	Assistant Engineer	Irrigation Department, Haldwani cum Kathgodam	+91-8302976868 irrigation.div.hld@gmail.com
11	Shri Kuldeep Singh	Project Manager	UUSDA	+91-9456595468 pmhdw.uusda@gmail.com
12	Shri Nasir Khan	Deputy Team Leader	TATA Consultancy Engineers Ltd.	+91-7607366996 nskhan@tce.co.in
13	Shri Dipankar Dutta	TCE, Urban Expert	UUSDA	+91-9811783323 dipankard@tce.co.in
14	Deepa Bisht	GIS Analyst	District GIS Cell, Nainital	+91-6398754518
15	Prabha	Hasthshilp	NGO	+91-9458355044
16	Manju Kapil			+91-7351762628
17	Deepa Pura			+91-8630681116
18	Minakshi			+91-8909200032
19	Neema	food Utyad	NGO	+91-8279877680
20	Jasvir Singh	A2Z (Door to Door Collection)	NGO	-
21	Anjul Bhatt	Research Associate	SPA, New Delhi	+91-9560235150 anjulbhatt.ab@gmail.com

Annexure D

Poster of Stakeholder Consultation Meeting Held on 25th April 2024 in NN, Haldwani cum Kathgodam



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

INVITATION TO STAKEHOLDER CONSULTATION

25th APRIL 2024, THURSDAY
11:00 AM to 01:00 PM

Venue:

HALDWANI-

Municipal Corporation, Haldwani cum Kathgodam

Chair:

Shri Vishal Mishra (IAS),
Municipal Commissioner,
Municipal Corporation, Haldwani cum Kathgodam

Moderator:

Prof. Dr. P. S. N. Rao,
Research Project Coordinator,
SPA, New Delhi

S.NO.	DEPARTMENTS/ORGANIZATIONS INVITED
01	Dr. Raghunandan Singh Tolia Uttarakhand Academy of Administration (ATI)
02	Municipal Corporation, Haldwani cum Kathgodam
03	PWD, Haldwani
04	RTO, Haldwani
05	Police, Haldwani
06	Pey Jal Nigam, Haldwani cum Kathgodam
07	Uttarakhand Jal Sansthan, Haldwani cum Kathgodam
08	Irrigation Department, Haldwani cum Kathgodam
09	Uttarakhand Urban Development Agency (UUDA)
10	TATA Consultancy

TOPICS TO BE COVERED

Solid Waste management

Urban Transport and Parking

Water Supply

Bibliography

Bibliography

- Census India*. (2011). Retrieved from www.censusindia.co.in.
- Climate of Uttarakhand*. (2014). Additional Director General of Meteorology (Research), India Meteorological Department, Government of India.
- Disaster Mitigation & Management Centre, Uttarakhand Secretariat. (n.d.). *State Disaster Management Action Plan for the State of Uttarakhand*.
- (2011). *District Census Handbook*. Government of India.
- euttaranchal*. (2011). Retrieved from myroots.euttaranchal.com.
- Executive Engineer, P.I.U. (AMRUT), Uttarakhand Pey Jal Nigam, Haldwani. (n.d.). Haldwani-Kathgodam Water Supply Scheme.
- G.B. Pant National Institute of Himalayan Environment, . A. (2019). *Environment Plan Champawat*. Government of Uttarakhand.
- Gol. (2011). *District Census Handbook, Nainital*.
- Gol. (n.d.). *Climate of Uttarakhand*. India Meteorological Department, Gol.
- Google Images*. (2024). Retrieved from www.google.com.
- Google Maps*. (2024). Retrieved from www.google.com:https://www.google.com/maps/@29.3395322,80.088487,14.52z?entry=ttu
- Google My Maps*. (2024). Retrieved from <https://www.google.com/maps/d/u/0/>
- Government of Uttarakhand: State Profile*. (n.d.). Retrieved from uk.gov.in.
- (2024). *Handbook for Pre-Study Workshop by Dr. R. S. Tolia Uttarakhand Academy of Administration*.
- (n.d.). *Handbook of Service Level Benchmarking*. Ministry of Urban Development, Gol.
- Maps of India*. (2024). Retrieved from www.mapsofindia.com.
- Nagar Nigam, Haldwani cum Kathgodam . (2024, March 2024). (A. Bhatt, & S. Kakani, Interviewers)
- Police Department Haldwani cum Kathgodam. (2024). (A. Bhatt, & S. Kakani, Interviewers)
- Post Study Workshop. (2024, August 30).
- Primary Survey (March 2024).
- Public Works Department, Government of Uttarakhand*. (2024). Retrieved from pwd.uk.gov.in.
- PWD, Haldwani cum Kathgodam . (2024, March). Discussion on Questionnaire on Urban Transport and Parking for Haldwani cum Kathgodam City. (A. Bhatt, & S. Kakani, Interviewers)
- RTO, Haldwani cum Kathgodam . (2024, March). Discussion on Questionnaire on Urban Transport and Parking for Haldwani cum Kathgodam City. (A. Bhatt, & S. Kakani, Interviewers)
- SPA, New Delhi. (2024).

