Human development encompasses all aspects and attributes that enhance the quality of human life. It is about the people and the expansion of their capabilities and entitlements for uplifting their health, education and overall well-being. Promoting environmental sustainability, gender equality and balanced regional development are also crucial for human development.

The Uttarakhand Human Development Report 2019 is an endeavor to capture, study and understand the prevailing human development scenario in the geographically unique state of Uttarakhand. Based on data from an extensive primary survey as well as from secondary data sources, it highlights the progress made, the milestones achieved as well as the areas of deficit which require more concerted and focused policy interventions. It also brings forth people's perceptions on various important dimensions of human development. The Report serves as a timely, evidence-based and informed policy handle for the state in its quest for inclusive growth and sustainable development.

UTTARAKHAND HUMAN DEVELOPMENT REPORT 2019

Department of Planning
Government of Uttarakhand

INSTITUTE FOR HUMAN DEVELOPMENT

# UTTARAKHAND

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# 2019

# UTTARAKHAND

# HUMAN DEVELOPMENT REPORT

# 2019


Directorate of Economics and Statistics
Department of Planning

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# संदेश

उत्तराखण्ड राज्य की प्रथम मानव विकास रिपोर्ट (Uttarakhand Human Development Report-UHDR) प्रस्तुत करते हुए अत्यन्त हर्ष हो रहा है। राज्य गठन के उपरान्त से ही सरकार राज्य के लोगों के कल्याण को अधिकतम करने की दिशा में प्रयासरत रही है। इस हेतु शिक्षा, स्वास्थ्य, पेयजल, स्वच्छता, विद्युतीकरण तथा आधारभूत संरचना के विकास के द्वारा लोगों को गुणवत्तापूर्ण जीवन की दशायें उपलब्ध कराने के कार्य मिशन–मोड पर किये जा रहे हैं। मानव विकास, विकास की समावेशी अवधारणा है जो मानव कल्याण को सर्वोच्च स्थान पर रखते हुए आर्थिक विकास के साध्य के रूप में तथा विकास प्रकिया को मानव विकास के साधन मात्र के रूप में स्थापित करती है।

यद्यपि उत्तराखण्ड राज्य लोगों के चहुँमुखी विकास पथ पर निरन्तर अग्रसर है जिससे राज्य की आर्थिक संवृद्धि की दर एवं प्रतिव्यक्ति आय में तेजी से वृद्धि हुई है तथापि लोगों के जीवन की गुणवत्ता में सुधार के इन बहुविध प्रयासों के प्रभावों को मात्रात्मक रूप में मापने हेतु उत्तराखण्ड मानव विकास रिपोर्ट (UHDR) प्रथम प्रयास है। मानव विकास रिपोर्ट मानवीय विकास के विभिन्न पहलुओं पर आधारित सामाजिक–आर्थिक संकेतकों यथा–दीर्घायुता, ज्ञान तथा प्रतिव्यक्ति आय के आधार पर प्रगति का आकलन करती है तथा संवृद्धि एवं विकास रणनीतियों के समावेशिता की स्थिति को इंगित करती हैं।

इस रिपोर्ट में शिक्षा, स्वास्थ्य, पेयजल, स्वच्छता, विद्युतीकरण, प्रति व्यक्ति आय के क्षेत्र में राज्य की उपलब्धियों के साथ–साथ विकास के मार्ग में मौजूद बाधाओं व चुनौतियों व उनको दूर करने के लिए मार्गदर्शक उपायों को भी समावेशित किया गया है जो आगे बेहतर विकास रणनीतियों के निर्माण एवं कियान्वयन हेतु राज्य सरकार तथा विभिन्न विभागों को उत्प्रेरित करती रहेंगी। यह रिपोर्ट मानव विकास तथा समावेशी विकास को विकास के केन्द्र के रूप में बनाये रखने हेतु राज्य की योजनाओं, नीतियों एवं हस्तक्षेपों (Interventions) के आधार के रूप में कार्य करेगी।

उत्तराखण्ड मानव विकास रिपोर्ट (UHDR) नियोजन विभाग के अर्थ एवं संख्या निदेशालय के प्रभावी पर्यवेक्षण में इन्स्ट्यूट फॉर ह्यूमन डेवलपमेन्ट (आई०एच०डी०)नई दिल्ली, द्वारा तैयार की गयी है। इस रिपोर्ट को राज्य की परिस्थितियों में अधिक व्यापक, वास्तविक एवं समावेशी बनाये जाने हेतु समय–समय पर विभागीय, शासन एवं सरकार स्तर पर उच्चाधिकारियों, विभिन्न विभागों के अधिकारियों तथा विशेषज्ञों द्वारा चर्चा की गयी तथा प्राप्त निर्देशों, सुझावों एवं निष्कर्षों को समावेशित किया गया। इन प्रयासों हेतु मैं शासन के अधिकारियों, अर्थ एवं संख्या विभाग के अधिकारियों व कर्मचारियों तथा आई०एच०डी० संस्थान के विशेषज्ञों की प्रसंशा करता हूँ।

(त्रिवेंद्र सिंह रावत)
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## Foreword

It gives me pleasure to note that the first Human Development Report of Uttarakhand is ready for publication. The Report attempts to carry out an assessment of the development of human capabilities in the state in terms of health, education and quality of life, among others. The data and findings from the HDR 2017 Survey will hopefully throw useful light of the disparities that exist between districts, geographical regions, rural and urban areas, among gender and income groups.

I congratulate the officers of the Directorate of Economics and Statistics and the Institute for Human Development (IHD) for conducting the HDR survey and preparing this detailed report. The report will undoubtedly the Government of Uttarakhand to plan better for further improvement in various aspects related to human development

**(Utpal Kumar Singh)**
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## Preface

The Human Development Report of Uttarakhand is a milestone for the state as it is a first in evaluating the human development scenario in the state. It also keeps with the spirit of balanced development, having growth and inclusive human development as its prime focus. The report showcases the present human development scenario in the state as well as facilitates a deeper understanding of the regions and spheres of remarkable achievements and persistent inequalities that exist in the state It serves as a useful guideline for the state government to understand where progress has been made, where the inequalities and shortfalls in the human development indicators lie and identifies the thrust areas/regions for promoting higher levels of well being for the people of Uttarakhand.

I appreciate the initiation and efforts of the Directorate of Economics and Statistics to come out with such an important report by the help of Institute for Human Development (IHD). The Human Development Report has been prepared together with primary and secondary data form a large household survey carried out across the state. The Human Development Report highlights the current human development scenario in the state and will also bring forth evidence based policy recommendation to enhance human development outcomes in the state. The disaggregation of various human development indicators by geographical regions, rural-urban areas as well as gender, coupled with people's perceptions about factors that have an impact on their living standards, is one of the main highlights of this Human Development Report.

We are hopeful that this Human Development Report will immensely contribute towards the formulation of appropriate, informed and effective policy intervention aimed at the attainment of inclusive and balanced human development for the people of Uttarakhand.

I would like to place my sincere appreciation to Shri Sushil Kumar Director, DES and Dr. Manoj Kumar Pant, ACEO, CPPGG/ Joint Director, DES and officers of IHD make this document possible.

**(Amit Singh Negi)**
Secretary

सुशील कुमार
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अर्थ एवं संख्या
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## आभार

मानव विकास, विकास की समावेशी अवधारणा है जो मानवीय कल्याण को सर्वोच्च स्थान पर रखती है। संयुक्त राष्ट्र संघ के संयुक्त राष्ट्र विकास कार्यक्रम (यू0एन0डी0पी0) द्वारा वर्ष 1990 से प्रतिवर्ष मानव विकास रिपोर्ट तैयार की जा रही है जिसमें मानवीय विकास को प्रभावित करने वाले सामाजिक–आर्थिक संकेतकों यथा–दीर्घायुता, ज्ञान तथा प्रतिव्यक्ति आय स्तर के आधार पर विभिन्न देशों के मानव विकास सूचकांक तथा उनकी सापेक्षिक रैंक का निर्धारण किया जाता है।

हमारे देश में मानव विकास रिपोर्ट तैयार करने हेतु राष्ट्रीय स्तर पर सुनिश्चित संस्थान के अभाव के कारण कई राज्यों द्वारा स्वयं अपने राज्य की मानव विकास रिपोर्ट तैयार कराई गई है। उत्तराखण्ड राज्य में भी मानव विकास रिपोर्ट की आवश्यकता तथा इस विषय की नवीनता एवं तकनीकी विशेषज्ञता की अनिवार्यता के दृष्टिगत वर्ष 2016 में **उत्तराखण्ड मानव विकास रिपोर्ट** तैयार करने हेतु **इन्स्टीट्यूट फॉर ह्यूमन डेवलपमेंट (आई0एच0डी0) नई दिल्ली**, चयनित हुई।

उत्तराखण्ड मानव विकास रिपोर्ट में प्राथमिक एवं द्वितीयक आंकड़ों का प्रयोग किया गया है। प्राथमिक आंकड़े जनपदवार ग्रामीण तथा शहरी जनसंख्या के अनुपात में 8845 सैम्पल चयनित कर व्यापक सर्वे से संकलित किये गये तथा द्वितीयक आंकड़े भारत सरकार तथा राज्य सरकार के विभिन्न रिपोर्टों एवं प्रकाशनों से प्राप्त किये गये। थीम आधारित इस रिपोर्ट में आय, रोजगार तथा गरीबी, कृषि एवं पर्यटन, पलायन, शिक्षा, स्वास्थ्य, पर्यावरण एवं प्राकृतिक संसाधनों के प्रबन्धन जैसे महत्वपूर्ण विषय शामिल किये गये हैं। इस रिपोर्ट में राज्य के मानव विकास सूचकांक, लैंगिक विकास सूचकांक, बहुआयामी निर्धनता सूचकांक तथा गिनी गुणांक का जनपदवार आंकलन किया गया है।

मानव विकास रिपोर्ट को राज्य की परिस्थितियों में अधिक व्यापक, वास्तविक एवं समावेशी बनाये जाने हेतु संस्थान द्वारा उपलब्ध करायी गयी ड्राफ्ट मानव विकास रिपोर्ट पर विभागीय अधिकारियों द्वारा अध्ययन व परीक्षण किया गया तथा शासन स्तर पर प्रभारी सचिव नियोजन एवं सचिव वित्त एवं नियोजन की अध्यक्षता में गहन समीक्षा की गयी तदोपरांत श्री प्रकाश पन्त, मा0 वित्त मंत्री जी उत्तराखण्ड सरकार की अध्यक्षता में सम्पन्न राज्य स्तरीय कार्यशाला में शासन के उच्चाधिकारियों, विभिन्न विभागों के अधिकारियों तथा विशेषज्ञों द्वारा चर्चा की गयी तथा प्राप्त निर्देशों, सुझावों एवं निष्कर्षों को समावेशित किया गया। मुझे आशा है कि यह रिपोर्ट नीति निर्माताओं, शोधार्थियों एवं अन्य उपयोगकर्ताओं के लिए अत्यन्त उपयोगी सिद्ध होगी।

उत्तराखण्ड मानव विकास रिपोर्ट तैयार करने हेतु आई0एच0डी0, नई दिल्ली के विशेषज्ञों श्री ए0एन0 शर्मा, डॉ0 आई0सी0 अवस्थी, डॉ0 बलवन्त मेहता एवं उनकी टीम को धन्यवाद ज्ञापित करता हूँ। मानव विकास रिपोर्ट निर्माण हेतु प्रेरणा एवं निरन्तर मार्गदर्शन हेतु मा0 प्रभारी सचिव तथा मा0 सचिव नियोजन विभाग को धन्यवाद ज्ञापित करता हूँ। ड्राफ्ट मानव विकास प्रतिवेदनों के अध्ययन, समीक्षा, परिचर्चाओं के उपरांत रिपोर्ट को वर्तमान स्वरूप में तैयार करवाने एवं आई0एच0डी0 के साथ समुचित समन्वय स्थापित करने में महत्वपूर्ण भूमिका निभाने हेतु अर्थ एवं संख्या विभाग के डॉ0 मनोज कुमार पंत, संयुक्त निदेशक, कु0 चित्रा, उप निदेशक तथा श्री राम सलोने, अपर सांख्यिकीय अधिकारी को धन्यवाद देता हूँ।

(सुशील कुमार)
निदेशक

# Acknowledgements

It has been a privilege for the Institute for Human Development (IHD) to prepare the Uttarakhand Human Development Report, 2019. The IHD expresses its sincere gratitude to the Government of Uttarakhand for entrusting the preparation of this prestigious report to them. The report is the culmination of intensive research and field work carried out on the subject of human development in its various dimensions, keeping the concept of inclusion central to its preparation.

An extensive primary survey was carried out across the thirteen districts of Uttarakhand and data on various human development indicators was collected, compiled and analyzed, bringing to light achievements as well as shortcomings in the areas of education, health, income, migration, urbanization, agriculture and tourism, as well as the environment. Data on people's perceptions lent an important qualitative flavor to the findings of the survey, combined with Focus Group Discussions, innumerable workshops and brainstorming meetings with government officials and agencies at various levels.

The ultimate goal of preparing the Uttarakhand Human Development Report is to delineate broad policy measures that the state government can adopt, to enhance and encourage progress in human development outcomes across its hills as well as plains districts, rural and urban areas, social groups, gender and amongst the underprivileged and deprived sections of its populace.

The involvement of several think tanks, scholars and authorities in the field of human development, has contributed immensely to the production of this unique Human Development Report for the equally unique state of Uttarakhand. Dr. A. K. Shiva Kumar has been one of the important guiding lights, providing academic insights, leadership as well as direction through the various stages of the preparation of this report. Dr. G.S. Manna and Prof. Sarthi Acharya reviewed the report and offered valuable comments.

Dr. Balwant Mehta and Professor I. C. Awasthi were the principal coordinators and organized the field surveys, conducted district wise workshops and also contributed in the drafting of chapters. Prof. Tanuka Endow was actively involved in the drafting of as many as four chapters and her contribution is deeply acknowledged. Prof. Shipra Maitra, Dr. Swati Dutta and Dr. Disha Tewari Gupta provided background notes which contributed immensely towards drafting various chapters.

Dr. Usha Jayachandran as Editor, was instrumental in editing the report, analyzing the survey data along with bringing forth some of the highlight findings, ably compiling the various chapters and meticulously and carefully taking the report through the various stages of its preparation.

The Government of Uttarakhand and its various Departments lent full and complete support to IHD in the preparation of the report and we extend our sincere thanks to them. The encouraging message from the Hon'ble Chief Minister, Shri Trivendra Singh Rawat, for theReport has left us humbled. We also extend our gratitude to Shri Utpal Kumar Singh, Chief Secretary, Government of Uttarakhand, for contributing the Foreword and to Shri Amit Singh Negi, Planning Secretary, Government of Uttarakhand, for writing the Preface for the report.

We put on record our gratitude and thanks to Shri Sushil Kumar, Director, Directorate of Economics and Statistics; Dr. Manoj Kumar Pant, Additional Chief Executive Officer, Centre for Public Policy and Good Governance, Department of Planning; Ms. Chitra Kannojia, Deputy Director, Directorate of Economics


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The preparation of the Uttarakhand Human Development Report has been a collaborative effort, with the Government of Uttarakhand playing an important facilitating role. We at IHD hope that this report will be a unique and important contribution as well as a milestone towards a better understanding of human development outcomes and imperatives in the state of Uttarakhand. We also hope that it will serve as a useful policy handle for planners and development agencies in the state.

Our sincere thanks once more to the Government of Uttarakhand for letting us partner with them to prepare the Human Development Report for the state.This report will remain a landmark study on human development in Uttarakhand.

Alakh N. Sharma
Director
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Delhi

# Tables, Maps, Figures and Boxes

**Tables**

## Maps

## Figures

## Boxes

# ABBREVIATIONS

| | |
|---|---|
| ADB | Asian Development Bank |
| ACGR | Annual Compound Growth Rate |
| AISHE | All India Survey on Higher Education |
| AYUSH | Ayurveda, Yoga, and Naturopathy, Unani, Siddha and Homoeopathy |
| BPL | Below Poverty Line |
| CAG | Comptroller and Auditor General |
| CEBs | Census Enumeration Blocks |
| CGHS | Central Government Health Scheme |
| CHCs | Community Health Centers |
| CMIE | Centre for Monitoring Indian Economy |
| CRRI | Central Road Research Institute |
| CSO | Central Statistics Office |
| CW | Casual Workers |
| DDP | District Domestic Product |
| DES | Directorate of Economics & Statistics |
| DISE | District Information System for Education |
| DLHS | District Level Health Survey |
| ESIS | Employment State Insurance Scheme |
| EYS | Expected Years of Schooling |
| FGDs | Focus Group Discussions |
| FSUs | First Stage Units |
| GDI | Gender Development Index |
| GDP | Gross Domestic Product |
| GER | Gross Enrollment Ratio |
| GHG | Greenhouse Gas |
| GIDS | Giri Institute of Development Studies |

| | |
|---|---|
| GIHM | Government Institute of Hotel Management |
| GII | Gender Inequality Index |
| GNI | Gross National Income |
| GSVA | Gross State Value Added |
| HDI | Human Development Index |
| HDR | Human Development Report |
| HKH | Hindu Kush Himalaya |
| HRVC | Hazard, Risk, Vulnerability and Capacity |
| IAY | Indira Awas Yojana |
| ICDS | Integrated Child Development Services |
| ICIMOD | International Centre for Integrated Mountain Development |
| IFAD | International Fund for Agricultural Development |
| ILER | India Labour and Employment Report |
| ILSP | Integrated Livelihood Support Project |
| IMR | Infant Mortality Rate |
| INR | Indian Rupee |
| INRM | Integrated Natural Resources Management |
| IPCC | Intergovernmental Panel on Climate Change |
| KIS | Key Informants |
| LFPR | Labour Force Participation Rate |
| LPG | Liquefied Petroleum Gas |
| MDF | Moderate Dense Forests |
| MGNREGS | Mahatma Gandhi National Rural Employment Guarantee Scheme |
| MIS | Management Information System |
| MMSJ | Mukhya Mantri Satata Jivika |
| MoSPI | Ministry of Statistics and Programme Implementation |
| MPCE | Monthly Per-capita Consumer Expenditure |
| MPI | Multidimensional Poverty Index |
| MSBY | Mukhyamantri Swasthya BimaYojana |

| | |
|---|---|
| MSME | Ministry of Micro, Small & Medium Enterprises |
| MW | Megawatt |
| MYS | Mean Years of Schooling |
| NAS | National Achievement Surveys |
| NCERT | National Council of Educational Research and Training |
| NDDP | Net District Domestic Product |
| NFHS | National Family Health Survey |
| NIDM | National Institute of Disaster Management |
| NRLM | National Rural Livelihood Mission |
| NSS | National Sample Survey |
| NSSO | National Sample Survey Organisation |
| NTFP | Non-timber Forest Products |
| NULM | National UrbanLivelihood Mission |
| OBC | Other Backward Class |
| ODF | Open Defecation Free |
| OOPE | Out of Pocket Expenses |
| OPHDI | Oxford Poverty and Human Development Initiatives |
| PCO | Public Communication Office |
| PDS | Public Distribution System |
| PHCs | Primary Health Centres |
| PPP | Public Private Partnership |
| PPP | Purchasing Power Parity |
| PPS | Probability Proportion to Size |
| PS+SS | Principal Status +Subsidiary Status |
| RE | Regular Employment |
| REDD | Reducing Emissions from Deforestation and Forest Degradation |
| RSBY | Rashtriya Swasthya Bima Yojana |
| SCs | Scheduled Castes |
| SDGs | Sustainable Development Goals |

| | |
|---|---|
| SDM | Skill Development Mission |
| SDMA | State Disaster Management Authority |
| SDP | State Domestic Product |
| SE | Self Employment |
| SGY | Shilpi Gram Yojana |
| SHGs | Self Help Groups |
| SRS | Sample Registration System |
| SSA | Sarva Shiksha Abhiyan |
| STs | Scheduled Tribes |
| TFR | Total Fertility Rate |
| U5MR | Under-five Mortality Rate |
| UAPCC | Uttarakhand Action Plan on Climate Change |
| UDRP | Uttarakhand Disaster Recovery Project |
| UKHDR | Uttarakhand Human Development Report |
| UKSDM | Uttarakhand Skill Development Mission |
| UNDP | United National Development Programme |
| UNFCCC | UN Framework Convention on Climate Change |
| UNWTO | United Nations World Tourism Organisation |
| UPS | Usual Principal Status |
| UTDB | Uttarakhand Tourism Development Board |
| VCSGPSY | Veer Chandra Singh Garhwali Paryatan Swarozgar Yojana |
| WPR | Work Participation Rate |
| WTO | World Tourism Organisation |

# Overview

# Overview

Uttarakhand was carved out in the year 2000 from the Himalayan districts of Uttar Pradesh, as the 27th state of the Republic of India. Since then, it has recorded significant gains in human development. Post-2005, Uttarakhand has emerged as one of the fastest growing states within India – averaging a robust annual growth rate of seven percent over the past five years. Today, it ranks as the sixth richest Indian state in terms of per capita state domestic product. Poverty reduction in Uttarakhand has been among the fastest in the country after 2005. Not surprisingly, in 2011-12, only 11 percent of Uttarakhand's population was below the poverty line – well below the national average of 22 percent. Progress along other dimensions of human development has also been significant. For instance, child survival in the state is better than the national average, and is improving. Gender parity in enrolments has been achieved at the primary and secondary levels of school education. Close to 96 percent of the households are electrified, and 100 percent of rural households have toilets within the household. Nevertheless, the State faces several challenges especially in terms of bridging inequalities, ensuring social inclusion, creating jobs, and fulfilling the aspirations of young people. While many gains have accrued to young girls and women, as well as communities belonging to Scheduled Castes, they still do not enjoy equal opportunities.

The purpose of development is to put people and what they value most – their security, their aspirations, their needs, their rights – at the centre of development. And this is the way human development is defined – as a process of expanding choices, enhancing people's capabilities, fulfilling rights and expanding freedoms. Inherent to human development is a focus on people and what they cherish and value in life. People are both the beneficiaries of such development and the agents of the progress and change that bring it about. And human poverty stems from multiple deprivations - a denial of basic entitlements to education, health, nutrition, and other constituents of decent living.

The Uttarakhand Human Development Report 2019 takes stock of the many achievements of the State across the different dimensions of human development. Available secondary data has been supplemented by an extensive state-wide household survey conducted in 2017 which draws attention to the many hopes and aspirations as well as insecurities in the lives of ordinary people. While recognizing the successful implementation of several government schemes that have benefitted the poor, the Report highlights gaps in policy as well as shortcomings in implementation. Drawing on in-depth group discussions across different groups, the Report identifies priorities for the future, especially as Uttarakhand embarks on the path of realizing the goals set out in the Uttarakhand Vision 2030 report released by the Government of Uttarakhand.[1]

1 See Department of Planning, Government of Uttarakhand, 'Uttarakhand Vision 2030' accessible at http://des.uk.gov.in/files/Uttarakhand_Vision_2030.pdf

## The Human Development Scenario

Uttarakhand borders the Tibet Autonomous Region of China to the northeast, the Sudurpashchim Pradesh of Nepal to the southeast; the Indian states of Uttar Pradesh to the south, Himachal Pradesh to the west and north-west and Haryana to the south-western corner. Its population of close to 10 million (in 2011) is spread over a land area of 53,483 square kilometres of which 86 percent is mountainous and 65 percent is covered by forest. Close to 70 percent of the people reside in rural areas.

Uttarakhand's climate and vegetation vary greatly with elevation, from glaciers at the highest elevations to subtropical forests at the lower elevations. Most of the northern part of the state is covered by high Himalayan peaks and glaciers. Below them, between 3,000 and 5,000 metres (9,800 and 16,400 feet) are the western Himalayan alpine shrubs and meadows. The State is rich in natural resources such as water, forests and mineral deposits such as limestone, marble, rock phosphate, dolomite, copper, and gypsum. Forests contribute immensely towards the procurement of raw materials for several economic activities through minor forest produce as well as rare species of aromatic and medicinal plants.

Uttarakhand is characterized by two distinct regions: the plains and the hills. Nearly half (48 percent) of the State's population resides in the mountainous regions that occupy 85 percent of the state's geographical area. A large majority (85 percent) of those living in the hills reside in rural areas. The plains are made up largely of three southern districts: Dehradun, Udham Singh Nagar and Haridwar. The hills region is made up of the remaining ten districts. The three districts in the plains fare better on human development indicators than the ten hills districts. Even then, there is considerable disparity in human development achievements within the plains districts.

Uttarakhand has two administrative divisions: (i) the Kumaon region consisting of six of the 13 districts (Nainital, Almora, Pithoragarh, Udham Singh Nagar, Champawat and Bageshwar); and (ii) the Garhwal region consisting of seven districts (Chamoli, Pauri Garhwal, Tehri Garhwal, Uttarkashi, Dehradun, Haridwar and Rudraprayag).

Discussed below are Uttarakhand's key achievements along different dimensions of human development.


With an estimated per capita net state domestic product (NSDP) in 2017-18 of Rs.177,000– almost 60 percent higher than the national income - Uttarakhand has emerged as the sixth richest Indian state – next only to Haryana, Karnataka, Maharashtra, Sikkim and Telangana.

Uttarakhand has emerged as one of the fastest growing states in the country. Between 2012-13 and 2016-17, the state's Gross State Domestic Product (GSDP) grew on average by seven percent per annum. And GSDP is expected to grow at a rate of 6.8 percent in 2017-18 (Figure 1).

Figure 1: Growth Rate in GSDP (%), (at 2011-12 prices), 2012-13 to 2017-18


*Source:* QE: Quick Estimates, PE: Provisional Estimates
*Source:* Government of Uttarakhand, 2017-18

The contribution of the primary sector to Uttarakhand's growth, low as it has always been, is now steadily declining. The contribution of the primary sector (mostly agriculture, forestry and mining) has declined from 13 percent in 2011-12 to less than 9.4 percent in 2017-18. Within the primary sector, it is not agriculture, but mining and quarrying

that report high growth rates, though their overall share in the primary sector remains low.

As a result, Uttarakhand's growth has been driven largely by the non-farm sectors of its economy. The secondary sector (including manufacturing and industry, as well as construction activities) has steadily contributed to nearly half of the State's SGDP over the past five years. The tertiary sector contributes to over a third (34.5 percent) of the State's SGDP.

The significant growth in Uttarakhand's real per capita net state domestic product (NSDP) by almost 40 percent between 2011-12 and 2017-18 has contributed to improving the living standards of people across the State.

According to the UKHDR Survey 2017, (hereinafter referred to as the UKHDR Survey) regular workers earned, on average, around Rs. 545 a day – which translates into Rs. 16,350 a month or close to Rs. 200,000 a year. On the other hand, casual workers earned much less – on average around Rs. 303 per day. Men earned higher daily wages than women, people in urban areas earned more than their rural counterparts and surprisingly, those in the hills earned more than those in the plains, across the regular and casual worker categories.

Levels of poverty in Uttarakhand are lower than in most other Indian states. In 2011-12, according to the NSSO, 11.3 percent of Uttarakhand's population was below the poverty line as against the national average of 22 percent.

Poverty levels in Uttarakhand showed little signs of improvement between 1994 and 2005. However, post-2005, the State recorded the fastest reductions in poverty among the Indian states. From almost a third of the population (33 percent) being below the poverty line in 2005, the proportion dropped to 11 percent by 2012. Rural poverty in particular fell sharply from 37 percent in 2005 to 12 percent by 2012.

Applying the Expert Group Tendulkar Methodology to the consumption expenditure data collected during the UKHDR Survey suggests that close to 16 percent of the State's population is below the poverty line – almost 20 percent in rural areas and 11 percent in urban areas.

## Employment & Livelihood

There has been a steady decline in the Labour Force Participation Rate (LFPR) over the past decade or so. The adult Labour Force Participation Rate (LFPR) which was 67 percent in 2004-5 dropped to around 54 percent in 2011-12. The UKHDR Survey suggests a further decline in LFPR to 47 percent in 2017.

Self-employment fell from 75 percent in 2004-05 to 69 percent in 2011-12. The UKHDR Survey suggests a further decline in self-employment though more than half the people (56.9 percent) are still depend on self- employment activities for their livelihoods. On the other hand, the proportion of people involved in regular work has gone up (from 13.7 percent in 2004-5 to 24.2 percent in 2017) as well as in casual work (from 11.3 percent in 2004-5 to 18.9 percent in 2017).

There has been a sharp decline in the proportion of people working in the farm sector. In 1994, 75 percent of the workforce was employed in farm activities. By 2012, this proportion had dropped to 49 percent. Correspondingly, the proportion of people taking up non-farm sector jobs went up from 25 percent in 1994 to 51 percent in 2012.

There has also been a sharp decline in female labour force participation rates in Uttarakhand since 1994. This is particularly so in rural areas where the female labour forces participation rate has dropped from 22 percent in 1993—94 to 15 percent in 2011-12. The urban female labour force participation rates also fell sharply from 66 percent in 2004-05 to 44 percent in 2011-12.

The shift in employment patterns away from farming and from self-employment to wage activities reflects high under-employment in farming and related activities. The situation gets exacerbated by the absence of alternative remunerative non-farm self-employment activities in the state.

Many factors account for the decline in farm jobs. While the total area available for land use purposes is 5.99 million ha, the net sown area, is relatively small (11.7 percent) and the area

under forest cover is approximately two-thirds the total land area (63.4 percent). This is because land utilization patterns, governed by changing land formations like plains, slopes, mountainous forms, high and low altitudes, limit land use for agriculture and cultivation purposes. Agricultural practices vary distinctly between the hills and the plains. Farmers in the hills practice subsistence agriculture making do with inexpensive inputs and resources, whereas farmers in the plains practice commercial farming. Even then, returns from agriculture are low because farming is difficult and not remunerative in terrains that are hilly and predominantly rain-fed, where the climate is cold and the soil is infertile.

In addition, only 47 percent of the net sown area is irrigated - with the plains districts having a much higher share in the proportion of irrigated net sown area. A majority of farmers belong to the small and marginal landholder categories with the average size of land holdings being as low as 0.68 hectares. Low economic returns from small land holdings make cultivation an unviable option for most farmers. Also, uncertain weather conditions and landslides, non-availability of seeds, scarcity of fodder, transportation and marketing problems, fragmented food supply chains, the dominance of multiple market players, lack of market information, and difficulties in obtaining credit at reasonable rates of interest have also reduced the attractiveness of farming as a financially viable occupation. Migration from the hills to the plains also poses a challenge to agricultural development leaving large numbers of farmlands totally abandoned and devoid of any crop production. Climate change and the vagaries of nature add to the uncertainty of farm incomes. Uttarakhand remains exposed to heavy rainfall and landslides as well as extreme weather conditions.

## Health

The State has recorded several advances in promoting the health status of its residents. According to the Sample Registration System, the life expectancy at birth, 71.5 years for 2012-16 (74.8 years for females and 68.5 years for males) is higher than the national average of 68.5 years. The UKHDR Survey data also yields a life expectancy at birth estimate of 71.5 years. Only four of the thirteen districts in the state have life expectancy rates above the state average with Haridwar district at the bottom (67.7 years).

Health issues in Uttarakhand have shown mixed progress (Table 1). Child survival has improved over the years, but the reductions in maternal mortality rates have been poor.

Institutional births were preferred by households in both hills (73 percent) and in the plains (79.6 percent). With the exceptions of Chamoli (47.9 percent) and Pithoragarh (66.2 percent), in all the other districts of the state, more than three-fourths of births took place in institutions. For institutional

Table 1: Key Indicators of Health and Nutrition of Uttarakhand

| | NFHS-4 (2015-16) | NFHS-3 (2005-06) |
|---|---|---|
| **Marriage and fertility** | | |
| Women age 20-24 years married before 18 years (%) | 13.8 | 23.0 |
| Total Fertility Rate | 2.1 | 2.6 |
| **Infant and child mortality** | | |
| Infant mortality rate | 40 | 42 |
| Under-five mortality rate | 47 | 57 |
| **Nutritional status** | | |
| Children under 5 years who are stunted (%) | 33.5 | 44.4 |
| Children under 5 years who are wasted (%) | 19.5 | 18.8 |
| All women age 15-49 years who are anaemic (%) | 26.6 | 38.0 |

*Source:* National Family Health Survey (NFHS)

deliveries, government hospitals were more preferred by the populace across all the districts.

There was a five-percentage point difference in the immunization coverage between rural and urban areas, and a 10 percentage point disadvantage for the hills over the plains. Uttarkashi (5.2 percent) and Bageshwar (3.6 percent) reported the highest proportions of 0-5 age children who had taken none of the immunization vaccines.

Close to two thirds of the children were enrolled in anganwadi centres which are an essential point for the provisioning of child survival interventions. Tehri Garhwal (58.3 percent), Pauri Garhwal (55.3 percent) and Haridwar (51.3 percent) had the lowest enrolments in anganwadi centres.

Satisfaction levels with the ICDS were higher in the hills vis-à-vis the plains with 69 percent and 58.2 percent households respectively expressing the ICDS services to be good, which is an encouraging finding from the survey.

In terms of the demand for public versus private health care in the state, the UKHDR Survey found that households relied more on private health care facilities for both short term and long term illnesses and this was more prevalent in the rural areas as compared to the urban areas. This could well be a reflection of the lack of functional government health facilities such as PHCs, CHCs, district hospitals, etc., and in cases where such facilities are present, their access could possibly be a problem for the populace, leading to dependence on private health care.

Across the various districts, across social groups as well as across different income quintiles, private health care was found to be the preferred option in the state for both short term and long term illnesses.

Focus Group Discussions (FGDs) revealed that people in the hills regions were more dissatisfied with health care facilities than those in rural areas, in the plains, and in urban areas. The hills and rural areas were found to be lacking in doctors, supporting staff and medicine supplies, thereby pushing people out to urban centres for better medical and health care services. Respondents from the lowest income quintiles were more dissatisfied with the health facilities as compared to respondents from the higher income quintile groups.

## Education

According to the UKHDR Survey, Uttarakhand's literacy rate was 87.4 percent – higher than 78.8 percent reported by the Census of India 2011. There is however a persistent gender gap of 11.5 percentage points with the literacy rate among men being 93.2 percent and among women 81.7 percent. The mean years of schooling for Uttarakhand was estimated at 7.5 years. The estimates for the expected years of schooling were found to be 11.2 years for the state, implying that on an average, a child could be expected to complete at least the secondary level of schooling once he or she started going to school. A marginal rural-urban and male-female bias was found to exist for this indicator, although in an unexpected direction as the expected years of schooling in rural areas (11.3 years) was found to be marginally higher than that for urban areas (11.1 years).

The Survey also reveals an adult literacy rate (15+) of 84.6 percent - 91.8 percent for males and 77.0 percent for females. Three of the hills districts had the highest adult literacy rates (Pithoragarh, Pauri Garhwal and Bageshwar). Three other hills districts also had the highest gender gap in the adult literacy rate in the state (Uttarkashi, Champawat and Tehri Garhwal).

Less than half the children 3-6 years of age attend a pre-school (47.3 percent, UKHDR Survey), the highest proportions being in Champawat and the lowest in Haridwar. While a marginal gender gap exists at this first step of education, Almora and Dehradun report the lowest proportions of female children enrolled in pre-schools. In rural areas, there is a female disadvantage for this age group while the urban areas report a female advantage for this indicator.

A comparison of anganwadis versus private schools for pre-primary education in the state shows that close to half the children in the 3-6 age group were going to anganwadis with a female advantage of five percentage points. Male children were found to be enrolled in higher proportions in private pre-primary schools with a male advantage of three percentage points. Schooling preferences were found to be tilted towards private schools (52.6 percent) vis-à-vis government schools (47.4 percent) at the elementary level (std. I-VIII). Many of the hills districts reported a preference for government schools while in the plains districts, private schools were the preferred source for elementary education, having cost implications for households preferring private schooling.

School enrolment in Uttarakhand is high. The Gross Enrolment Ratio (GER), according to DISE data for 2015-16, is 99.3 percent at the primary, 86.7 percent at the secondary and 85.7 percent at the higher secondary levels. However, the enrolment rate at higher education (above higher secondary) is relatively low at 33.3 percent. It has also been observed from the UKHDR Survey that children are attending private schools more in urban areas than in rural areas primarily due to the availability of quality teachers and attraction of English medium instruction as revealed by people during the discussions. Drop-out rates are higher in the plains and urban locations than the hills and rural locations due to their engagement in earning support.

Of the total children in the 6 to 17 year age group, 5.3 percent are found to be out of school (UKHDR Survey). Among these children, 17.2 percent have never enrolled in a school; almost 79 percent of those who were enrolled dropped out of school at different classes and a smaller proportion of them, although they have not formally given up school, do not attend school. There were relatively more boys among the never enrolled and there was very little gender difference in the other drop-out categories.

Estimated share of drop outs among 6-17 year old children indicates that the share increases across education levels as we go up the hierarchy from primary (0.5 percent), to upper primary (3.2 percent), peaks at secondary (9.1 percent) and falls slightly at higher secondary (8.4 percent). The plains show relatively high drop-out rates, the highest at the secondary level (14 percent). This is likely to be because of the engagement of youth in providing earning support to their families, work opportunities being more available in districts in the plains. The UKHDR Survey suggests that the main reasons for dropout in Class I to V are that the child is not interested in studying (28 percent), followed by the need to support earnings (18.5 percent). The need to support earnings continues to be a major reason for dropout in classes VI to VIII as well as in in classes XI to XII. However, in classes IX to X, 'not interested in studying' is a major factor for dropping out of school.

Concerns of low learning achievements in schools persist in the state although recent statistics show that the learning outcomes in the state for the elementary level are largely above the national average. While the performance of classes III and V were above the national average in the 2017 National Achievement Survey, the performance for Class VIII students was below the national average in Mathematics. The absolute levels of achievements were low. For instance, for Class VIII, the performance in Mathematics and Science for the 2017 NAS is poor at the absolute level, with only 40 percent and 47 percent children giving correct answers. The quality deficit in education is also highlighted by the Annual Status of Education Report (ASER) reports for the state, based on rural household surveys, which show that only 34.5 percent children in Class III could read Class II level text. Even for students in Standard V, only 64.6 percent could read a text of Standard II level. An encouraging feature is that according to the 2017 NAS, social-group wise performance indicates that while the general caste students have out-performed the others, the margin of difference is small. In Mathematics, in particular, OBC students have shown good performance.

School accessibility has important implications for enrolment, attendance and retention. The UKHDR Survey found that a little over half the households had a school within one kilometre radius, while inter-district variations did exist for this school accessibility indicator. The hill district of Almora was found to have the lowest proportion of households

having access to a school within a 1 km radius (35.8 percent) highlighting the difficulties in school access in the hilly regions of the state.

School infrastructure has shown an improvement with an increase in the provisioning of boundary walls for schools, sanitation facilities, drinking water, availability of ramps and access to computer facilities.

Reach of government assistance towards children studying in government schools was found to be reasonably high with 60 percent of the children having received books, 45.5 percent school uniforms, 47.1 percent mid-day meals and 16 percent scholarships. Distinct inter district variations in terms of the provisioning of government assistance for promoting education were also reported. A majority of the respondents also found the mid-day meals to be of reasonably good quality.

The state has 39 colleges per lakh population, which is well above the national average of 26 colleges. However, during the Focus Group Discussions (FGDs), a majority of respondents clearly expressed that the quality of technical and professional courses was not that good with only one tenth of them rating it as very good. Education facilities were rated lower by residents of the hills as compared to those living in the plains and those from rural areas as compared to urban areas.

Respondents from the lower income quintile groups were more dissatisfied with educational courses compared to the higher income quintile groups because of the high and unaffordable fees charged for the various courses. Across social groups, the scheduled tribes and those from the general category rated these courses higher as compared to the other groups. A possible reason for this could be that the scheduled tribes and populace from the general category are generally economically better off classes and thus their capacity for paying fee is also higher.

Average household expenditure on education was around Rs. 800 per month, which was higher in urban areas vis-à-vis the rural areas. Also, household expenditure on education as a proportion of total expenditure was 10.7 percent, once again higher for the urban vis-à-vis rural households. Inter-district variations in both these expenditure indicators exist across the state as well.

Education expenditure as a share of state domestic product is still low at 3.5 percent, which is significantly lower than that for Himachal Pradesh (4.6 percent). The expected aim is of touching 6 percent of GSDP as envisaged in the educational policy by the government.

Awareness about the scheme of free education for the girl child till Class XII was very poor (less than a third of the respondents) in the state. Only the hills districts of Bageshwar and Uttarkashi reported approximately three-fourths and half the households respectively availing of education benefits for the female child. In all the other districts, the proportions of households availing of such a benefit was one-thirds or lower which is an important policy pointer as free education for the female child is an important incentive for encouraging female child participation in schooling. Similarly, household awareness about initiatives such as the Uttarakhand Skill Development Mission, 2013, was very poor (7 percent) and only a tenth of the eligible population had received any benefit by enrolling in the same.

## Access to Basic Services

In-depth focus group discussions (FGDs) conducted during the UKHDR Survey reveal that respondents in the hills and rural areas were more dissatisfied with basic services compared to those living in the plains and in urban areas. The lower income quintile groups expressed their dissatisfaction more as compared to respondents from the higher income quintile groups.

Across social groups, about one third (30-34 percent) clearly stated that basic infrastructural services were either below average or not at all satisfactory. At the district level, it ranged from 56 percent in Almora to 52 percent in Chamoli and 50 percent in Bageshwar to 46 percent in Pauri Garhwal and 39 percent in Tehri Garhwal.

Respondents pointed out that access to safe drinking water, sanitation facilities and electricity within their premises has shown significant improvements. Only, the proportion of urban households without safe drinking water within their premises has seen an increase in the interiors of hilly terrains like Pauri Garhwal, Rudraprayag and in the plains districts of Haridwar and Udham Singh Nagar. The migration into these plains districts could be a plausible cause for pressures on water supply for urban households there.

Uttarakhand is doing very well in terms of electricity supply to urban households and may soon achieve the SDG of covering 100 percent households in urban areas with electricity. Electricity supply has covered the length and breadth of Uttarakhand with 99.5 percent households having electricity supply within their premises, and an average 21 hours of electricity being reported per day.

A majority of urban households (84.1 percent) live in owner occupied houses and only a tenth live in rented houses with an almost similar pattern prevailing across the districts. Udham Singh Nagar reported the highest proportion of urban households living in their own houses and Tehri Garhwal reported the highest proportion of urban households living in rented accommodation. Such a finding could be a reflection of the effectiveness of public housing programmes in the state and the availability affordable housing as well as housing loans in urban areas.

According to the UKHDR Survey, the people of Uttarakhand seem to be satisfied with the quantity and quality of water supply in the state. Tap water is the major water supply source with 69 percent households having a water connection. Those expressing dissatisfaction with the water supply were households that found the water supply dirty and the mixing of mud water in it.

On the sanitation front, while a high proportion of households (87.1 percent) had an attached toilet facility, the garbage collection and disposal scenario was dismal in the state calling for urgent attention. The UKHDR Survey reports that garbage is being dumped in the open in the hills and in the plains. Overall, the progress in solid and liquid waste management has been slow.

## Position of Women

Women in Uttarakhand do not enjoy equal opportunities and freedoms vis-à-vis men. Of deep concern has been the decline in the child sex ratio from 948 in 1991 to 908 in 2001 and down to 890 in 2011. Uttarakhand's maternal mortality ratio (MMR) – 285 per 100,000 live births – is next only to Assam which reports the highest rates of MMR (300).

Whereas more adult women in Uttarakhand are completing secondary school, they lag behind the state's adult men in schooling. Also, as discussed earlier, more and more women are withdrawing from the labor force especially in rural areas. About 82 percent of rural women work mainly in farming as against 45 percent of men.

The UKHDR Survey brings out the following disparities in the achievements of women vis-à-vis men:

- The life expectancy for women (74.3 years) is greater than that for men (68.8 years).
- The lowest life expectancy for both sexes was reported in Haridwar (male 65.4 years, female 70.1 years), showing lack of proper access and utilization in terms of health facilities and nutrition for its populace.
- Almora had the highest life expectancy for females (75 years) while Pithoragarh reported the highest life expectancy for males (69.5 years).
- The mean years of schooling was lower for females as compared to males at the state level (8.9 years for males and 6.3 years for female) as well as across the districts.
- The male-female gap in mean years of schooling was the highest in the hills districts of Tehri Garhwal and Uttarkashi (3.8 years) and lowest in the plains districts of Dehradun and Nainital (2.1 years).

- In 8 out the 13 districts, females reported marginally higher expected years of schooling, while when it came to the actual mean years of schooling, females lagged behind males across the state.
- Overall, the male-female gap in the expected years of schooling across the districts was narrower as compared to the gap in the mean years of schooling, with females having an advantage over males in most of the districts for this indicator.

The per capita annual earnings for males (Rs. 195,100) was more than three times higher than that for females (Rs. 64,400). This shows a clear female disadvantage and this pattern holds across all the districts of the state. The male-female annual per capita earnings gap was significantly higher in the plains districts which could be possibly due to low female participation in economic activities.

The GDI values reveal the hills districts of the state to have higher values as compared to the plains districts. Uttarkashi had the highest GDI value (0.892) while Hardwar had the lowest GDI value (0.561).

While the plains districts of Hardwar, Dehradun and Udham Singh Nagar have the highest HDI values, they also have the lowest GDI values, implying that they are doing well on the human development indices, but reflect gender imbalance in these indices. The difference mainly lies in female participation in income earning activities, as on the health and education indicators, significant gender differences across the districts were not observed.

## Reach of Welfare Programmes

People of Uttarakhand have benefited from various employment, livelihood promotion, and welfare programmes supported by both the central and the state governments. The UKHDR Survey reveals, for instance, that 41 percent (51 percent in the hills regions and 26 percent in the plains) of those eligible have benefitted from the National Rural Livelihood Mission (NRLM). Similarly, 36 percent of the eligible population in the hills regions and 20 percent in the plains have benefited from the Mukhya Mantri Satata Jivika (MMSJ). Nearly two out of five (38 percent) of the eligible households in the hills regions have benefited from the Shilpi Gram Yojana (SGY). On the other hand, households in the plains have benefited more from the Mudra Loan Yojana (MLY) and the Veer Chandra Singh Garhwali (VCSG) Self-Employment Scheme in tourism. The Uttarakhand Skill Development Mission (UKSDM) 2013, has been providing free skill development training to youth across all the 13 districts' urban and rural sectors.

The UKHDR Survey shows that the MGNREGS scheme provided on an average, employment for 44 days at a daily wage rate of Rs.183 in 2017. On an average, 78 percent of the people who had applied for jobs had obtained employment. The hills areas reported lower average days of work (43) compared to the plain areas (53). In most cases, the market wage rates in the hills districts were higher than the wages stipulated under the MGNREGS. The UKHDR Survey reports the daily wage rates for both the hills and the plains as almost similar (Rs. 175 and Rs. 178 respectively). Those belonging to the lower quintile income groups availed of more days of employment compared to those in the highest quintile income group. The highest quintile groups reported higher wages per day for the work they got. The districts of Haridwar (90), Almora (60) and Nainital (55) reported the highest days of work with the lowest being in Rudraprayag (28) and Bageshwar (32). A possible reason for Haridwar reporting the highest average work days under this employment scheme could be the availability of intermittent work which people are willing to take on at the prevailing wage rates. It is also possible that the gap between the market wage rate and the MGNREGS wages is also not that high.