Stakeholder Consultation Meeting. (2024, April 25).

(2020-21). *State Disaster Management Plan, Volume-1*. State Disaster Management Authority (SDMA), Uttarakhand .

State Horticulture Mission, Govt. of Uttarakhand . (2024). Retrieved from shm.uk.gov.in.

Thematic Map Library, Uttarakhand.org. (2024). Retrieved from uttarakhand.org.

Traffic Directorate Uttarakhand Police. (2024). Retrieved from uttarakhandtraffic.com: https://uttarakhandtraffic.com/UserFiles/images/traffic-police/uttaranchal_road-map.jpg

Traffic Directorate Uttarakhand Police, Government of Uttarakhand. (2024). Retrieved from uttarakhandtraffic.com.

Traffic Police, Haldwani cum Kathgodam . (2024). (A. Bhatt, & S. Kakani, Interviewers)

Uttarakhand At A Glance . (2021-22). Directorate of Economics and Statistics, Department of Planning.

Uttarakhand Jal Sansthan, Haldwani cum Kathgodam . (2024, March). Discussion on the Questionnaire on Water Supply for Haldwani cum Kathgodam City. (A. Bhatt, & S. Kakani, Interviewers)

Uttarakhand Pey Jal Nigam, Haldwani cum Kathgodam . (2024). (A. Bhatt, & S. Kakani, Interviewers)

(2021). *Uttarakhand River Atlas, National Mission for Clean Ganga, Ministry of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Government of India*. Centre for Ganga River Basin Management and Studies.

Uttarakhand Tourism Development Board (UTDB). (2024). Retrieved from uttarakhandtourism.gov.in.

Uttarakhand Tourism Development Board. (2024, March). Discussion on Questionnaires on Solid Waste Management, Urban Transport and Parking and Water Supply for Haldwani cum Kathgodam . (A. Bhatt, & S. Kakani, Interviewers)

(n.d.). *Uttarakhand Tourism Development Master Plan 2007-2022*.

Uttarakhand Tourism . (2023, January 16). Retrieved from <https://uttarakhandtourism.gov.in/destination/almora>

Uttarakhand Urban Sector Development Investment Program (UUSDIP). (n.d.). *Draft Report on "India: Uttarakhand Integrated and Resilient Urban Development Project – Additional Financing, Aug. 2023"*.

Uttarakhand, T. P. (n.d.). uttarakhandtraffic.com. Retrieved from https://uttarakhandtraffic.com/UserFiles/images/traffic-police/uttaranchal_road-map.jpg

UUSDA, Government of Uttarakhand. (2023). *Draft Comprehensive Mobility Plan for Haldwani & Kathgodam Local Planning Area*.



State Institute of Urban Development

Dr. R. S. Tolia Uttarakhand Academy of Administration

Ardwell Camp, Mallital, Nainital, Uttarakhand- 263001

Phone: 05942 - 237633, 235011, 236068

Email:- urbandevp.uaoa@gmail.com