The UKHDR Survey finds that a majority of people have ration cards (88 percent) of which 45 percent were reported as having Below Poverty Line cards and 4 percent having Antyodaya cards. The hills report a larger proportion of ration card holders (92 percent) compared to the plains (85 percent). As expected, the dependence on ration cards and the Antyodaya scheme is higher in the lower income quintile groups.

The UKHDR Survey found that a large majority of the beneficiaries (73 percent) had availed of the PDS facility more than once a month, 15 percent had used the PDS facility at least once a month, while approximately 11 percent had never used the facility. The lower income quintile groups were using the facility more than those in the higher income quintile groups. The hills districts of Pithoragarh, Rudraprayag, Champawat, Chamoli and Tehri Garhwal reported high dependence on the PDS facility (used more than once a month), with over 80 percent of the population reporting the same. The plains of Dehradun, Haridwar and Udham Singh Nagar had a lesser proportion of population using the PDS facility more than once (66.1 percent, 66.8 percent and 70.4 percent respectively).

A little over half the respondents (53 percent) responded that they got their full quota 'always' while about a quarter (24 percent) said that they received their full quota 'most of the times', 16 percent responded as 'some of the times' and 5 percent responded that they 'never got' the PDS entitlement quota.

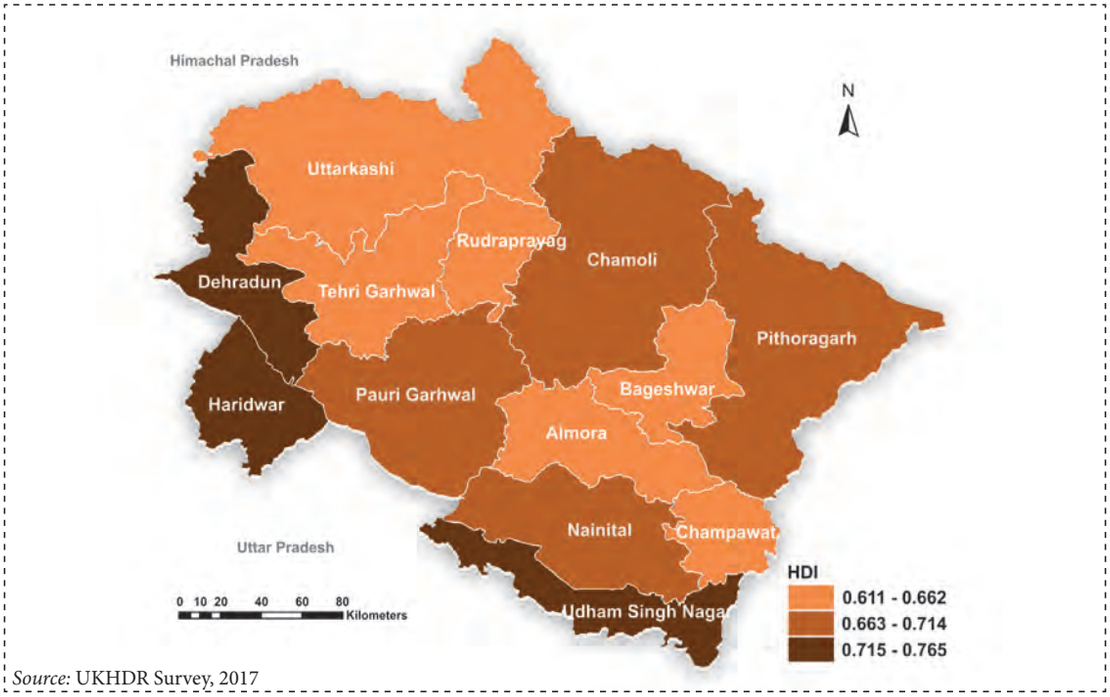
More than two-thirds (67.8 percent) of the respondents said that they faced no difficulty in getting their PDS quota. This was also true of the lower MPCE quintiles which reported in high proportions that they had no problems in accessing their PDS quotas.

More than two-thirds of the households in rural areas (65.3 percent) and over half the households in urban areas (59.8 percent) said that they found the ICDS services good. Over a quarter of the households in rural and urban areas found the services average. Satisfaction levels with the ICDS were higher in the hills vis-à-vis the plains. Amongst the various social groups, 67.3 percent scheduled caste households, 61.6 percent scheduled tribe households and 58.6 percent other backward classes households reported the ICDS services to be good.

## Human Development Index (HDI)

Using data from the UKHDR Survey, the Human Development Index was constructed for Uttarakhand and its 13 districts (Map 1). The HDI for Uttarakhand state shows an improvement over the period 2011-12 to 2017 (UKHDR Survey year) from 0.531 to 0.718, higher than the all India HDI value (0.64) and just above the medium HDI score (0.70) as per UNDP 2018.

Map 1: District-Wise Human Development Indices (HDIs), 2017




*Source:* UKHDR Survey, 2017

The top three districts are located in the plains viz., Dehradun (0.765), Haridwar (0.733) and Udham Singh Nagar (0.717)

The bottom three are located in the hills regions viz., Rudraprayag (0.626), Champawat (0.620) and Tehri Garhwal (0.611).

The differences in HDI values between the hills and the plains districts are mainly due to differentials in per capita GDP, while the education and health indicators shows a marginal gap.

## Six Key Human Development Challenges

The many successes of Uttarakhand in advancing human development need to be juxtaposed against six inter-connected challenges that the state faces. These are persistent inequalities, insufficient job creation, forced out-migration, unplanned urbanization, insufficient access to healthcare and educational opportunities and environmental challenges.

### Persisting Inequalities

Uttarakhand's development has been characterized by persistent inequalities across districts.

*Spatial inequality:* The three districts in the plains fare better on most human development indicators than the hills districts. Along some dimensions, the inequalities are even widening. Many factors account for this – the dependence of a majority of rural residents in mountain areas on subsistence agriculture compounded by fragmented, scattered and rain-fed land available for cultivation. In addition, poor accessibility (lack of access to infrastructure, markets, technologies, and information), fragility, and marginality also contribute to the deprivations and vulnerabilities in the lives of those who reside in the hills districts.

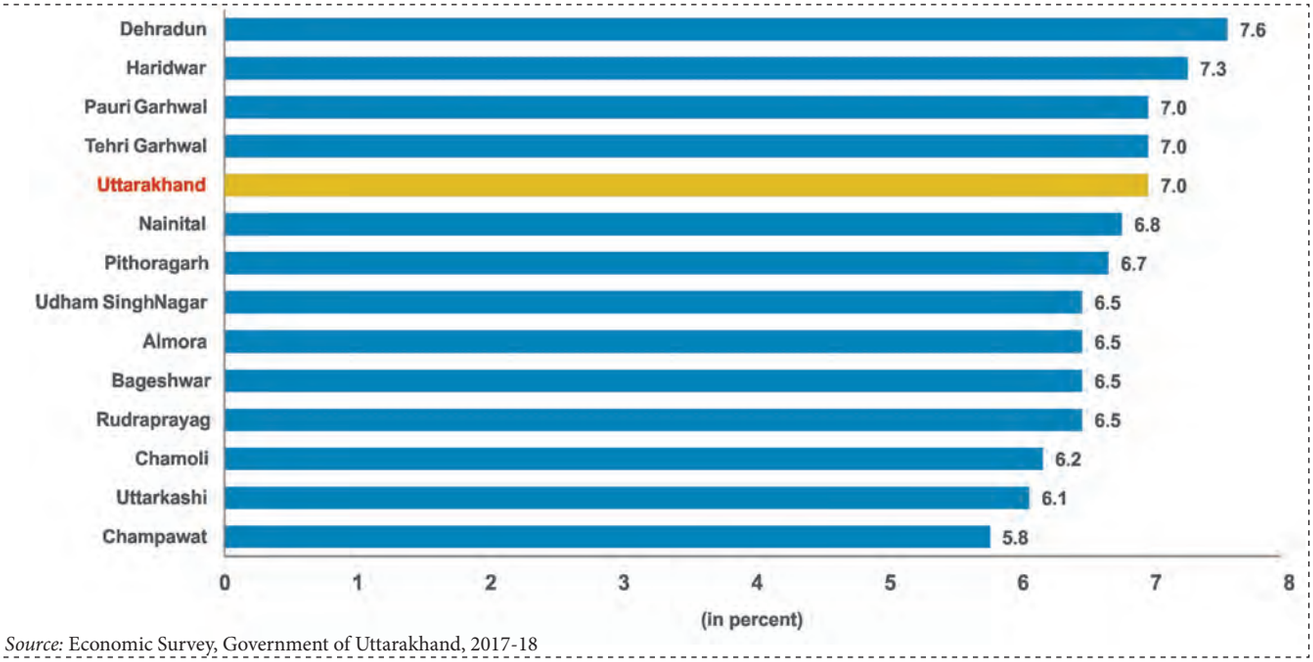
Most of the industries in the state are located in the three plains districts namely, Haridwar, Udham Singh Nagar and Dehradun, while the hills districts are bereft of industrial activities. One of the main reasons for lack of industrial development in the hills districts is the lack of infrastructure development owing to mountain specificities. A majority of the people in the hills districts engage in agriculture which by and large has become an increasingly uneconomical and unsustainable enterprise. The productivity of hills agriculture is very low and the income derived from it is minuscule. It can be argued here that mountain areas should primarily focus on niche products in which they have a comparative advantage rather than producing products in which they do not have a distinct advantage in terms of product and price competitiveness. However, there is the pressing need for evolving special policies and support mechanisms to promote micro and small enterprises, taking into account the diversities and constraints of the regions. From a long term perspective, a shift from agriculture to non-agriculture and niche activities seems to be the obvious and strategic option for the state of Uttarakhand.

One of the important indicators of diversification of the workforce is the share of workers engaged in the manufacturing sector. In the plains districts, a large proportion of workers engage in activities in the manufacturing sector and such a spatial industrial distribution skewed in favour of the plains districts has further exacerbated economic disparities in the state.

*Income inequality:* Large variations in per capita income are reported across the districts. Per capita incomes are much higher in the plains vis-à-vis the hills. In 2016-17, the per capita incomes of the three hills districts of Haridwar (Rs. 254,000), Dehradun (Rs.195,000) and Udham Singh Nagar (Rs. 187,000) were higher than the state average (Rs. 161,000). Among the hills districts, all of which had per capita incomes below the state average, the lowest per capita income was reported for Rudraprayag (Rs. 83,500) and the highest for Chamoli (Rs. 118,000).

The variations in incomes can be attributed in part to the variations in growth rates across districts (Figure 2). The plains districts registered higher growth rates compared to the hills districts with Dehradun recording the highest growth rate at 7.6 percent and Champawat the lowest (5.7 percent)

Figure2: District-wise Growth Rates (%), District Domestic Product (DDP) (at Constant 2011-12 Prices), 2016-17




*Source:* Economic Survey, Government of Uttarakhand, 2017-18

in 2016-17. Only the two hills districts of Tehri Garhwal and Pauri Garhwal registered marginally higher growth rates (7 percent), higher than the state average (6.9 percent).

*Consumption inequality:* Consumption inequality in 2012 was lower in Uttarakhand than the national average. However, it has been increasing between 1994-2012, and more so in the urban areas.

Household consumption expenditure data from the UKHDR Survey re-affirms the persistence of inequalities. In 2017, the average monthly per capita expenditure (MPCE) of the state was Rs. 2,928. The MPCE in rural areas (Rs 2,673) was lower than that in urban areas (Rs 3,417). The hilly regions reported a lower MPCE (Rs 2,849) as compared to the plains (Rs 3,000).

Further analysis of the monthly per capita consumption expenditure (MPCE) reveals the following:

- The top 20 percent of people in the state have around 52 percent share in the MPCE while the share of the poorest 20 percent is only around 6 percent.
- On average, the poorest quintile of the population has a consumption level that is approximately one-tenth that of the richest quintile.
- The disparity in MPCE is high in urban (the top 20 percent accounts for about 58.4 percent while the share of the bottom 20 percent is only 2.4 percent) and rural areas (top 20 percent consumes about 47.2 percent and bottom 20 percent consumes 8.3 percent).
- District-wise, the disparity between the bottom and top 20 percent is more in Bageshwar, Chamoli, Uttarkashi, and Dehradun than the state average.

The Gini Coefficient calculated for Uttarakhand using the UKHDR Survey data reveals further inequalities (Table 2).

The district-wise distribution of inequalities presented in Figure 3 shows four different poverty and inequality patterns:

- low poverty and high inequality (Uttarkashi, Pithoragarh, Dehradun, Pauri Garhwal, Tehri Garhwal)
- high poverty and high inequality (Chamoli, Almora, Udham Singh Nagar)
- high poverty and low inequality (Champawat, Rudraprayag)

Table 2: Spatial Distribution of Inequality, 2017

| | | Gini |
|---|---|---|
| Location | Rural | 0.30 |
| | Urban | 0.31 |
| Region | Hills | 0.30 |
| | Plains | 0.31 |
| Social Group | SC | 0.28 |
| | ST | 0.28 |
| | OBC | 0.30 |
| | GEN | 0.31 |
| Uttarakhand | | 0.31 |

*Source:* UKHDR Survey, 2017

- the remaining districts have either moderate or low poverty/inequality.

Hence, the low poverty level districts do not necessarily have low inequalities (Figure 3) as well, such as the mountainous districts like Uttarkashi, Pauri Garhwal, Tehri Garhwal, Pithoragarh and the plains district of Dehradun. On the other hand, the association of poverty and inequality is seen in case of Chamoli, Almora and Udham Singh Nagar.

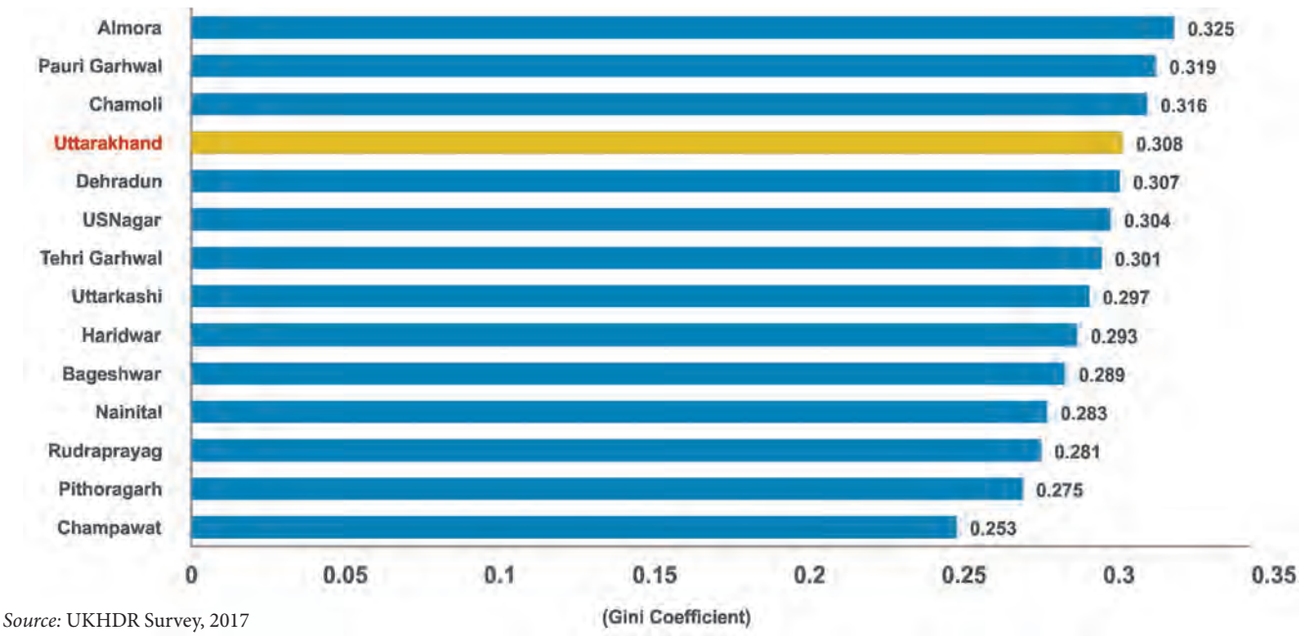
It is apparent that economic growth is not always successful in alleviating poverty. Lopsided regional development strategies have led to lessened job opportunities and poverty in some parts of the state and to the concentration of a bulk of economic activities in some other parts of the state. This has also pushed people to relocate to areas where economic opportunities are available, particularly to the plains districts of Haridwar (an important pilgrimage destination), Dehradun (a tourist destination) and Udham Singh Nagar (one of the industrial and agricultural hubs in the state).

*Poverty:* Despite the fact that the state has much lower poverty rates (11 percent) as per the NSSO 68th Round (2011-12), yet the poverty ratio estimated using the UKHDR Survey reveals that the poverty rate in the hills districts was higher with large variations across districts. Poverty was more prevalent, severe, and uneven in the mountain regions, owing to hills specificities that are often not captured in the usual surveys.

Poverty in the hilly regions (17.9 percent) was much higher than that in the plains (13.6 percent) (Map 2). Within the hills and the plains regions, poverty ratios were higher for rural areas vis-à-vis urban areas.

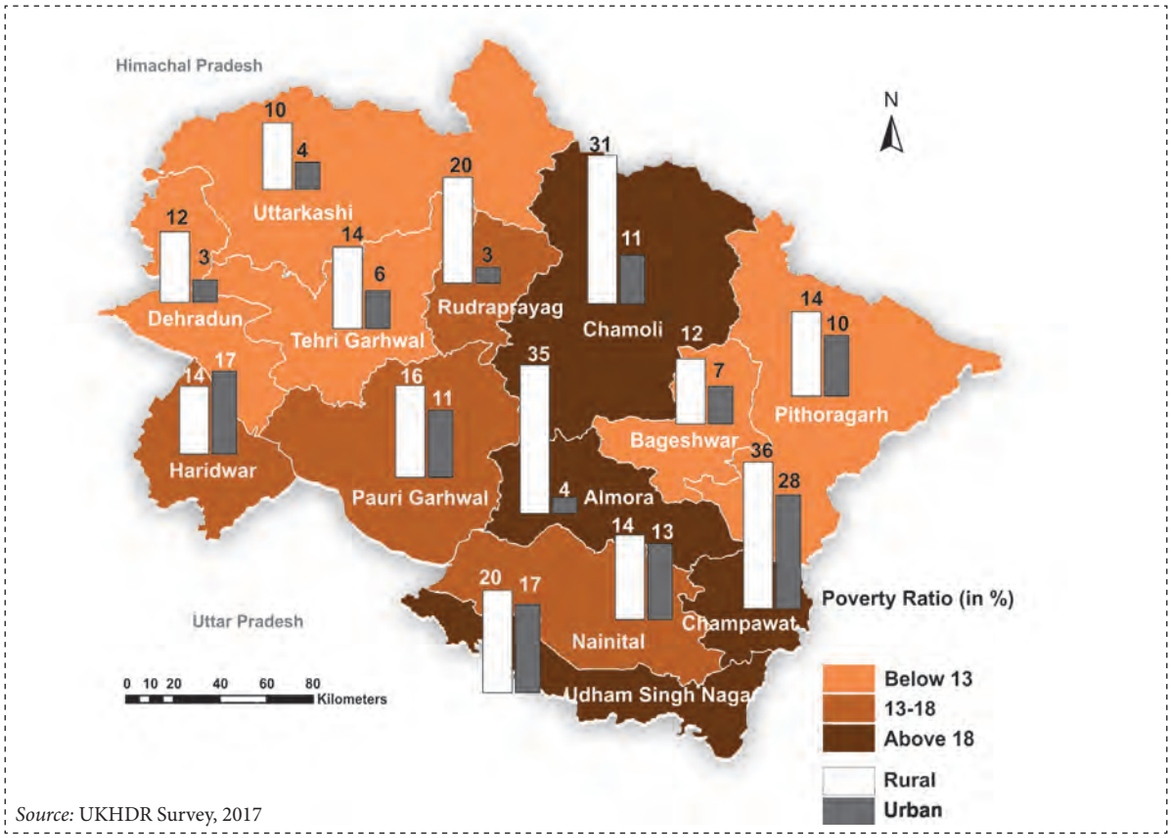
Amongst the social groups, one-fifth of the scheduled caste population and one-sixth of the other backward classes were below the poverty line in 2017. The scheduled tribes reported the lowest poverty rate at 12.1 percent.

Figure 3: District-wise Distribution of Inequality, 2017




*Source:* UKHDR Survey, 2017

Map 2: District-wise Poverty Ratio, 2017




*Source:* UKHDR Survey, 2017

Multidimensional Poverty Index: Map 3 presents the Multidimensional Poverty Index across the various districts of Uttarakhand. MPI shows a mix picture with highest MPI score in Uttarkashi (0.106) followed by Haridwar (0.101) and Champawat (0.100) showing relatively low score in education, health and living standard while the Nainital (0.050), Pauri Garhwal (0.046) and Dehradun (0.029) are, at the other end of the MPI spectrum, reflecting much lower deprivation in the same parameters.

## Insufficient Access to Health & Education

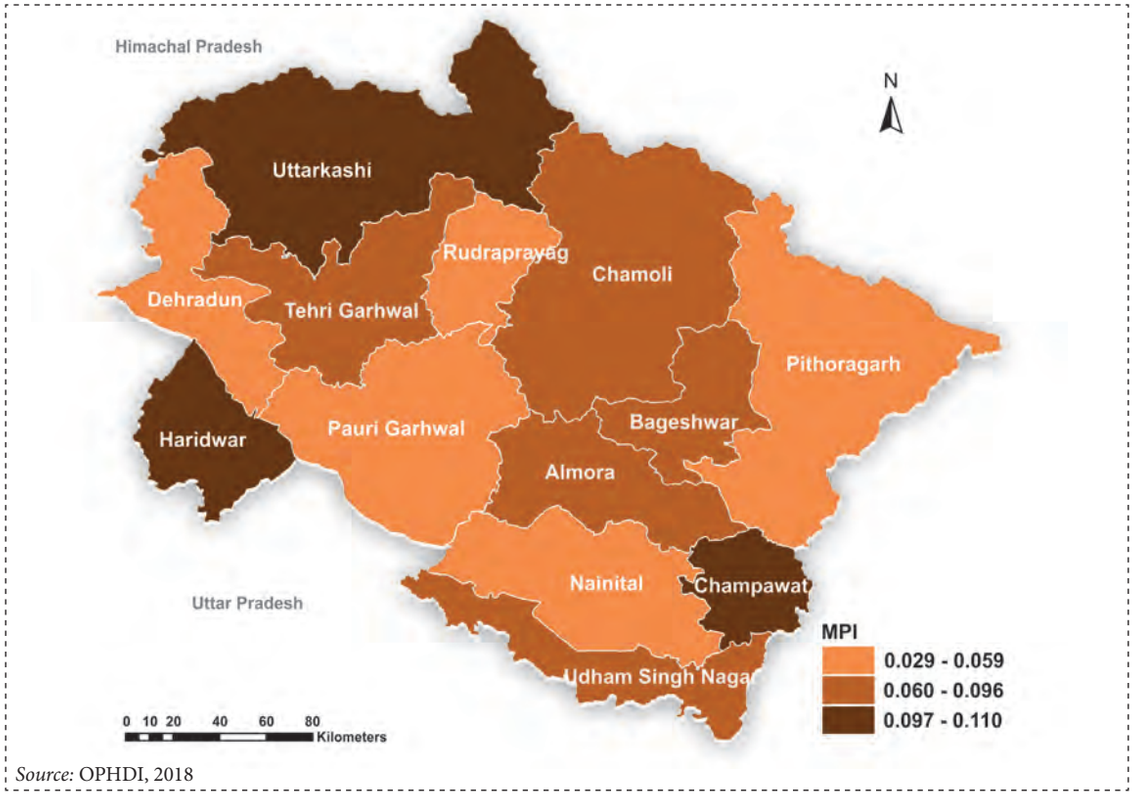
Uttarakhand has much ground to cover in terms of improving the reach especially of health and education. Limited access to health and educational opportunities is also an underlying cause of out-migration.

Access to universal health coverage is far from universal and affordable in Uttarakhand. Recent data shows little improvement and even a deterioration in the reach of primary, preventive and promotive health care services. For example, the proportion of fully immunized children (12-23 months) has come down from 60 percent in 2005-06 to 57.6 percent in 2015-16. Similarly, the proportion of mothers who had at least four antenatal care visits fell from 35 percent in 2005-06 to 31 percent in 2015-16. The proportion of children under years of age that are breastfed within one hour of birth fell from 33 percent in 2005-06 to 28 percent in 2015-16. The proportion of children 6-59 months who were anaemic (59.8 percent in 2015-16) showed no signs of improvement over 2005-06 (60.7 percent). Similarly, the proportion of women who had comprehensive knowledge of HIV/AIDS remained 29 percent over the ten year period.

The UKHDR Survey found an acute shortage of various health related personnel in the state run Primary Health Centres (PHCs). A large number of sanctioned posts were also vacant.

Public health expenditure of the state is just around 1 percent, which is below Himachal Pradesh

Map 3: Multi-Dimensional Poverty Index, 2015-16




*Source:* OPHDI, 2018

(1.5 percent) as well as the target of 2.5 percent envisaged by the National Health Policy, 2017. Hence, high private out-of-pocket expenditures on health impose severe financial burdens on households in Uttarakhand. The UKHDR Survey found that in the state, per capita expenditure on healthcare including medical expenses was Rs. 3,741 per annum which was 9.4 percent of total household expenditure. Households in urban areas spent more on health care per annum compared to their rural counterparts and those residing in the plains spent much more on health care annually as compared to those residing in the hills.

Financial protection from catastrophic illnesses remains low. According to the UKHDR Survey, only around 50 percent households were covered under the Mukhyamantri Swasthya Bima Yojana (MSBY), 26.3 percent under the Rashtriya Swasthya Bima Yojana (RSBY) and 15.5 percent under the ESIS/CGHS schemes.

According to NITI Aayog's report, "Healthy States, Progressive India: Report on the Ranks of States and Union Territories"[2], Uttarakhand ranks 15th out of the 21 larger Indian states, and is clustered with Assam, Madhya Pradesh, Odisha, Bihar, Rajasthan and Uttar Pradesh. Uttarakhand is one of the six larger States that have shown a decline in performance between 2014-15 and 2015-16.

Uttarakhand also faces the challenge of providing good quality schooling to children. Access to quality education is particularly weak in the hills regions and rural areas. According to the latest Annual Status of Education Report (ASER) 2018 [3], computers were available to children in only 10 percent of the schools as against the national average of 21 percent (Table 3). Less than one percent of children were seen using computers on the day of visit during the survey.

Only around 52.2 percent of children studying in rural Government schools in Std. V in 2012 could

2 http://niti.gov.in/writereaddata/files/Healthy-States-Progressive-India-Report.pdf
3 http://img.asercentre.org/docs/ASER%202018/Release%20Material/aserreport2018.pdf

Table 3: Trends Over Time: Reading and Arithmatic Ability in Std. V by School Type: 2012,2014,2016,2018

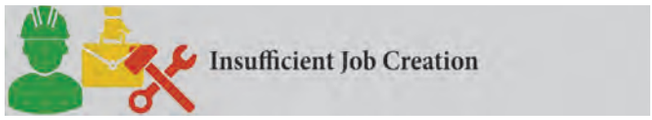
| Year | % children in Std. V who can read Std. II level text | |
|---|---|---|
| | Govt. (Reading) | Govt. (Division) |
| 2012 | 52.2 | 27.3 |
| 2014 | 52.0 | 21.4 |
| 2016 | 55.9 | 25.5 |
| 2018 | 58.0 | 26.7 |

*Source:* ASER, 2018

read Std. II level text – down to 58.0 percent in 2018. Similarly, only 27.3 percent of children studying in rural Government schools in Std. V could do division – down to 26.7 percent in 2018.

Though the performance of children in government schools is worse than those of children in private schools, private schools have also not shown any significant improvements in learning achievements since 2012.

Poor educational qualifications, low levels of skills, and poor health adversely affect the potential of people to find remunerative and productive jobs.




The unemployment situation is serious. Uttarakhand ranks below most states in the creation of jobs during 2005-2012. The non-farm sectors of Uttarakhand's economy have not created enough jobs to absorb the growing size of the workforce displaced from agriculture. Nor have they been able to absorb the more educated youth. At the same time, women's participation in the labour force has been declining since 1994 and there exists a large gender gap in the work force employment rate.

The open unemployment rate has doubled from 2.1 percent in 2004-05 to 4.2 percent in 2017. The youth (15-29 years) unemployment rate for the state also increased more than twice from 6 percent in 2004-05 to 13.2 percent in 2017 indicating an alarming unemployment situation for the youth in the state. Further, the unemployment situation has been more severe among the educated (above secondary) youth with a 17.4 percent unemployment rate in 2017.

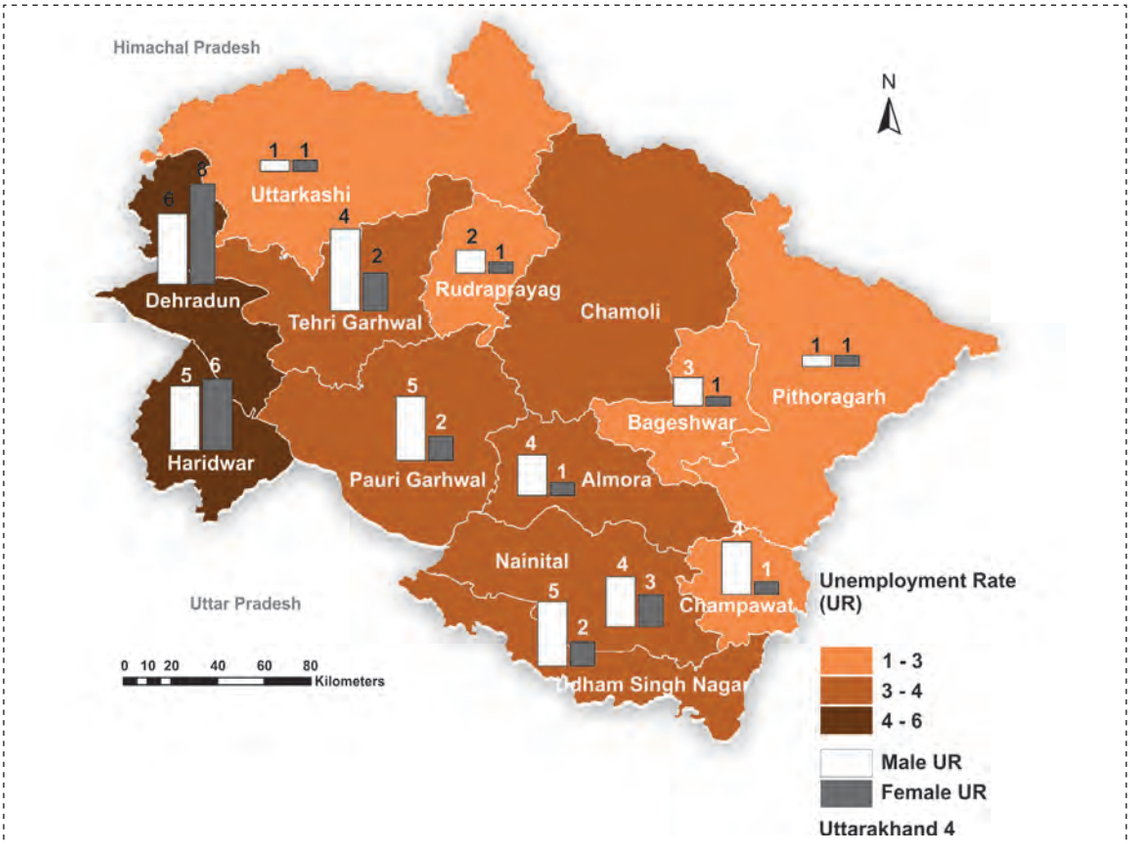
The UKHDR Survey also shows variations in the levels of unemployment across the districts (Map 4). Dehradun and Haridwar report the maximum rates of unemployment.

The district-wise unemployment rate for the educated youth (secondary level and above) was relatively high in districts like Dehradun (30.2 percent), Pauri Garhwal (22.9 percent), Tehri Garhwal (20.9 percent) and Haridwar (20.1 percent) than the state average (17.4 percent). Clearly, this reflects alarmingly high unemployment amongst the youth population and presents a major challenge for policy interventions. High adult unemployment and underemployment exists due to the absence of employment alternatives other than farming, which is fragmented with low productivity.

In the Focus Group Discussions, people expressed disappointment on the employment front, more so in the hills and rural areas. Overall, there has been a fall in employment opportunities as expressed by one tenth of the people. More than half the respondents (56 percent) expressed that there had been no increase in employment and in a majority of cases, employment had remained at the same level as earlier. Around a third of the respondents felt that employment opportunities had increased marginally. For the populace in the higher income quintiles groups, employment had shown an increase (marginally or significantly) compared to the lower income groups.

Across the social groups, the scheduled caste population seems to have faced the brunt of lack of employment opportunities followed by the general category. Respondents from districts like Pithoragarh (22 percent), Rudraprayag, Chamoli, Nainital and Almora (18 percent each) expressed a reduction in employment opportunities.

Map 4: Unemployment Rate (%) across Districts




*Source:* UKHDR Survey, 2017

The employment situation was found to be the worst in the case of educated youth, especially so in the hills and rural areas. The UKHDR Survey revealed that:

- two-thirds of the population of respondents (60 percent) stated that there were no employment opportunities for the educated youth.
- those who belonged to the lower income quintiles were faced with th e harshness of the unemployment problem more compared to those in upper the quintiles.
- scheduled caste youth were worst hit by the unemployment problem. Rudraprayag and Chamoli districts (50 percent each) had a high proportion of unemployed youth stating that there were no employment opportunities for them.

## Forced Out-Migration

A major challenge confronting Uttarakhand is the huge out-migration from rural areas (mostly hills) to urban areas within the State and to the rest of the country.

The nature, causes, patterns and consequences of migration in Uttarakhand have changed over time. In the past, it was mostly temporary migration as the migrants had strong linkages to their home. The need was to find jobs outside in order to remit earnings to the villages. Such remittances supported the families of the migrants in the villages – and this phenomenon was referred to as the 'money-order' economy. In recent times, migration has become long-term and permanent. As a result, villages after villages are becoming 'ghost villages' with no inhabitants.

The hills are witnessing long term out-migration in much higher proportions vis-à-vis the plains. This could be because of hill agriculture

increasingly becoming an unsustainable activity in terms of income and livelihoods. At the same time, new jobs in the industrial sector are not coming up due to lack of infrastructure in the hills regions.

An overwhelmingly large number of long-term migrant workers out-migrate with a combination of poor education levels and marketable skills, resulting in low incomes, thereby adding to their vulnerability levels at the place of their migration destination. The UKHDR Survey recorded 8 percent of the sample population as migrants. The proportion was higher at 10.7 percent in the hills districts. The extent of migrating households was around 28 percent. Out-migration from the hills districts of the state was significantly higher at 38.5 percent.

Rural out-migration (9.1 percent) was three times as high as urban out-migration (3 percent).

Long term rural out-migration tends to be more common than long term urban out migration for almost all the districts of the state. Also, out- migration from rural areas of the plains is lower than that from the rural areas of the hills.

Long term migration is more common among men than women in both the hills and the plains. In the plains, female short term migration tends to be more common especially for employment in the informal manufacturing and services sectors into which the women eventually got absorbed. Female migration out of the hills is also becoming common. Women are now opting to accompany their husbands along with their children in order to access better employment, education and health services.

Out-migration varies widely across the districts and is much more a phenomenon of the hills districts than the plains. Close to a tenth of the sample population in the hills districts categorized themselves as migrants. Nearly one in every three households in the State had a migrant. The proportion was much lower – 5.3 percent - for the plains. In the plains, only 1.3 percent of the sample population reported themselves as migrants. Consequently, the hills areas of the state had a higher proportion of households with at least one migrant in both rural (38.5 percent) as well as urban areas (14.1 percent) as compared to the plains (4.5 percent in rural areas and 6.2 percent in urban areas).

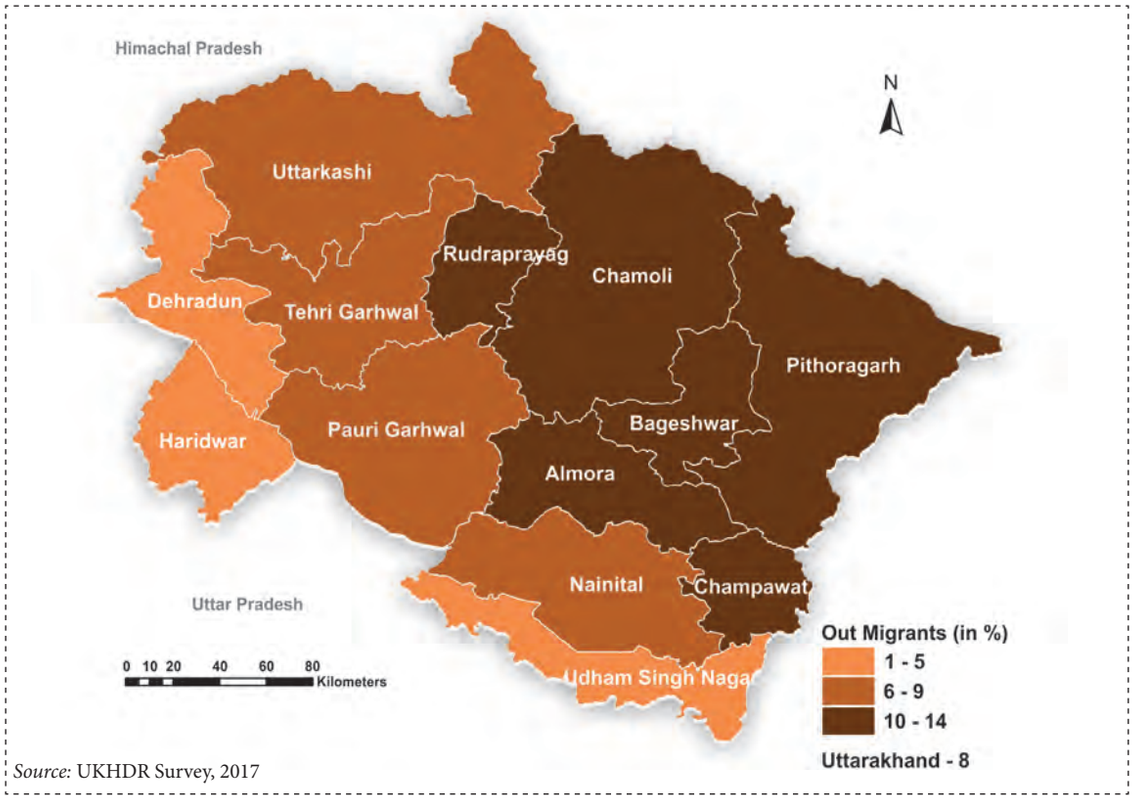
The three districts in the plains (Dehradun, Udham Singh Nagar and Haridwar) report the lowest proportions (1-5 percent) of out-migration. On the other hand, six hills districts of Almora, Bageshwar, Chamoli, Champawat, Pithoragarh, and Rudraprayag report the highest proportions (10-14 percent) of out-migrating population (Map 5). The maximum out-migration is from Rudraprayag for both rural areas (13.9 percent) and urban areas (6.6 percent).

The UKHDR Survey probed into the three employment related reasons that could possibly result in out-migration from the State: search for employment, the availability of better employment opportunities, and the ability to secure employment at the place of migration.

- 'Search for employment' was the single major reason for out-migration. This was particularly so for out-migrants from the hills districts of Almora (72 percent), Champawat (51 percent) and Tehri Garhwal (44 percent).
- The ability to secure employment at the place of migration and get absorbed into the work force was the second important reason for migration and accounted for one-third of out-migration from the state. This factor was predominant for the plains districts of Dehradun (68 percent) and Haridwar (61 percent) and the three hills districts of Pauri Garhwal (44 percent), Pithoragarh (43 percent) and Chamoli (42 percent).
- The availability of better employment opportunities was a strong pull factor in the hills districts of Rudraprayag (34 percent), Champawat (24 percent), Tehri Garhwal (20 percent) and Bageshwar (17 percent).

Besides these three employment-related reasons, education and training were cited as push factors by close to a tenth of households in the State. Other pull and push factors included low incomes, unremunerative agriculture, better opportunities for

Map 5: Out-migration (%) by Districts, 2017




*Source:* UKHDR Survey, 2017

employment, better health facilities and children's education.

The UKHDR Survey data reveals high levels of inter-state migration (63.4 percent of migrating households) to urban areas of other states.

- More than half the migrating households were found to have moved to other states, the highest such migration being from the hills districts of Almora (80 percent), Bageshwar (77.7 percent) and Pauri Garhwal (76.1 percent) and the plains district of Dehradun (77.6 percent).
- A fifth of households reported inter-state migration to rural parts of other states with Uttarkashi reporting the highest proportion of such households (36.7 percent). More than half the migrants worked as regular/salaried wage employees in the private sector (57 percent).
- Remittances by migrants play an important role in the sustenance of households in Uttarakhand with three-fourths of the migrants remitting money to their homes in the place of their origin. The extent of remittances was high (80 percent or more) in the hills districts of Champawat, Chamoli, and Rudraprayag and the plains districts of Dehradun and Haridwar. The remittance amounts were also found to vary anywhere between Rs. 5,000 to Rs. 100,000 a year.

## Unplanned Urbanisation

Poorly managed and unplanned urbanization can make the lives of residents as well as migrants to cities extremely vulnerable.

During 2001-2011, Uttarakhand witnessed high rates of urbanization. The State's urban population grew by almost 40 percent and the share of urban population in total population went up from around 26 percent in 2001 to over 30 percent in 2011. The number of Census towns increased by approximately 241 percent over the period 2001-2011. Towns have also grown in

size and there has been the burgeoning of a large number of urban centres. Villages adjoining urban areas especially in the plains districts of Udham Singh Nagar, Haridwar and Dehradun as well as in the hills district of Nainital have witnessed rapid urbanization.

The UKHDR Survey finds that in the urban areas of the state, more than one-third of the migrant households were long term migrants from the rural areas of the hills. The proportion of long term migrants from the urban hills to the urban plains was also reported as high pointing towards strong pulls from the urban plains.

Urbanization affects patterns of household expenditures and food consumption, levels of household indebtedness, household access to basic amenities including water and sanitation as well as the quality of housing in urban areas. The UKHDR Survey found that the major components of non-food expenditures of urban households were education, household utilities and expenditures on social functions. Urban households were also found to be spending more on household amenities and other modern assets. Asset building was not cited as a priority for the households.

Household indebtedness was common. Nearly three out of four urban households accessed loans from the formal sector. This was true across the state with the exception of Pithoragarh and Tehri Garhwal where households accessed loans in higher proportions from the informal sector. A third of the households were found to be taking loans for construction purposes and government housing schemes had a significant role to play here.

The large dependence of urban households on the formal sector for loans is an indication of the effective penetration of the banking sector and its financial inclusiveness in the state. It is the public sector banks that have a large share (50 percent) in the same while private banks sourced loans to a fifth of the population. Nainital had the highest presence of Self Help Groups with 25.1 percent of urban households accessing loans from them.

With more than 15 percent of city population in the State already living in slums, unplanned urbanization can compound the problems of poor housing conditions, lack of public transportation, congestion and pollution, as well as poor access to basic social services.

People living in poor urban communities face a number of challenges including low and fluctuating incomes, poor quality affordable housing, inadequate access to public infrastructure and services. Poor urban settlements also have people living on the streets and not in households– a feature that excludes them from accessing services or simply being counted.

Uttarakhand faces the challenge of having to mobilize sufficient resources – both financial and human – to ensure the provisioning of basic social services including affordable housing, safe drinking water and sanitation, public schools, and health care facilities. Cities and municipalities often may not have the revenue-generating capacities to build adequate garbage disposal and sewerage systems, plan for adequate urban public transport infrastructure and services, both in quantity and quality, to keep traffic congestion, accidents, and air pollution under check.

**Protecting the Environment for Balanced Developement**

The human development approach needs to directly take into account environmental degradation and the impact of climate change, especially in states like Uttarakhand where the people have to deal with such ecological impacts almost on a daily basis. Prone to natural disasters because of a fragile mountain economy, environment related changes involving deforestation, soil erosion, water and air pollution etc., are a common occurrence in Uttarakhand. Such changes clearly affect people's production capabilities and health and also lead to endangering the rich resource base of the state.

The UKHDR Survey finds that close to two-thirds (60.5 percent) of the respondents reported a negative change in the environment in terms of deforestation and approximately half (54.5 percent) in terms of pollution. The Survey also found the

practice of open defecation as well as poor garbage disposal habits among respondents, which has an adverse impact on the environment. During the UKHDR Survey, a larger impact of natural disasters was reported from respondents in rural areas vis-à-vis the urban areas and in districts such as Chamoli, Rudraprayag, Uttarkashi, Nainital, Bageshwar, Champawat, as well as Pithoragarh to some extent.

Over a third of the respondents (39 percent) reported experiencing climate change patterns such as changes in the pattern of rainfall, snow, etc., with districts such as Chamoli (65 percent), Uttarkashi (62.7 percent) and Nainital (59.7 percent) having the highest proportions of respondents reporting the same. In the view of the respondents, the reasons for the climate change that they were experiencing included deforestation (as the main cause), followed by industrialization, urbanization, wildfire, illegal mining, and others. Recent analysis indicates that the districts of Champawat and Tehri Garhwal are most vulnerable to the impact of climate change, followed by Hardwar, Bageshwar and Almora, which are also highly vulnerable.

The state of Uttarakhand needs to take into account the impact that the present form of economic development has on the environment. Environmental degradation, changing climate, decline in biodiversity and the depletion of land and freshwater resources are a serious concern.

## Conclusions

Uttarakhand State has articulated an ambitious vision for the realization of the Sustainable Development Goals by 2030. In attempting to do so, the State needs to focus on addressing the six challenges that have been identified. All of them are deeply inter-connected. Job creation has to become an urgent priority for the State. Access to decent jobs will depend upon the quality of education and skills that young people acquire. The lack of adequate means of livelihood in rural areas and the relatively lower levels of development in the hills regions are major reasons for the out-migration from these areas. Such forced out-migration imposes severe stresses on urban resources. Without proper planning, residents in urban areas are likely to face the increasing pressures of slums, inadequate public transport, and lack of basic amenities.

Much of the gains in human development in the State over the years can be attributed to the successful implementation by the Government of Uttarakhand of a number of welfare programmes. As the way forward, in attempting to bring inclusive human development into focus in its development efforts, the State needs to prioritize on the following:

- Livelihood opportunities expanded in the hills regions based on the niche resources (e.g., horticulture and tourism) keeping in view locational and hills specificities
- Health and education facilities expanded and strengthened with adequate manpower and infrastructure.
- Infrastructure (road, rail and air services) made more efficient in the hills districts for better connectivity.
- People are still engaged in low paying agriculture activities, in particular in the hills districts. There is need for better remunerative agriculture diversification and promotion of more non-farm activities.
- Wild animal menace in hills districts is weakening and making agriculture uneconomical and less viable.
- Out-migration from the hills districts is very high, primarily because of lack of productive livelihood opportunities and other infrastructural problems. There is the urgent need to develop small entrepreneurial hubs at district headquarters to promote local entrepreneurships.
- Enrolments in higher education, particularly in the hills districts, indicate problems of retention. This highlights the inability of the youth to transition to higher levels of education. There is need to initiate more market driven higher education courses, which would attract

the youth.

- Strengthening the implementation of poverty alleviation programmes.
- Youth unemployment rate is very high particularly among the educated youth pointing towards the need to promote more market specific skills and education.
- The huge disparity of per capita incomes between the hills and plains districts needs to be addressed through appropriate economic and social policies and by enhancing the entitlement base.
- Disaster management activities need to be effectively put into place to address the frequent ecological disasters and environmental challenges for sustainable development in the state

Uttarakhand has the resources and the capacities to channelize the high growth it enjoys into increased investments that will increase employment opportunities, enhance the health status of its residents, improve the health status and nutritional well-being of people. Only by investing in enhancing human capabilities can the State accelerate human development.

# 1
# Introduction

# 1 Introduction

## 1.1 The Context

Uttarakhand state was carved out of Uttar Pradesh in the year 2000 in response to the long-standing development aspirations of the people of this mountainous region. Uttarakhand comprises two administrative regions -- the Kumaon region with six districts and the Garhwal region with seven districts. The Garhwal region covers the districts of Chamoli, Pauri Garhwal, Tehri Garhwal, Uttarkashi, Dehradun, Haridwar and Rudraprayag, while the Kumaon region includes the districts of Nainital, Almora, Pithoragarh, Udham Singh Nagar, Champawat and Bageshwar. Out of the total 13 districts in the state, ten are hills districts and the remaining three districts of Haridwar, Dehradun and Udham Singh Nagar lie largely in the plains. Home to 100.7 lakh people as of 2011, the state has 49 sub- divisions, 95 development blocks, and 16,793 census villages of which 15,745 villages (including forest settlements) are inhabited, and the remaining 1048 remain un-inhabited. Approximately 70 per cent of the population lives in rural areas and 30 per cent in the urban areas. The average population growth rate between 2001 and 2011 was 1.7 per cent per annum.

The Scheduled Caste population in the state was reported at 19 percent while the proportion of Scheduled Tribe was only around 2.9 per cent. The share of Muslim population at around 14 percent was almost equal to the all India level, but Muslims constitute a much higher share (23 per cent) in the plain areas.

A mountainous state, Uttarakhand is endowed with outstanding natural beauty in the form of mountains, glaciers, rivers and forests and thereby has unique ecosystems. The northern region of the state is part of the great Himalayan range, covered with snow and glaciers. Two of the Indian subcontinent's major rivers – the Ganga and the Yamuna – also originate from the glaciers of Uttarakhand. Other parts of Uttarakhand are covered with dense forests that make up the bulk of its natural resource base. About 63 percent of the reported area for land utilization in Uttarakhand is under forest cover.

Agriculture plays a major role in the Uttarakhand economy with almost half the workforce (49 per cent) engaged in it, although this sector contributed only 11 per cent to the state's income in 2011-12. The secondary sector contributed 52 per cent to the state income in the same year with 29 percent share of workers, while the tertiary sector contributed about 37 per cent, with 22 per cent of the workforce engaged in this sector.

An important feature of the economy is the steep rise in the share of the secondary sector between 2004-05 and 2011-12, during which period the tertiary sector also registered a perceptible increase. In recent times (2011-12 to 2017-18), the primary sector has grown sluggishly (1.1 percent AGCR). During the same period, the secondary sector posted a growth rate of 6.1 per cent, while the tertiary sector recorded growth of 7.2 per cent. The prominent sub-sectors in the growth of the state's economy have been construction and manufacturing (secondary sector), with trade, hotels and restaurants catering mainly to the tourism and hospitality industry (tertiary sector).

In terms of employment structure, approximately two-thirds of the workers are self-employed in the state compared to almost half at the all India level, recording a decline of 6 percentage points during 2005-12. Approximately 17 percent of people in the state were engaged in regular work and 13 percent in casual employment. The share of employment in regular work increased (4 percentage points) more than that in casual work (2 percentage points) over the same period.

## 1.2 The Human Development Approach

The idea of development for long has been identified with people's relative affluence in terms of material wealth. Historically, wealth or income has served as an 'index' or 'metric' of the level of development, taking the form of comparisons of levels of income (more specifically per capita income) across societies. The human development approach, with its emphasis on people's well-being and expansion of their choices, underscores the inadequacy of economic growth as the main instrument for driving people's well-being. It is argued that although wealth or income is a necessary 'means' to better people's lives, it is not an 'end' in itself. The per capita GDP, thus, falls short when assessing the development of a nation. Hence, assessments of human development based on the quality of life have increasingly occupied centre-stage vis-a-vis the income based approach.

The human development approach rests on the capabilities framework, pioneered and developed over a long period of time by well-known scholars (Sen, 1989; Nussbaum, 1995 and 2000). The quality of human life in the capability approach is viewed as a combination of various doings and beings that an individual considers worthwhile with her/his well-being depending on what she/he manages to do or be. The various doings and beings in life are together called functionings and could range from the very basic to the quite complex ones. The ability to engage in functions of diverse types is called capability. In other words, to measure the capabilities of an individual is to measure the size of the possible combinations of functionings that are potentially achievable by that individual. These functionings may range from being very elementary such as being alive, in good health, being well-nourished, to somewhat more complex things, such as being able to know and participate in the life of the community and so on (Zambrano, 2011). It is therefore worthwhile to note which functionings one ought to keep track of for individuals in a given space, which could then evolve over time and vary both across and within space.

The measurement of such functionings denotes a particular level of capabilities that can be captured by multiple indicators. In this sense, the Human Development Index (HDI) is a synthetic measure of capabilities, defining a particular set of functionings, which determine a state of being. A high value of the index, could be suggestive of enhanced capabilities, defining an alternative set of functionings and hence an improved state of being.

The HDI devised by the United Nations Development Programme (UNDP) way back in the 1990s is a composite index which attempts to quantify 'capability'. The index comprises three dimensions – a long and healthy life, knowledge and a decent standard of living. These basic capabilities are minimally required for human life, effectively describing the deprivation threshold. Each dimension is measured through one or more indicators depicting certain levels of achievements in its respective dimensions. The details of various HDIs are discussed further in the individual chapters of this Human Development Report.

## 1.3 The Study Framework

While the capabilities approach determines achievements and wellbeing, various 'means' and their relationship to capabilities are also important for determining the level of achievements and well-being. There are various 'means' in the form of commodities and services., other social agents including institutions, norms, practices etc. that influence the capability set as well as choices of individuals which in turn have an effect on their functionings. The relation between 'means' and

'capabilities' is rather diverse. The capabilities approach acknowledges and accommodates inherent diversities, both, at the level of individuals, as well as at the level of society. These are considered as 'conversion factors' and can be of three types – personal, social, institutional & environmental. Personal factors comprise the bodily capacities of individuals, their skills, intelligence etc. Social factors include social structures, norms, culture and customs. The institutional and environmental factors include public policies, climate, geographical location etc. Having the 'means' alone, thus, is not sufficient for functionings because differential functionings may still come about due to diverse 'conversion factors' that affect individuals.

It is thus, various personal, social and institutional & environmental factors that are together called 'conversion factors' and that mediate between the 'means' and the 'ends', resulting in differential achievements and well-being. In the capabilities framework, the notion of an advantage is used to refer to diverse conditions and contingencies affecting a person's choice options. The goals of the human development approach are twofold – understanding differential functionings (achievements or well-being from the perspective of capability differentials) and understanding differential well-being in terms of the diversity of advantages. This framework has been adopted to assess the status of human development in the current report.

This Human Development Report for Uttarakhand tries to locate specific issues within the broad framework of human development achievements and enhancing capabilities, by looking beyond income and focusing on reaching healthcare, nutrition, education, housing facilities, environment and other services such as drinking water and electricity to the common people, so that they can enjoy an enriched life in a safe environment. It also examines the situation closely for all vulnerable groups such as women, scheduled castes/tribes, the poor etc. Evidently, while looking at various indicators of human development, one cannot ignore certain specific issues important for a mountainous state like Uttarakhand where demographic diversities, quality of life and access to basic infrastructure along with sustainability of environmental concerns have serious implications for human development outcomes. These, along with other forms of vulnerabilities relating to life and livelihoods coupled with gaps in levels of capabilities across diverse socio-economic groups have been highlighted clearly in the HDR to put the human development discussion in the right perspective. This report presents various indices including the Human Development Index (HDI), the Gender Development Index (GDI), and the Multidimensional Poverty Index (MPI), which offer insights about the varying degree of achievements in human development across Uttarakhand's districts in multiple dimensions of human development such as health, education and income etc. In the context of the above discussed framework, this report attempts to understand the existing human development situation, achievements and challenges in Uttarakhand.

## 1.4 Human Development: Potential and Challenges in Uttarkhand

### The Potential

#### *Resource Base*

The state is blessed with rich natural resources such as water, forests and mineral deposits like limestone, marble, rock phosphate, dolomite, copper, gypsum etc. With about two-thirds of the area in the state under forest cover, forests contribute immensely towards the procurement of raw materials for several economic activities through minor forest produce as well as rare species of aromatic and medicinal plants. In addition, a wide network of rivers, power plants, commercial opportunities in horticulture, floriculture & agriculture, and tourism, offer huge potential for the economic and social development of the state.

The rich water resources in the state provide it with a niche for hydro-electricity generation. The estimated potential of power generation is about 27,000 MW of which 3618 MW has been harnessed. The region can utilize this huge potential not only to meet the growing domestic power needs but also for exporting the surplus to other states. This in turn could be one of the important sources of revenue

generation for the state. The development of micro and mini projects would be environmentally appropriate for utilizing the state's water resources. With greater involvement of the private sector, such resources could be utilized efficiently and optimally.

### *Economic Growth*

Uttarakhand is among the fastest growing states in India. Between 2012-13 and 2016-17, the state's Gross State Domestic Product (GSDP) grew at an average rate of seven per cent per annum. The GSDP is expected to grow at a rate of 6.8 percent in 2017-18. With an estimated per capita net state domestic product (NSDP) of Rs.1,77,000 in 2017-18, almost 60 per cent higher than the national income, Uttarakhand emerges as the sixth richest Indian state – next only to Haryana, Karnataka, Maharashtra, Sikkim and Telengana. The per capita income of the state increased at a higher rate than the national average. It is significantly higher at Rs. 1.77 lakh in 2017-18 as compared to the national average of Rs. 1.13 lakh.

### *Crop Diversity*

The main agricultural crops grown in the hills districts of the Uttarakhand are paddy, wheat, mandua, sawan (millet) and pulses. At present, about 19 per cent of the state's area is under fruit & vegetable and sugarcane and fodder production. The agro-climatic conditions of the hilly state are suitable for growing a variety of fruits, vegetables, medicinal and aromatic plants that have good domestic and export markets. There is tremendous scope for developing horticulture and vegetable crops in the hills districts of Uttaranchal. In addition, the climate of the state is ideal for growing flowers all-round the year.

### *Tourism*

Tourism has been identified as one of the state's key growth drivers in the Vision 2030 document. With more than 34 million tourists coming in annually, the state is a popular tourist destination. The hills districts of the state offer a unique landscape for different types of tourism such as health tourism, adventure sports, wildlife and cultural tourism as well as environment-friendly resort amenities, over and above the established pilgrimage destinations such as Haridwar, Rishikesh, Badrinath, Kedarnath, Gangotri and Yamunotri.

### *Social Sectors*

The state has performed well in the social sectors. Uttarakhand is considered to be a hub of education in the country, with many reputed educational institutions. The literacy rate in the state in 2011 was 78.8 percent with male and female literacy rates at 87.4 and 70.0 per cent, respectively which were also higher than the corresponding rates at the All India level (82.1 per cent and 35.5 per cent). The literacy rate recorded an improvement of 8 percentage points over the Census decade 2001 to 2011. Gross Enrolment Ratios at the secondary and higher secondary levels for the state (85.7 percent and 75.8 percent) were higher than the all India figures (80.0 percent and 56.2 per cent respectively) in 2015-16.

Health indicators have also shown an improvement for the state, with the infant mortality rate recording a marginal decline from 42 per thousand live births in 2005 to 40 in 2015 (NFHS-4). About 69 per cent of the eligible women in the state delivered births in safe conditions – either in a health institution or in the presence of trained health care providers. The state also performs well for immunization coverage among children aged 12-23 months. About 58 percent of eligible children in the state received full doses of all the recommended immunizations and the prospect of achieving universal immunization is high. The poverty level for the state at 11.3 percent was significantly less than the national average of approximately 22 per cent in 2011-12, recording a remarkable decline from 32.7 in 2004-05.

In terms of access to basic amenities such as treated tap water, open defecation and access to electricity, Uttarakhand has been doing far better than the all India figures but there are considerable inter-district variations for these development parameters.

## The Challenges

As a counterpoint to the above positives, the state at present faces many daunting challenges in its quest to attain higher levels of human development.

### *Forced Out-migration*

The population growth rates in the hills areas (0.7 per cent) and in the plains (2.7 per cent) show a large differential. The reason for the low population growth in the hills is likely due to out-migration motivated largely by socio-economic reasons. The population growth rate for age group 0-6 years in the hills is lower compared to that of the plains as well. A favourable sex ratio for the hills areas signifies huge male out-migration and the phenomenon females being left behind.

### *Dependence on Agriculture*

Around half the population in Uttarakhand is engaged in agriculture although the cultivable area comprises less than 15 percent of the total geographical area of the state. The growth of the state's economy has been impressive in the industrial and services sectors, although this has been mostly limited to the plains districts with low employment opportunities for the populace from the hills districts. Most of the services and industrial economic activities are located in the plains districts and there exists no major manufacturing unit in the mountain regions.

### *Regional Disparities*

Huge regional disparities exist between the rural-urban and plain-hills districts of the state. The plains districts are relatively better off than the hills districts in terms of the economic indicators. The hills are overwhelmingly dependent on agriculture and have to deal with the preponderance of small and marginal holdings with low productivity. The hills areas comprise only 14 percent of the total gross cropped area of the state, while plains comprise 86 percent of the same. Poor to moderate soil fertility on the mountain slopes limits agricultural production. Groundwater irrigation and tube wells are largely restricted to the plains.

### *Employment Opportunities*

Unemployment is a challenge, particularly among the youth, due to lack of sufficient employment opportunities. The unemployment rate at 3.1 percent in 2011-12, was higher than the national level (2.2 per cent) with higher unemployment rates for females (3.9 per cent) than for males (2.7 per cent). In particular, the youth (15-29 years) unemployment rate (14.3 per cent) using the Usual Principal Status was significantly more compared to the all India level (7.6 per cent).

The work status and quality of work are wanting in the state. In 2011-12, approximately 17 per cent of the workers engaged in regular wage/salaried employment while two-thirds were self-employed. In rural areas, the share of self-employed and casual labour was relatively much higher. Also, there exist wide disparities in the access to quality employment among the various social groups, across rural and urban areas and between the hills and the plains. The lack of employment opportunities outside the farm sector has led to high adult unemployment and large scale out-migration from the hills to the plains and at times to areas outside the state, mainly in search of livelihoods.

### *Environmental Issues*

While the manufacturing sub-sector recorded the highest annual growth of 7.8 per cent between 2011-12 and 2017-18 (Vision Document, Uttarakhand, 2018), it also was a cause for widespread pollution in the state. The paper and pulp industries, sugar mills, distilleries and other industries have been routinely discharging effluents directly into the important tributaries of the Ganga River. The massive growth in tourism and commercial activities in Haridwar has led to high levels of air pollution. Hydropower development projects are likely to cause a variety of environmental and social problems throughout their life cycles. As a consequence, fragmented rivers alter their ecosystems and reduce riverine biodiversity. There is significant deforestation when roads are built and houses established. This often destabilises mountains slopes, endangering lives and livelihoods.

Natural calamities and disasters have resulted in huge losses in terms of infrastructure, incomes, livelihood opportunities and human life in Uttarakhand, given its fragile mountain economy. In addition, development and disasters have tended to have a very close and Multidimensional relationship. Roads, buildings, hydro energy projects, infrastructure and other developmental

activities often influence the vulnerability of landscapes and expose local communities to further natural hazards. The cloudburst disaster in Kedarnath led to huge losses in terms of state resources, livelihoods and tourism.

### *Social Sector Impediments*

Improvements in the social sectors also come with their caveats. While the levels of elementary education have registered an improvement in the state, retention needs improvement. Initiatives are needed for higher and tertiary education, given the low GER levels for higher education (33.3 percent in 2015-16).

The state suffers from an adverse child sex ratio for girls. The sex ratio for the state was 1015 while the child sex ratio was much lower at 888 (NFHS-4, 2015-16), although the child sex ratio has improved since NFHS-3 (2004-05). The child sex ratio is unfavourable both in the hills and plains of Uttarakhand because of the strong cultural preference for male children.

The ecological disaster in 2013 can be attributed to widespread and exceptionally heavy rainfall across the state. The entire state was hit by 'heavy' (64.5-124.4mm) to 'very heavy' (124.5-244.4 mm) rainfall, resulting in flash floods and landslides in numerous areas. The disaster in the Kedarnath area, where it caused unprecedented devastation has remained a subject of several debates and assessments. The state has faced huge losses in terms of infrastructure, lives and livelihoods due to the disasters.

From the above account, it is apparent that despite a range of achievements on the human development front, Uttarakhand faces considerable challenges for achieving higher and improved levels of human development. Not only are the levels of some indicators low, but discernible disparities and inequalities exist across social groups, gender and regions/districts as well as between rural and urban areas and the hills and plains. Thus, from the lens of human development, which essentially entails widening the scope of people's choices and capabilities so that they can effectively participate in the development process, Uttarakhand has an unfinished agenda, to say the least. With regard to the three basic tenets of human development viz., living a long and healthy life, to be educated and to have access to resources needed for a decent standard of living, the state has made good progress in terms of health and education. In terms of combating unemployment and shortages in livelihood opportunities, the state needs to strategize better, particularly for the hills areas where these problems are more severe.

Further, while overall poverty in the state has declined, poverty in the hills districts is still higher compared to that in the plains. Poverty, of late, has been acknowledged as Multidimensional and the ambit of human development has been expanded to include many other issues such as gender equity, access to a basic standard of living including access to water and sanitation facilities and other amenities. The state needs to take advantage of its vast natural resources like its forests and minerals, chart out a path for sustainable development in order to generate employment opportunities, revitalize agriculture which is the main source of livelihood for a vast majority of the population, and thereby ensure that the challenges of attaining human development goals in future can be faced with efficiency and effectiveness.

The main motivation for preparing the current Human Development Report for Uttarakhand is to map the current scenario on various human development indicators as well as identify the gaps which could then become a policy handle for developing equitable and sustainable growth programmes for the hills as well as the plains, bringing in more inclusion and social sector development.

This Uttarakhand Human Development Report (UKHDR) is an important initiative towards addressing human development challenges in the state as it aims at identifying related problems at the state, sub-regional as well as district levels and attempts to suggest broader strategies and interventions for meeting the numerous human development challenges faced by the state. The state has already outlined its vision for attaining the Sustainable Development Goals as framed by the

United Nations for 2030 in its Uttarakhand Vision 2030 document. Given such a vision, the present Human Development Report for the state assesses the human development status and identifies gaps which need to be filled in order to continue the progress in human development indicators.

In this report, the human development lens is also trained on vulnerable groups such as the scheduled castes and tribes, backward groups, women as well as those residing in hilly/remote areas. The underlying motivation is to help the state government and other agencies in monitoring the progress in their human development efforts and suitably altering strategies for promoting inclusive human development. The Uttarakhand Human Development Report 2019, is an important document for the state. This report will help to accelerate the state's initiatives in reducing various regional and social disparities and in providing technical support to design policy interventions that promote inclusive human development.

## 1.5 Objectives

This Report has adopted a multi-pronged approach and aims to: (a) assess the overall levels of human development achieved in the state over the last decade, and (b) institutionalize the integration of human development in the planning processes to achieve faster, more inclusive and environmentally sustainable growth.

The Uttarakhand HDR, which is the first human development report of the state, embraces the following broad objectives:

- Assess the progress of various human development indicators including income, livelihoods and levels of living, access to employment, health and education, overall empowerment of vulnerable groups, sustainability and environment, justice and equality, etc.
- Measure gaps in the various human development indicators across the districts of Uttarakhand.
- Prepare composite indices relating to human development in order to capture the disparities across districts including the Human Development Index (HDI), the Gender Development Index (GDI) and the Multidimensional Poverty Index (MPI).
- Analyse and examine the status of internationally defined sustainable development goals of the state.
- Identify the critical challenges in achieving higher levels of human development at the state and district levels.
- Delineate broad policies and strategies for enhancing human development in Uttarakhand to enhance livelihoods and bridge disparities for the promotion of inclusion and achieving the sustainable development goals.

The methodology of the study is presented in Annexure 1.

## 1.6 The Survey Sample

Quantitative data for the UKHDR was collected from a sample of households carefully and scientifically drawn from a sampling frame comprising rural and urban units (villages and towns/cities) of the state. Further, the sampling design allowed for variations across social and economic groups, ethnicity and geographic regions. It also ensured that the estimates for key human development indicators up to the district level were robust, comparable and standardized. In accordance with such expected attributes, the sampling design and methodology was prepared after consultations with national level sampling experts (Annexure 1).

The total population for the sample was recorded at 2,482,333, with 65.8 percent residing in rural areas and 34.24 per cent in urban areas. Social group decomposition of the population had 50 percent in the general category, close to a third as OBCs (27 percent), a fifth as Scheduled Castes (18.4 percent) and 4.5 percent as Scheduled Tribes. In the rural areas, the general population was slightly higher (52 percent), while OBCs, SCs and STs constituted 24

percent, 18 percent and 5 percent of the population respectively. In urban areas, OBCs were higher (33 percent) while the general (46 percent) and ST (3 percent) population were lower compared to their proportions in rural areas. The distribution of population by social groups broadly followed the pattern of the Decennial Census, 2011.

For the purposes of collecting data on migration, the questionnaire was canvassed on the head or other members (in case the head of the household was not available at the time of enumeration or not in a position to give a response due to old age, illness or other reasons) of the sample households. Those already migrated out of the household were considered as ceased to be members of that household and were left out of the estimations.

In total, 8845 households were covered across the 13 districts of Uttarakhand. A total of 56,873 households (33,989 households from rural areas and 22,884 households from urban areas) were listed to collect the basic information. From the listing exercise, a total of 8845 sample households were selected with 6828 households from rural areas and 2017 households from urban areas for the detailed interviews.

## 1.7 Report Layout

The present Human Development Report, organized across nine chapters, makes an attempt to analyse the themes that have been discussed broadly in the Sustainable Development Goals (SDGs) for the state, within the framework of inclusive development. It addresses the main challenges and presents a way forward for Uttarakhand to achieve a more broad based and equitable development path that leads towards the wellbeing of the state's people. Chapter 1 introduces a broad framework of the report, outlining the issue of human development and the imperatives that it entails. Chapter 2 attempts at quantifying the concept of human capabilities by arriving at a composite index for human development at the state and district levels for Uttarakhand. The Human Development Index (HDI) captures both economic and social development in the state. The promotion of livelihoods through income and employment opportunities for the populace plays an important role in strategies that aim at promoting human development and Chapter 3 presents an in-depth study and analysis of income, employment and poverty at disaggregated levels using data from two Rounds of the NSS (2004-05 and 2011-12) as well as UKHDR 2017 primary survey data. Chapter 4 deals with enhancing livelihoods and studies agriculture along with tourism. Agriculture is an important source of employment and livelihoods and along with tourism is reckoned as an important growth driver for providing employment and income opportunities. In Chapter 5, we examine the issue of Managing Migration which plays an important role in the functioning of Uttarakhand's economy. It thus becomes important to evaluate the nature, causes, patterns and consequences of migration which have been evolving and changing over time in the case of Uttarakhand. Education and health are two of the main ingredients for enhancing the human capital base of the economy. Chapter 6 presents the issues around educational attainments, quality, infrastructure, policy imperatives and identifies gaps in educational access and attainments at different levels of education along with indicating how these gaps can be effectively addressed. In Chapter 7, a detailed study and analysis of the prevailing health scenario in the state as well as in its thirteen districts, disaggregated at various levels, is presented based on the UKHDR 2017 Survey findings.

Uttarakhand is a state with huge natural resources coupled with various environmental concerns that have an important impact on the socio-economic life in the state. Using secondary data as well as data from the UKHDR 2017 Survey, the status of environmental balance in the state is studied and presented in Chapter 8. The way forward for human development in Uttarakhand is summed up and presented in the final Chapter 9 of this report.

# 2
# Human Development in Uttarakhand

# 2 Human Development in Uttarakhand

## 2.1 People Centered Development

The concept of human development, which lays prime importance on people, along with expanding their opportunities and choices, was introduced in the first Human Development Report (1990) published by the United Nations Development Programme (UNDP). Rather than purely focusing on the economic advancement of people, it was proposed that advancing the well-being of the people had equal significance for development. Human development is basically taken to encompass the ability to lead a long and healthy life, to be educated and to have access to resources to attain a decent standard of living. In keeping with the ideology of human development followed by the UNDP, an effort is made here to quantify human capabilities by preparing a composite index which captures both economic and social development at the district level for Uttarakhand. The basic premise is to study and understand the achievements in the three aspects of human development and to also analyze inter district variations in the spheres of health, knowledge and living standards in the state, using the Human Development Index (HDI).

In the absence of updated and disaggregated secondary data, the indices are based on data collected during a large primary Survey conducted by IHD in 2017, called the UKHDR Survey, 2017, as discussed in chapter 1.

## 2.2. The Human Development Index

The Human Development Index (HDI) is a composite measure of three basic human capabilities that relate to health, education and the standard of living. It is a composite statistic that encompasses life expectancy (health), years of education (education) and per capita income (standard of living). At the country level, it has been used to distinguish between developed, developing and underdeveloped countries. Over the years, the indicators that have been utilized to capture these three basic capabilities have undergone changes, reflecting the ever changing and evolving nature of the human development approach. The education dimension for instance, has seen a move from indicators such as the literacy rate and combined gross enrolment ratios to mean years of schooling and expected years of schooling. With countries making progress in literacy and enrolments, it became imperative to evolve the education measure so as to include newer and more relevant indicators like the mean and expected years of schooling.

For calculating the HDI, the three individual indices have to be estimated first for each of the three dimensions that it captures. Since these individual indices are different in scale, they need to be normalized to a score between 0 and 1 using the maximum and minimum values which are the fixed goalposts as adopted in the UNDP's Human Development Reports. The three normalized indices are then aggregated, the process of aggregation being of utmost importance.

Initially, the Human Development Indices were calculated by taking the simple arithmetic average of the three individual dimensions. Despite its elegance, the method faced severe criticism (Mishra and Nathan, 2014) for it allowed 'perfect

substitutions' among the dimensions. It was argued that any loss in one dimension, under a simple average, would get fully compensated by an equivalent gain in any of the other two dimensions. Also, higher achievements in one dimension tended to obscure failures in the remaining dimensions. The UNDP then revised (UNDP, 2010; 2013, 2016) the method of aggregation by opting for the geometric mean while aggregating the three-dimensional values. The geometric mean method had an implicit normative judgment such that improvements in the lowest dimension contributed the most to improvements in overall human development. In this report, we estimate the HDI based on UNDP's new method (2016) with some modifications to contextualize and capture the myriad forms of diversities in Uttarakhand state (Annexure 2).

## 2.3 Components of the HDI – District Level Analysis

A recent study by Mukherjee, Chakraborty and Sikdar (NIPFP, 2014) presents HDI estimates for the Indian states across three decades. The HDI for Uttarakhand state, according to this study, records an improvement from 0.247 in 2004-05, to 0.378 in 2009-10 and then to 0.426 in 2011-12. The state HDI ranking has also shown improvements over the years and stands at 11 in 2011-12. Another study of HDIs for the Indian states by Suryanarayana and Agrawal (2013) finds the HDI for Uttarakhand to be 0.531 (rank 12). Here, the HDI for Uttarakhand ranks above the all India average of 0.504. Given the paucity of relevant and more recent data for calculating the various dimensions that go into estimating the Human Development Index for any state or district, the UKHDR Survey made an attempt to collect and analyze relevant data to calculate the HDI for Uttarakhand state as well as for its thirteen districts.

In the following sections, we elaborate upon the various indicators used for calculating the individual dimensions of the HDI while the methodology used for calculating the composite HDI index is presented in Annexure 2. District level data is presented for the individual dimensions as well, to get a more disaggregated understanding of the health, education and standard of living scenario in the state. Then the district level HDIs are estimated and analyzed.

### 2.3.1. Health

*Life Expectancy at Birth*

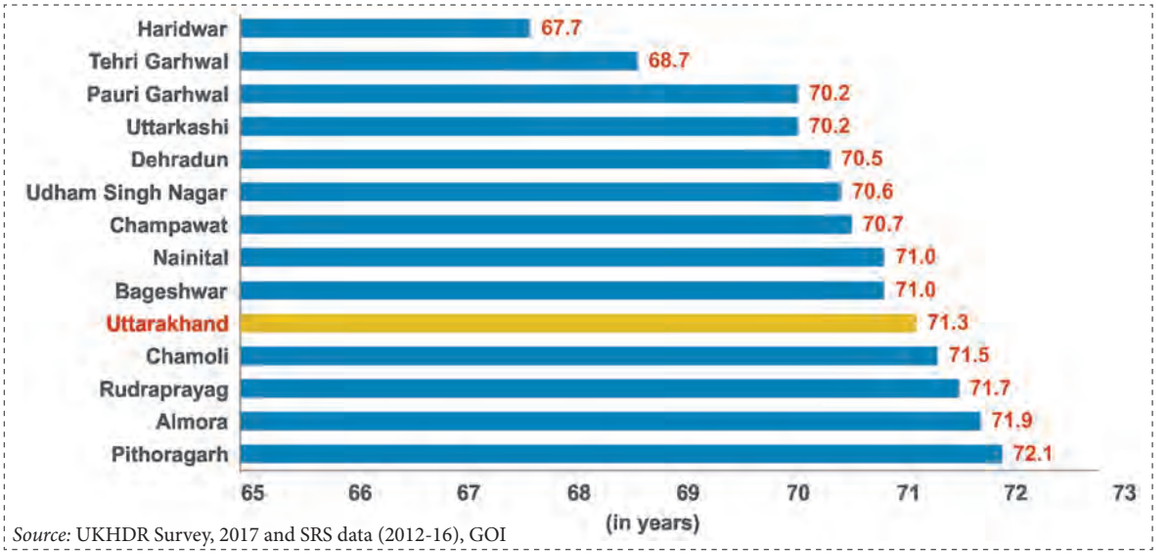
To capture the probability of leading a long and healthy life, the life expectancy at birth is used as a measure of the realized achievements in the health dimension. Life expectancy at birth is taken as "the number of years a newborn infant could expect to live if prevailing patterns of age-specific mortality rates at the time of birth were to stay the same throughout the child's life," (UNDP, 2010, p. 224). It is however, an indicator of very long-term improvements in the health status.

The data source for life expectancy at birth in the Indian context is the Sample Registration System (SRS). The data is available only at the All India and state levels, disaggregated by sex and area. The latest available SRS data (2012-16) estimates the life expectancy at birth for Uttarakhand to be 71.5 years, which is higher than the All India figure of 68.5 years. Females in the state show higher life expectancy at 74.8 years vis-à-vis males at 68.5 years. The female and male life expectancy rate for Uttarakhand was also higher than the all India figures of 70.2 and 67.4 years respectively. In urban areas, life expectancy was marginally higher (72.9 years) compared to rural areas (71 years), which was also higher than all the India figures i.e. 67.4 years in rural areas, and 72.2 years in urban areas.

The higher life expectancy rates in Uttarakhand can be taken to reflect the functioning of the health facilities in the state as life expectancy at birth depends on age-specific mortality patterns. In the state, low rates of infant, child and adult mortality could be perpetuating high rates of life expectancy. According to the SRS data (2012-16), the infant, child and adult mortality rates for the state were lower than that for all India (including when disaggregated by sex).

Based on calculations using data from the Uttarakhand UKHDR Survey and SRS data, life

Figure 2.1: District-wise Life Expectancy at Birth, 2017




*Source:* UKHDR Survey, 2017 and SRS data (2012-16), GOI

expectancy at birth in the state[1] was estimated to be 71.3 years in 2017. Inter-district variations in the same were also observed (Figure 2.1). Of the thirteen districts in the state, only four districts had life expectancy rates above the state average of 71.5 years, Pithoragarh showcasing the highest life expectancy at 72.1 years. The remaining nine districts had life expectancy rates below the state average with Haridwar at the bottom at 67.7 years.

### 2.3.2 Education

#### *Mean Years of Schooling*

The education index in the HDI comprises two indicators viz., the mean years of schooling for adults aged 25 years and older, and the expected years of schooling for children in the school entering age. The mean years of schooling (MYS) is based on the duration of schooling of a child at every level of education and it has replaced the earlier literacy rate as an indicator of educational achievements. This indicator portrays better the educational achievements of the people as compared to the literacy rate (HDR, 2010).

The data for the mean years of schooling is derived from the available data on educational attainments, given that data on the distribution of population by age and educational levels is available from the UKHDR Survey. The number of years of schooling for each level of education is then applied as a multiplier to the age-education frequency distribution to get the mean years of schooling for the given distribution[2].

From the UKHDR Survey, the mean years of schooling is estimated at 7.5 years for Uttarakhand. Inter-district variations reveal that the mean years of schooling ranges from 6.3 years in Champawat to 8.6 years in Dehradun (Figure 2.2). Uttarkashi, Pithoragarh, Bageshwar, Nainital, Pauri Garhwal and Dehradun are districts with mean years of schooling higher than the state average while Champawat, Haridwar, Udham Singh Nagar, Almora, Rudraprayag, Tehri Garhwal and Chamoli are districts with mean years of schooling lesser than the state average.

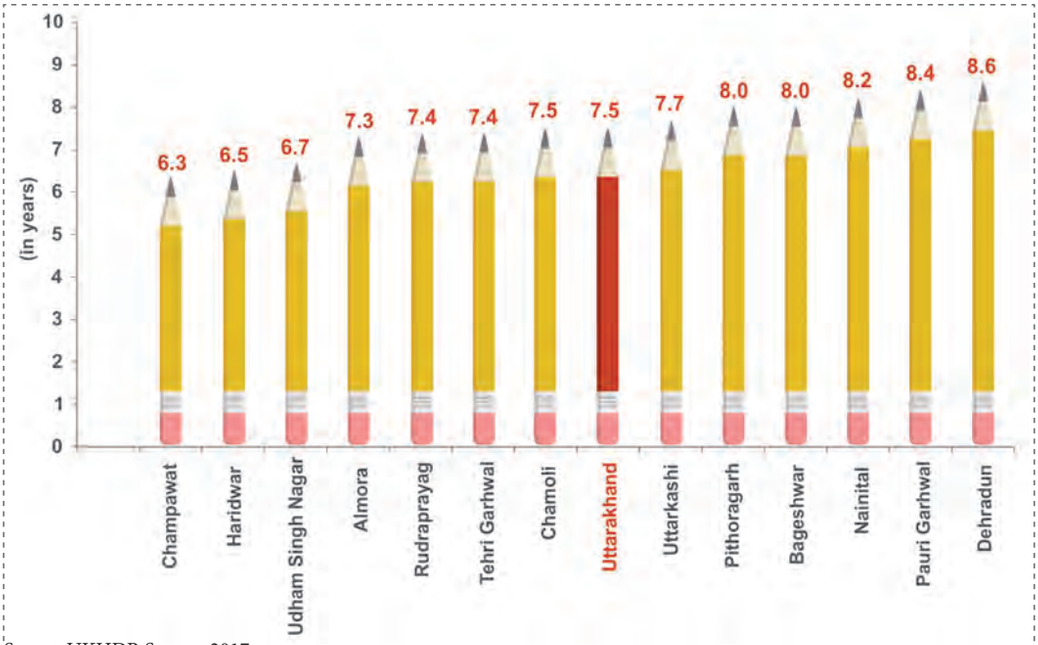
#### *Expected Years of Schooling*

The second indicator of educational achievements in the HDI is the expected years of schooling (EYS),the estimates of which are based on enrolments by age at all the levels of education and the number of school going age children in the population, for each level of education. Thus, the EYS is a measure of the number

1 The estimates were obtained by the standard Chiang Method. The higher estimates of life expectancy in these districts could be a reflection of the smaller number of reported deaths here.

2 It may, however, be noted that the MYS has figured as an indicator under the education component in the HDRs of previous years and has typically excluded years spent repeating individual grades. This comes with the fact that the estimation is done for individuals aged 25 years and above.

Figure 2.2: District –wise Mean Years of Schooling, 2017

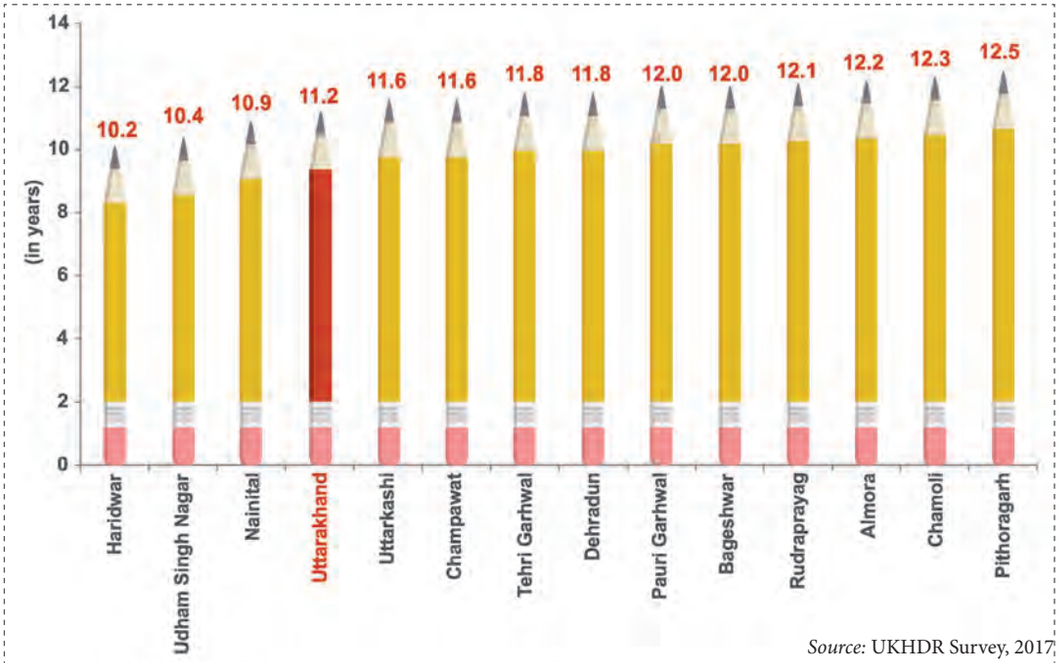



*Source:* UKHDR Survey, 2017

of years of schooling a child is expected to receive at the start of his or her education if the current rate of enrolments is maintained throughout the child's life. The advantages of using this indicator are that it represents a measure which takes into account both the stock and flow dimensions of the schooling system. It captures knowledge accumulation under the formal school system such that a higher value of the EYS is taken to reflect higher accumulated knowledge.

The estimates for the expected years of schooling reveal that in Uttarakhand, given the existing enrolment patterns, on an average a child can be expected to complete at least secondary level of schooling once he or she starts going to school (EYS = 11.2 years). Only the three districts of Nainital, Udham Singh Nagar and Haridwar (Figure 2.3) report expected years of schooling less than the secondary level, pointing towards the need to research reasons for the same as

Figure 2.3: Expected Years of Schooling, 2017




*Source:* UKHDR Survey, 2017

well as the implementation of commensurate policy measures to enhance the same. Pithoragarh district has the maximum expected years of schooling of 13 years. A marginal rural-urban and male-female bias exists for this indicator, although in the unexpected direction. Surprisingly, the EYS in rural areas (11.3 years) is marginally higher than that for urban areas (11.1 years).

### 2.3.3 Standard of Living

*District Income Per Capita*

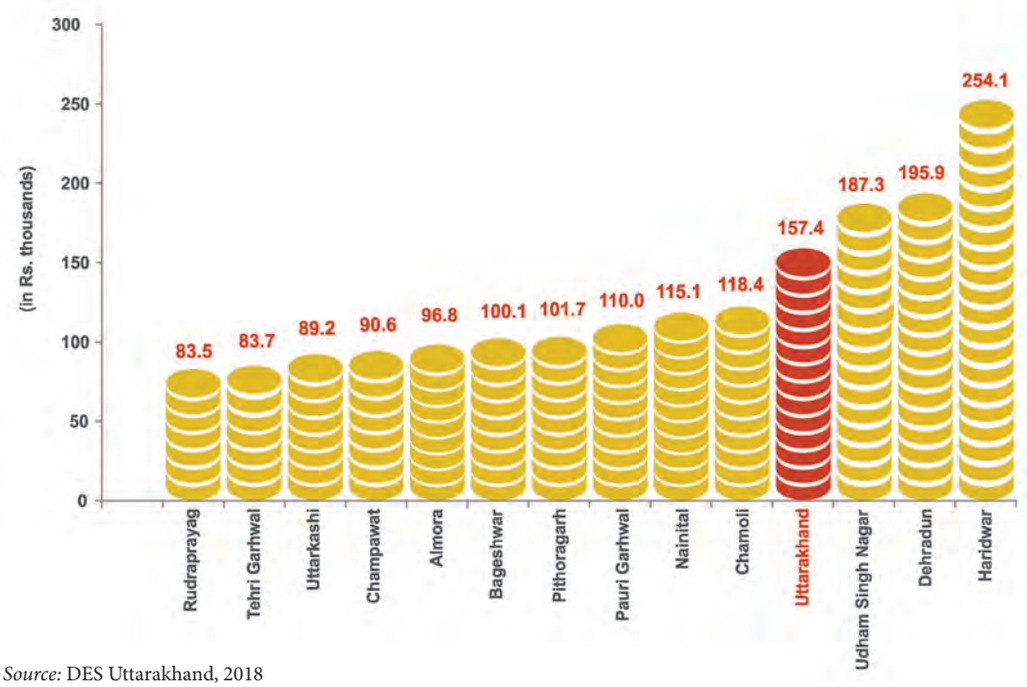
The standard of living component of the Human Development Index is measured using an income based indicator. The ideology behind using an income based indicator (UNDP 1990) is that it needs to capture and reflect the command over resources needed for a decent standard of living. This in turn requires data on access to land, credit, income and other sources. Lack of reliable and easily available data for such measures of income have led to the use of GDP per capita as the income dimension for HDI calculations. Subsequently, the Gross National Income (GNI) per capita was adopted (UNDP 2010) as the income measure and it was adjusted by the Purchasing Power Parity (PPP), allowing for cross country comparisons. However, it has been researched that income has the peculiar effect of diminishing returns to human development when income levels rise. Thus, the income capturing indicator needs to be adjusted for this feature and various methods have been applied in the HDRs for doing the same.

For the purposes of our calculations of the HDI, the GNI per capita was replaced with the Net District Domestic Product (NDDP) collected from the Department of Economics and Statistics, (DES), Government of Uttarakhand, 2017-18. As per the advance estimates from the DES 2017-18, the estimated average per capita NDDP in Uttarakhand was Rs.157.4 thousand in 2017-18. Across the state, the plains districts of Haridwar, Dehradun and Udham Singh Nagar reported a higher per capita NDDP compared to the state average. Haridwar had the highest per capita NDDP at Rs. 254 thousand and Rudraprayag reported the lowest per capita NDDP in the state at Rs. 83.5 thousand (Figure 2.4). The difference essentially arises due to better livelihood opportunities in the plains districts.

## 2.4 Uttarakhand: District Level Human Development Indices

The Human Development Indices have been calculated using the UNDP method max-min method to compare HDI values to the All India

Figure 2.4: Per Capita Net District Domestic Product (NDDP) (Rs. Thousands), 2017-18




*Source:* DES Uttarakhand, 2018

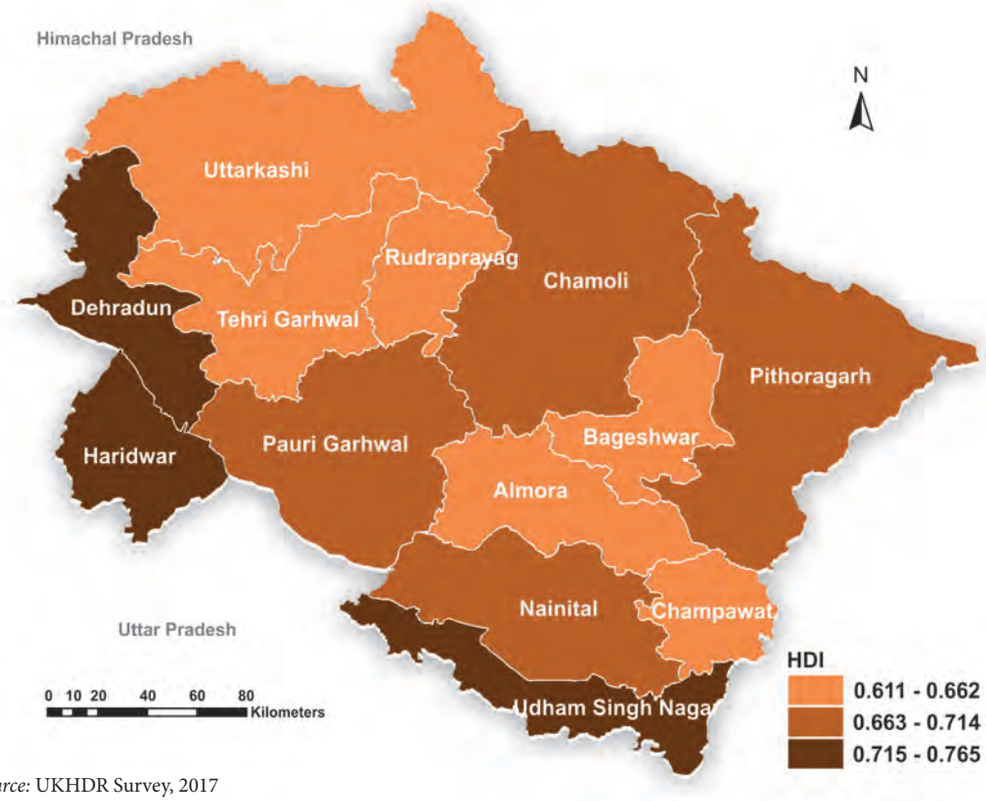
values (Annexure 2). The indices so derived present the status of human development in the districts, reflecting the progress made in human development given the patterns of individual dimensional achievements and keeping in mind the normative goals of capacity expansion. The higher values of the HDI show better achievements with regard to the normative goals set for the purpose of assessment. The HDI for Uttarakhand has improved over the years from 0.531 in 2011-12 to 0.718 in 2017. This is higher than all India HDI score (0.64) and just above the medium HDI score (0.70) as per UNDP (2018).

The top three districts are plains districts viz., Dehradun (0.765), Haridwar (0.733) and Udham Singh Nagar (0.717) (Map 2.1 and Annexure 2.1). Of the remaining ten hills districts, Rudraprayag (0.626), Champawat (0.620) and Tehri Garhwal (0.611) find a place at the bottom. The hills districts depend mainly on subsistence agriculture for their income generating activities and are not very well developed in terms of their infrastructure facilities like roads, electricity etc. This could be leading to disparities in livelihoods and incomes between them and the plains districts. Thus, in the hills districts, low income levels lead to low consumption levels as well as impede access to education and health services for the populace (Awasthi, 2012). The differences in HDI values between the hills and plains districts are mainly due to per capita GDDP, while the education and health indicators show a marginal gap.

## 2.5 Uttarakhand – District Level Gender Development Index (GDI)

It is a well acknowledged fact that gender relations play an important role in studies of human development. Thus, the disparities/ disadvantages that women face in access to and control over economic resources as well as education and health facilities need to be taken into consideration while studying human development. In its second HDR itself, the UNDP has given due importance to gender relations. In 1995, the Gender-related Development Index

Map 2.1: District-wise HDIs, 2017




*Source:* UKHDR Survey, 2017

(GDI) was introduced by the UNDP. The GDI takes into consideration average achievements in the same three dimensions as the HDI and captures the inequalities in them between women and men. The GDI is an important tool that can be used for ranking geographical spaces likes states and districts, for advocacy and policy formulations to address inequalities and for re-prioritizing resource allocations, especially in the social sectors, based on gender relations.

In a Government of India (2009) report that compiled and presented the GDI for India and the States/UTs for the years 1996 and 2006, the GDIs for Uttarakhand were reported as 0.457 and 0.647 respectively. These values for the GDI reflect an overall improvement in gender relations in the state over the decade under study. In this section, we present and analyze the estimates for the GDI for the 13 districts of Uttarakhand after reporting and discussing patterns in the male-female estimates for the individual dimensions of this index, using the data from the UKHDR Survey.

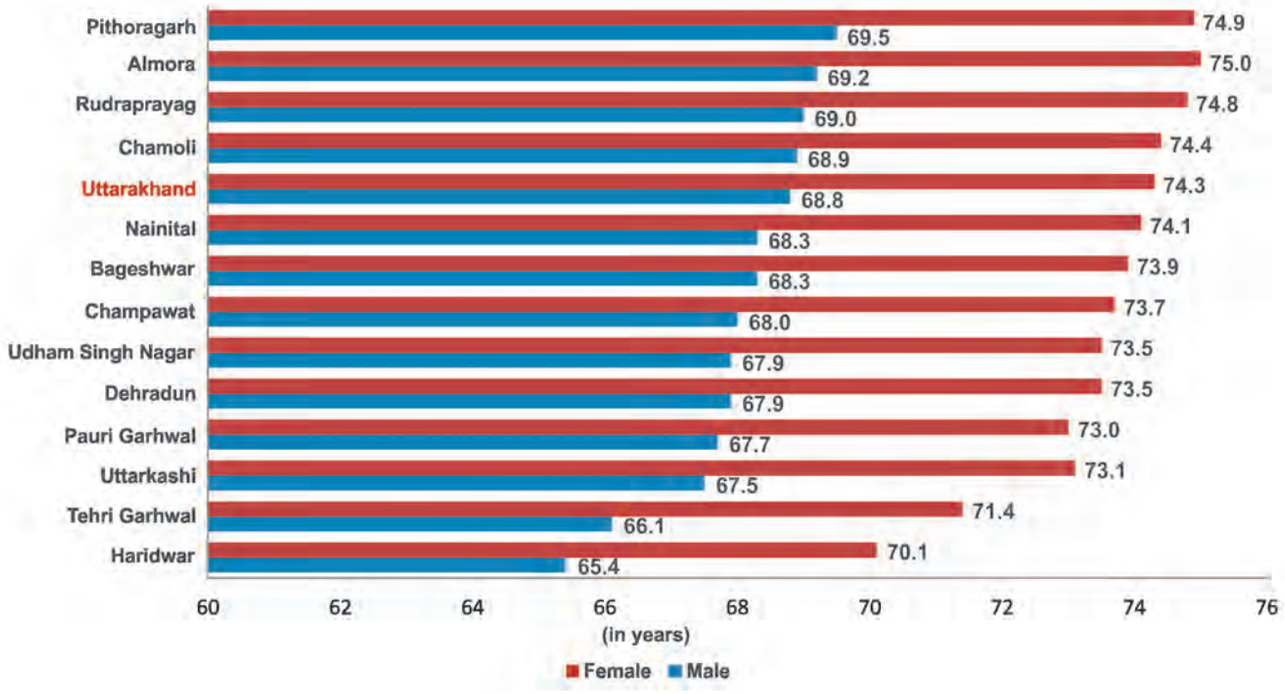
### 2.5.1 Health

#### *Life Expectancy at Birth*

It has been found that given similar access to health care and nutrition, women tend to typically have lower age-specific mortality rates than men (Sen, 2005). A similar pattern is visible in the life expectancy rates of males and females across various districts in Uttarakhand. The UKDHR Survey data, disaggregated by sex for life expectancy reveals very interestingly that for the state as a whole and across all the 13 districts, the life expectancy of women is greater than that of men. At the state level, the life expectancy at birth for males is 68.8 years and for females 74.3 years, females showing a life expectancy span of approximately 5 years more than the males (Figure 2.5).

The lowest life expectancy for both sexes is reported in Haridwar (males 65.4 years, females 70.1 years), male life expectancy especially being well below the state average. Thus, Haridwar as a district does not seem to be doing too well in terms of access to health facilities and nutrition for its populace. Almora reports the highest life

Figure 2.5: District wise Life Expectancy at Birth Disaggregated by Sex, 2017

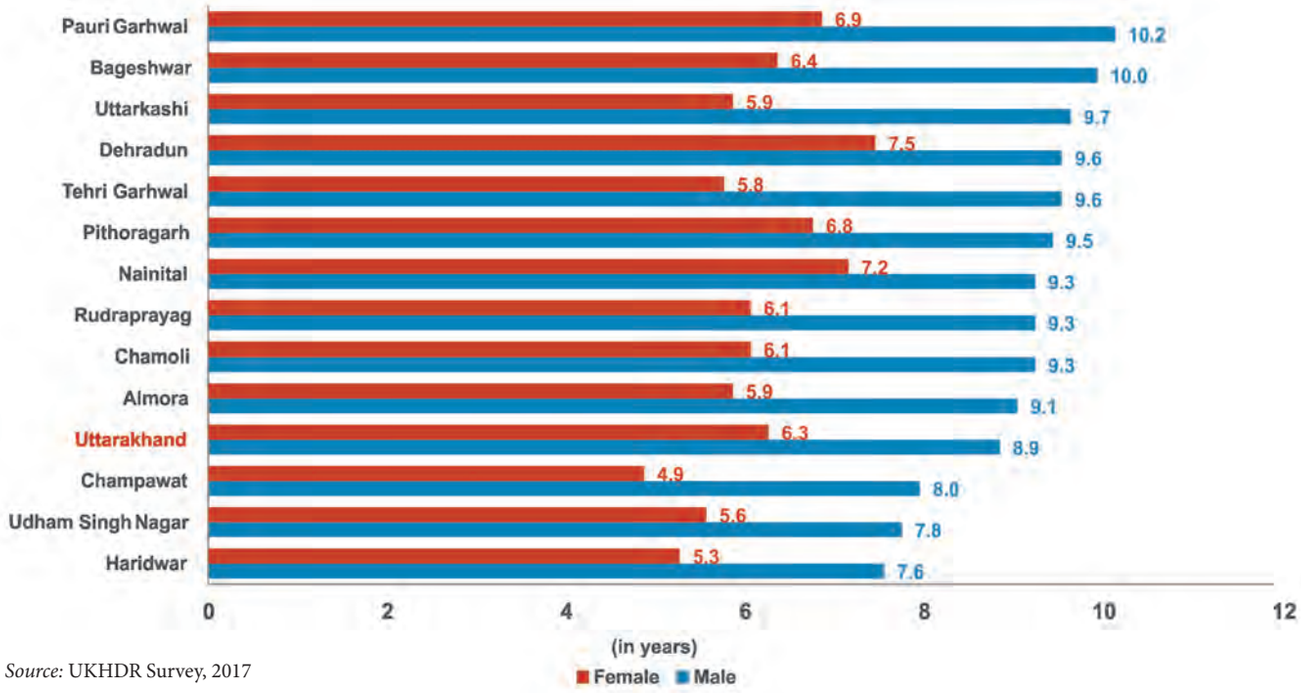



*Source:* DES Uttarakhand, 2018

expectancy for females (75 years) while Pithoragarh reports the highest life expectancy for males (69.5 years). It would be useful to study what socio-economic-political factors are contributing towards the higher life expectancy rates in districts like Almora, Pithoragarh, Rudraprayag and Chamoli. Differences in life expectancy at birth are not much across districts, barring in a few districts with the higher life expectancy in most of the hills districts being due to better access to health facilities and environmental factors.

for males and much lower at 6.3 years for females. As far as the MYS among females is concerned, the lowest MSY was found again in Champawat (4.9 years) and highest in Dehradun (7.5 years). However, the MYS among the males was found highest in Pauri Garhwal (10.2 years) and lowest in Haridwar (7.6 year). The UKHDR Survey finds that the male-female gap in mean years of schooling is the highest in Tehri Garhwal and Uttarkashi (3.8 years) while the same gap is lowest in Dehradun and Nainital (2.1 years).

Figure 2.6: District Level Mean Years of Schooling by Sex, 2017




*Source:* UKHDR Survey, 2017

## 2.5.2 Education

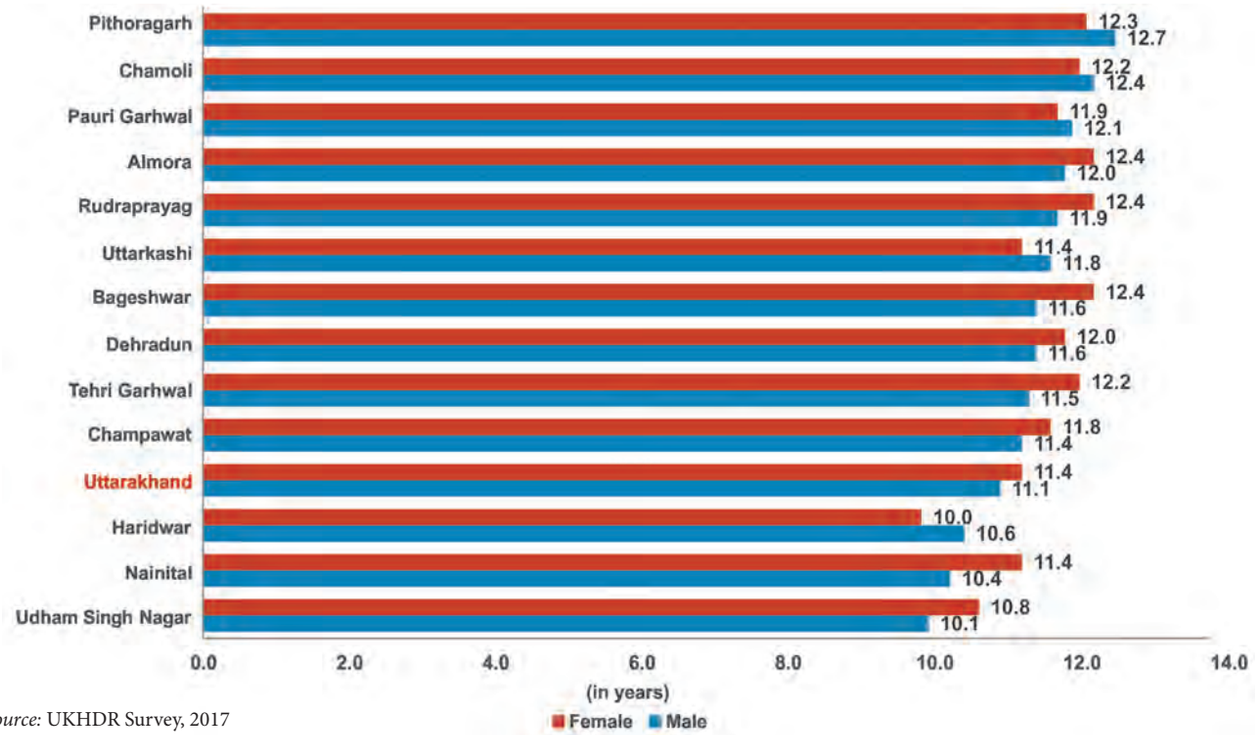
### *Mean Years of Schooling*

The mean years of schooling for an adult aged 25 years and above, disaggregated by sex, indicates that females have remarkably lesser mean years of schooling than males in the state of Uttarakhand (8.9 years for males and 6.3 years for female, Figure. 2.6). At the district level too, the state level pattern is evident with males reporting higher mean years of schooling vis-à-vis females, across all the districts. A clear gender divide of around two and a half years in the mean years of schooling is observed, 8.9 years

### *Expected Years of Schooling*

The district level spread for the expected years of schooling for male and female children in Uttarakhand is presented in Figure 2.7. It is interesting to note that at the overall state level, as well as in 8 out of the 13 districts, females report marginally higher expected years of schooling, although when it comes to actual mean years of schooling, females lag behind males across the state (refer figures 2.7 and 2.8). In Uttarakhand, the expected years of schooling for males is 11.1 years and that for females is 11.4 years. Pithoragarh (12.7 years) has the highest expected years of schooling

Figure 2.7: District Level Expected Years of Schooling by Sex, 2017




*Source:* UKHDR Survey, 2017

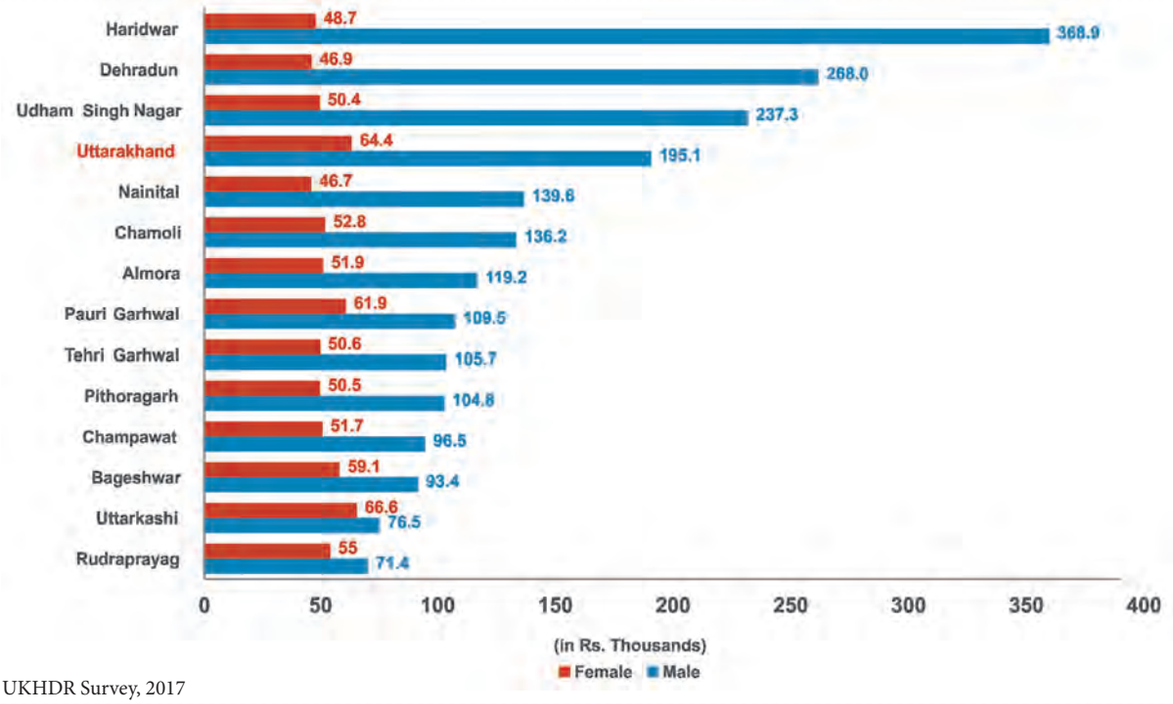
for males, while Bageshwar, Rudraprayag, and Almora have its maximum value (12.4 years) for females. Gender-wise, Udham Singh Nagar (10.1 for males and 10.8 for females) and Haridwar (10.6 years for males and 10 years for females) have the lowest expected years of schooling. Overall, the male-female gap in the expected years of schooling across the districts is narrower as compared to the gap in mean years of schooling, with females having an advantage over males in most of the districts. Nainital shows a gap of one year in the same with females having an advantage in the expected years of schooling over males. Such a result can probably be attributed to improvements in educational facilities, more awareness about educating the girl child and enhanced capabilities of women. All these can be seen as a stepping stone towards improvements in female empowerment.

### 2.5.3 Command over Economic Resources

#### *Average Per Capita Earnings*

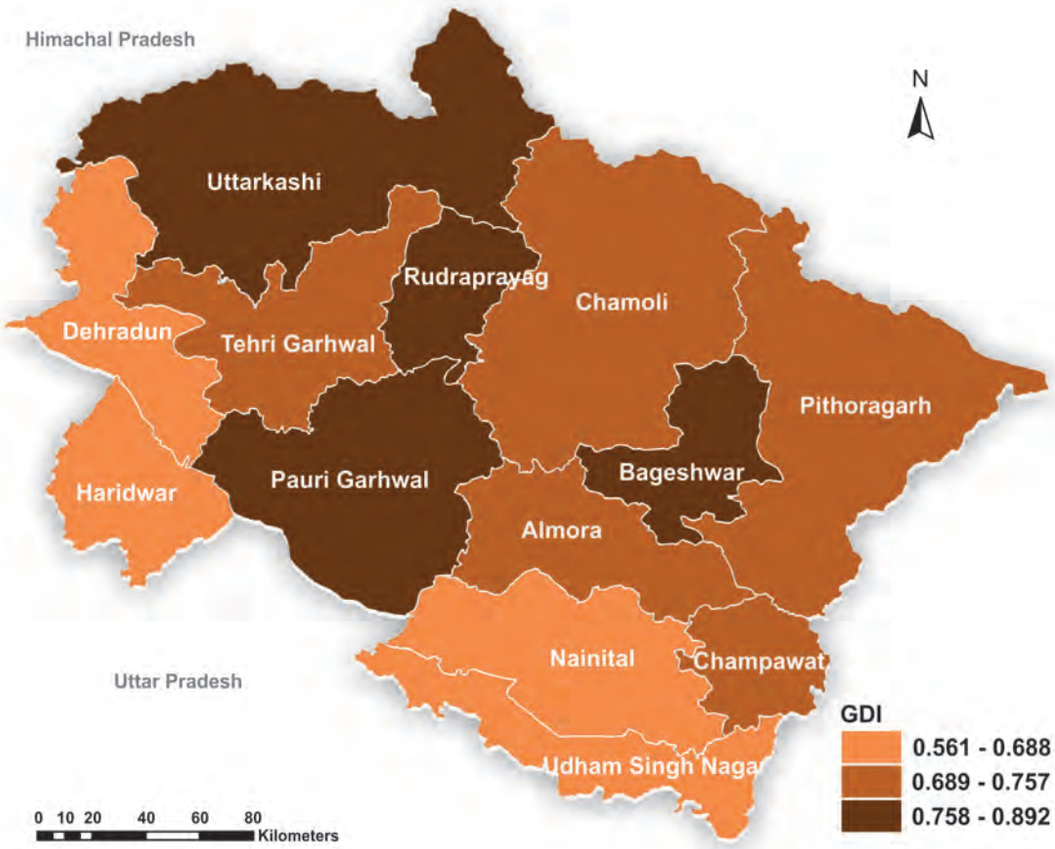
The annual per capita earnings (in thousands) can be taken as an indication of the standard of living and the command over economic resources for males and females. The per capita earnings for males (Rs. 195 thousand) is more than three times higher than that for females (Rs. 64 thousand) (Figure 2.8), showing a female disadvantage in average per capita earnings. In all the districts of the state, male per capita earnings is also higher than that for females. The male per capita earnings is highest in Haridwar (Rs. 36.9 lakh) and lowest in Uttarkashi (Rs. 7.6 lakh), while for females it is highest in Uttarkashi (Rs. 6.7 lakh) and lowest in Nainital (Rs. 4.7 lakh). Haridwar is also where the gap in male-female annual per capita earnings at Rs. 32.0 lakh is the highest in the state, while lowest in Bageshwar (Rs. 3.4 lakh). It is interesting to note that the gap in annual per capita earnings between males and females is significantly high in the plains districts because of low female participation rates in economic activities. Research studies to investigate the same would be useful so that apt policies can be formulated to narrow and then equalize the gap between males and females in order to increase their participation in economic activities, enhance their earnings and thereby bring to par their access to economic resources.

Figure 2.8: District-wise Estimated Per Capita Annual Income (in Rs. Thousands), 2017




*Source:* UKHDR Survey, 2017

Map 2.2: District-wise Gender Development Index (GDI), 2017




*Source:* UKHDR Survey, 2017

## 2.6 The Gender Development Index (GDI) by District

GDI calculations for the districts of Uttarakhand reveal that the hills districts have higher GDIs compared to the plains districts (Map 2.2 and Annexure 2.2). In these districts therefore, it can be inferred that females have an advantage over their male counterparts in terms of human development achievements. Uttarkashi has the highest GDI value (0.892), followed by Rudraprayag (0.864), Bageshwar (0.820), Pauri Garhwal (0.791), Champawat (0.757), Pithoragarh (0.728), Tehri Garhwal (0.726), Almora (0.721), Chamoli (0.698) and Nainital (0.679). GDI estimates show that all the three plains districts viz., Udham Singh Nagar (0.632), Dehradun (0.593) and Haridwar (0.561), in that order, are at bottom of the GDI list.

A comparison of the HDI and GDI values at the district level throws up an interesting observation. The plains districts of Haridwar, Dehradun and Udham Singh Nagar have the highest HDI and lowest GDI values, implying that they are doing well on the human development indices, but showcase gender imbalance in these indices. The difference mainly lies in female participation in income earning activities, while the health and education indicators do not show significant difference across the districts.

## 2.7 The Multidimensional Poverty Index (MPI)

Poverty is not one-dimensional as captured by the traditional income or consumption measures. On the other hand, just like life is Multidimensional, so is poverty. Accordingly, the Multidimensional Poverty Index (MPI) measures poverty in terms of the deprivations faced by people in education, health and living standards.

### 2.7.1 The Indicators

#### *Health*

The district level health indicators used for calculating the MPI are presented in Table 2.2 (OPHDI, 2018). The health dimension of the MPI includes undernutrition and child mortality. The child mortality rate was highest in Haridwar (3.7 percent) followed by Champawat (2.5 percent) and Almora (2.4 percent) and it was the lowest in Pauri Garhwal (0.6 percent) and Rudraprayag (0.7 percent). Nutrition deprivation was highest in Almora (21 percent) followed by Uttarkashi (18.8 percent) and Champawat (18.6 percent) and the lowest in Dehradun (5.9 percent) and Pauri Garhwal (9.2 percent).

#### *Education*

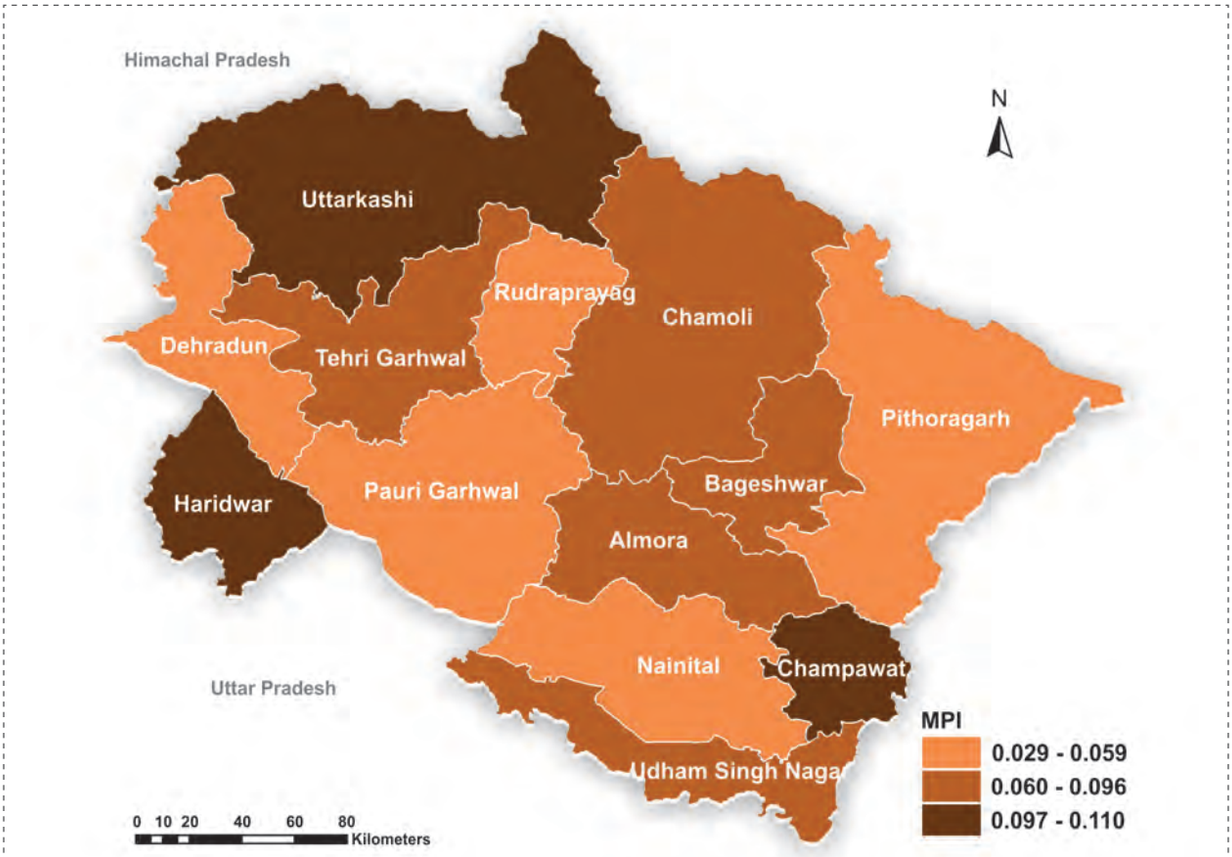
The district level education indicators used for calculation of the MPI are presented in Table 2.2. These include–years of schooling and school attendance. Household deprivation in terms of years of schooling was the highest in Haridwar (13.4 percent) and Udham Singh Nagar (11.1 percent), while it was the lowest in Pauri Garhwal (3.1 percent) and Dehradun (3.7 percent). Deprivation in terms of school attendance was highest again in the two plains districts viz., Haridwar (7.4 percent) and Udham Singh Nagar (6.8 percent), and lowest in Tehri Garhwal (0 percent) and Chamoli (0.1 percent).

#### *Standard of Living*

A total of six indicators namely - cooking fuel, sanitation , drinking water, electricity, housing, and assets were considered for estimating the standard of living component of the HDI (Table 2.2). District level data for the individual components reveals that the proportion of households deprived of improved cooking fuel was highest in Uttarkashi (24.8 percent) and Almora (23.6 percent) while such deprivation was the lowest in Dehradun (5.1 percent) and Nainital (10.1 percent). The highest proportion of households deprived of improved sanitation were in Uttarakashi (23.5 percent) followed by Champawat (18.8 percent) and Udham Singh Nagar (17.7 percent), while the lowest such deprivation was in Dehradun (4.9 percent) and Nainital (7.2 percent).

The proportion of households deprived of drinking water was highest in Uttarkashi (14.4 percent) followed by Almora (10.5 percent) and lowest in Dehradun (0.3 percent) and Haridwar (0.6 percent).The proportion of households having highest deprivation in terms of adequate housing was in Almora (24.2 percent) followed by

Map 2.3: District-wise Multi-Dimensional Poverty Index, 2015-16




*Source:* OPHDI, 2018

Table 2.1: District-wise Multidimensional Poverty Index Score, 2015-16

| District | Number of Poor (000s) | MPI | H | A |
|---|---|---|---|---|
| Almora | 143 | 0.096 | 24.9% | 38.7% |
| Bageshwar | 56 | 0.080 | 20.5% | 38.8% |
| Chamoli | 60 | 0.066 | 16.7% | 39.2% |
| Champawat | 59 | 0.100 | 23.9% | 41.8% |
| Dehradun | 151 | 0.029 | 7.0% | 41.9% |
| Pauri Garhwal | 85 | 0.046 | 12.0% | 38.6% |
| Haridwar | 481 | 0.101 | 22.7% | 44.5% |
| Nainital | 113 | 0.050 | 12.0% | 41.8% |
| Pithoragarh | 72 | 0.059 | 15.1% | 39.2% |
| Rudraprayag | 31 | 0.052 | 13.1% | 39.4% |
| Tehri Garhwal | 116 | 0.071 | 18.1% | 39.2% |
| Udham Singh Nagar | 413 | 0.096 | 22.6% | 42.4% |
| Uttarkashi | 85 | 0.106 | 25.3% | 42.0% |

*Source:* OPHDI, 2018; Note: Incidence or headcount ratio (H) of poverty; Average intensity (A) of poverty; and MPI=H x A.

Champawat (21.7 percent) and Uttarkashi (21.6 percent), while lowest such deprivation was in Dehradun (3.8 percent) and Nainital (7.6 percent). The proportion of households deprived of access to electricity was highest in Uttarakashi (5.1 percent) followed by Champawat (4.1percent) and lowest in Dehradun (0.3 percent), Nainital (0.8 percent) and Rudraprayag (0.8 percent). The proportion of households lacking in any assets was highest in Uttarkashi (18 percent) and Almora (13.7 percent), and lowest in Dehradun (2.5 percent) and Naintal (5.3 percent).

The global MPI developed by the Oxford Poverty and Human Development Initiative (OPHDI), Oxford Department of International Development and UNDP, 2018, when analysed shows that the MPI for Uttarakhand decreased from 0.179 in 2005-06 to 0.072 in 2015-16. The head count ratio declined from 78.7 per cent to 17.1 per cent and similarly, the intensity of poverty declined from 46.1 per cent to 41.8 per cent over the same period. The number of poor also reduced from 35,83,000 to 18,65,000.

The Multidimensional Poverty Index across districts (Map 2.3) of Uttarakhand shows a mixed picture with highest MPI scores for Uttarkashi (0.106), Haridwar (0.101) and Champawat (0.100). The education, health and living standard indicators were all low in the case of Uttarkashi and Champawat, while Haridwar had poor health indicators viz., child mortality (3.7 percent) and nutrition deprivation (16.9 percent) resulting in a high MPI score. The medium MPI score districts were Tehri Garhwal (0.071), Chamoli (0.066), Bageshwar (0.080), Almora (0.096) and Udham Singh Nagar (0.096) while the lowest MPI score districts included Dehradun (0.029), Rudraprayag (0.052), Pauri Garhwal (0.046), Pithoragarh (0.059) and Nainital (0.050). The education, health and living standards

Table 2.2 District-wise Indicators used in Construction of MPI (%), 2015-16

| District | Education | | Health | | Living Standard | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Years of Schooling | School Attendance | Child Mortality | Nutrition | Electricity | Improved Sanitation | Drinking Water | Housing | Cooking Fuel | Asset Ownership |
| Almora | 4.3 | 0.2 | 2.4 | 21.0 | 2.2 | 15.0 | 10.5 | 24.2 | 23.6 | 13.7 |
| Bageshwar | 4.7 | 0.5 | 1.5 | 16.0 | 2.0 | 13.2 | 8.3 | 17.0 | 20.1 | 14.1 |
| Chamoli | 3.8 | 0.1 | 1.6 | 13.3 | 1.8 | 12.2 | 4.7 | 15.7 | 16.0 | 10.9 |
| Champawat | 7.5 | 1.8 | 2.5 | 18.6 | 4.1 | 18.8 | 6.6 | 21.7 | 23.4 | 14.0 |
| Dehradun | 3.7 | 1.3 | 1.1 | 5.9 | 0.3 | 4.9 | 0.3 | 3.8 | 5.1 | 2.5 |
| Pauri Garhwal | 3.1 | 0.2 | 0.6 | 9.2 | 1.4 | 9.8 | 5.0 | 10.4 | 11.8 | 5.7 |
| Haridwar | 13.4 | 7.4 | 3.7 | 16.9 | 1.4 | 15.1 | 0.6 | 14.2 | 20.7 | 5.9 |
| Nainital | 4.0 | 2.8 | 1.9 | 10.2 | 0.8 | 7.2 | 2.1 | 7.6 | 10.1 | 5.3 |
| Pithoragarh | 4.0 | 0.3 | 1.6 | 10.7 | 1.8 | 11.4 | 6.4 | 13.7 | 14.3 | 9.1 |
| Rudraprayag | 3.9 | 0.4 | 0.7 | 9.5 | 0.8 | 10.6 | 4.7 | 11.6 | 12.9 | 8.9 |
| Tehri Garhwal | 5.0 | 0.0 | 1.6 | 13.9 | 1.4 | 12.8 | 9.3 | 13.9 | 17.9 | 10.6 |
| Udham Singh Nagar | 11.1 | 6.8 | 2.1 | 16.5 | 1.8 | 17.7 | 1.2 | 17.2 | 20.1 | 4.8 |
| Uttarkashi | 5.9 | 1.4 | 1.9 | 18.8 | 5.1 | 23.5 | 14.4 | 21.6 | 24.8 | 18.0 |

*Source:* OPHDI, 2018

indicators were all relatively better in Dehradun and Nainital, while for Rudraprayag, Pauri Garhwal and Pithoragarh, the health indicator captures by child mortality and the living standards indicators did better. The head count poverty ratio in these districts was also relatively lower (Table 2.1).

## 2.8 Summing Up

The above analysis suggests that, on the whole, human development achievements in terms of individual dimensions differ across districts, spatially as well as demographically. Improving income and health indicators emerges as the most critical policy concerns for Uttarakhand. Inequalities in opportunities with regard to health, education, and income have been pervasive and these have resulted in considerable loss in potential development achievements for the state. The distinct divides in achievements therefore, need to be bridged, to improve overall human development outcomes. Notwithstanding this, the various processes of service delivery and governance have a significant impact on levels of achievements and those need to be set right for better development outcomes. All these hint at major policy directions in terms of addressing Multidimensional deprivations across the districts of Uttarakhand.

# 3

# Income, Employment and Poverty

# 3 Income, Employment and Poverty

## 3.1. Introduction

The aim of economic development is to improve the quality of life of people by providing them with basic necessities coupled with adequate livelihood opportunities. The provisioning of, as well as access to livelihood opportunities, is fundamental for addressing and alleviating issues such as poverty, vulnerability, and inequality. Having mere access to livelihood opportunities is not enough, as it is the nature of these opportunities and the returns from them that gains importance in social development. Thus, the creation of adequate livelihood opportunities becomes a critical policy intervention for catering to the needs of an ever-increasing, job-seeking population.

The state of Uttarakhand is predominantly a mountainous region, comprising 13 districts, of which 10 are mountainous and 3 are plains. The mountainous regions occupy 85 percent of the state's geographical area with 48 percent of the state's population residing in them. Of this population, a large majority (85 percent) lives in the rural areas. Therefore, when undertaking any study of the socio-economic characteristics of Uttarakhand, the existence of such a geographical population spread needs to be kept in mind.

Development research on Uttarakhand over the years shows evidence of a widening gap between residents in the plains and the hills districts of the state in terms of livelihood opportunities and poverty (GIDS, 2017). The plains districts namely Dehradun, Udham Singh Nagar and Haridwar are relatively better off, as compared to rest of the hills districts (Awasthi, 2012; Mamgain, 2004). A majority of the people in rural parts of the mountain areas depend on subsistence agriculture for their livelihoods. The unique physical 'specificities' of these areas which includes inaccessibility (infrastructure, markets, technologies, and information), fragility, and marginality have mainly contributed to their under-development (Papola, 2002). Further, the limited fragmented, scattered and rain-fed land available for cultivation results in poor output or incomes. Hence, one of the main issues of concern for the state is the development disparities that exist between the hills and plains districts.

In this context, we present in this chapter the status of the Uttarakhand economy with focus on employment and livelihoods of the populace. The analysis lays emphasis on disaggregation at the rural-urban, hills-plains and male-female levels using NSS data for two rounds, 61st (2004-05) and 68th (2011-12) as well as the UKHDR Survey data. Patterns and trends in GSDP, GSDP per capita, employment-unemployment, structural composition of the economy and employment, status of employment, occupational distribution, income/wages, poverty, and inequality are studied. The importance and effectiveness of employment-livelihood related government schemes and the regional placement of industries is studied with the aim of understanding the challenges posed to employment generation and the availability of livelihood opportunities in the state.

For the purpose of this report, data on the labour market in terms of employment has been sourced from the household surveys of the

National Sample Survey Organization (NSSO) while economic data was sourced from the Central Statistical Organization, the Department of Economics and Statistics, Uttarakhand as well as from the UKHDR Survey.

## 3.2 Uttarakhand: Economic Development

The economic development of an economy can be studied by looking at indicators such as Gross Domestic Product (GDP), Gross National Product (GNP), per capita GNP, economic growth, employment, inflation, economic and demographic structure, etc. To study the same at the state level for Uttarakhand, we present in the subsequent sub-sections, patterns and trends in the estimates of Gross and Net State Domestic Product (GSDP, NSDP), District Domestic Product (DDP), per capita income, the tri-sectoral economic structure and the per capita gross state domestic product.

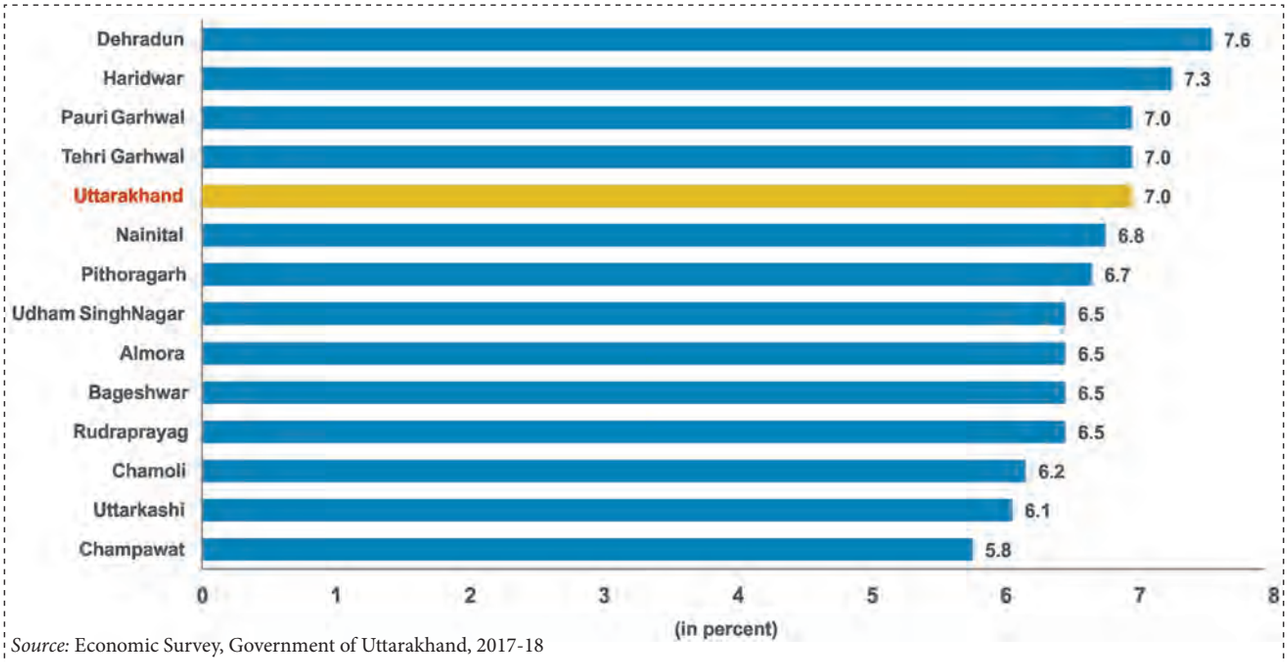
The Uttarakhand economy registered a growth rate of around 7 percent in 2016-17 and was estimated to grow at a rate of 6.8 percent in 2017-18, comparable to the all India growth rate. The GSDP growth rate during the period 2011-12 to 2017-18 was fairly good and the periods, 2012-13, 2013-14 and 2015-16 showed robust growth rates of over 7 percent per annum (Figure 3.1).

Figure 3.1: Growth Rate in GSDP (%) (at 2011-12 prices), 2012-13 to 2017-18


*Note:* QE: Quick Estimates, PE: Provisional Estimates
*Source:* Government of Uttarakhand

Variations in growth rate across districts were also clearly discernible. The plains districts registered higher growth rates compared to the hills districts with Dehradun recording the highest growth rate at 7.6 percent and Champawat the lowest (5.8 percent) in 2016-17 (Figure 3.2). Only two hills districts viz., Tehri Garhwal and Pauri Garhwal registered growth rates (7.0 per cent) identical to the state average.

Figure: 3.2 District-wise Growth Rates (%), District Domestic Product (DDP) (at Constant Prices 2011-12), 2016-17




*Source:* Economic Survey, Government of Uttarakhand, 2017-18

The Gross State Domestic Product at current prices was estimated at Rs. 195.7 thousand crores in 2016-17 and was likely to go up by Rs. 217.7 thousand crores in 2017-18. At constant prices (2011-12), the figure for the year 2016-17 was estimated at Rs. 162.8 thousand crores and was estimated to rise by Rs. 173.4 thousand crores in 2017-18. The district wise domestic product is presented in Figure 3.3 showing that the three plains districts contributed much higher shares in domestic product compared to the hills districts. The difference was indeed huge.

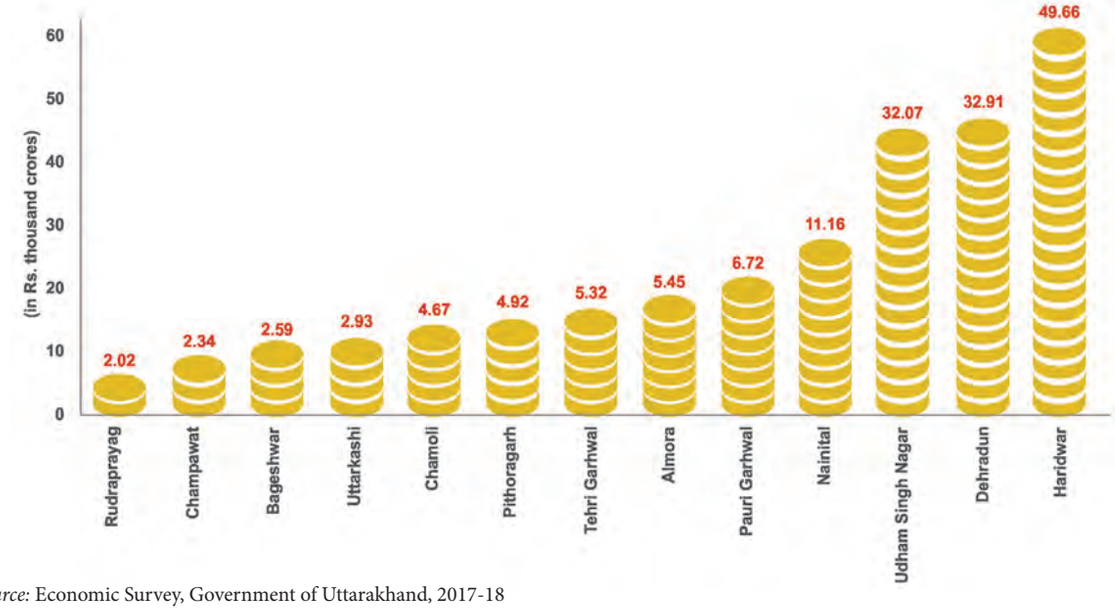
The per capita income in the state (at current prices) for 2017–18 (advance estimates) was estimated at Rs. 1.77 lakh, much higher than the corresponding national estimate of Rs.1.12 lakh. In 2016-17, the per capita income of the state was Rs.1.61 lakh, this is used as the reference period as it facilitates district level calculations of per capita income. Across the districts, large variations in per capita income have been found, especially between the hills and plains districts, per capita incomes being much higher in the plains vis-à-vis the hills.

All the three plains districts viz., Haridwar, Dehradun, and Udham Singh Nagar reported reasonably high per capita incomes at Rs.2.54 lakh, Rs. 1.96 lakh and Rs. 1.87 lakh, respectively for the year 2016-17, with all the figures well above the state average (Figure 3.4). Among the hills districts, all of which had per capita incomes below the state average, the lowest per capita income was reported for Rudraprayag (Rs. 83.5 thousand) and the highest for Chamoli (Rs. 1.18 lakh).

When the income structure is classified tri-sectorally to study the distribution of GSDP in Uttarakhand, for the period 2011-12 to 2017-18, the share of the primary sector was found to be low (14.0 percent) in 2011-12 and it declined further (10.5 percent) in 2017-18 (Figure 3.5). Within the primary sector, mining and quarrying reported high growth rates but their overall share in the primary sector was low.

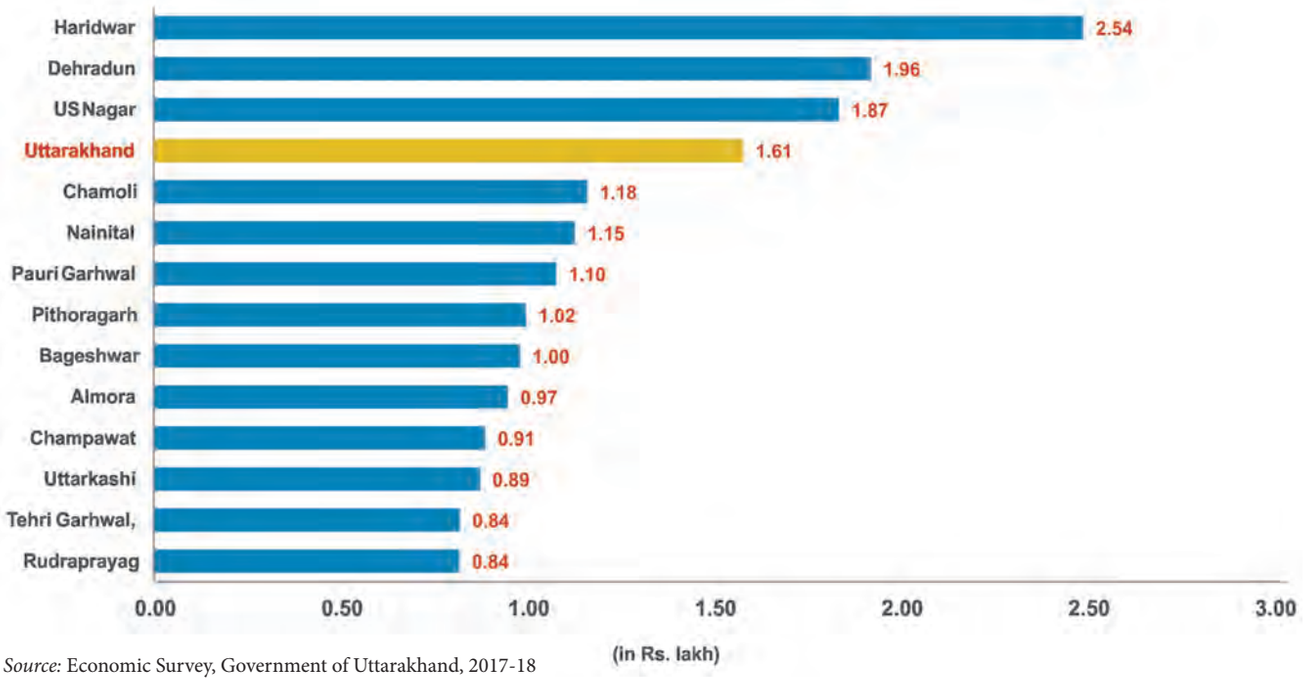
The secondary sector, which includes industry, had a remarkably higher share in GSDP, showing a marginal decline over 2011-12 to 2017-18 (52.1 percent to 51.6 percent). Within the secondary sector, a large part of the growth share came from construction activities, despite the fact that construction growth somewhat slackened in the latter half of the time period under consideration. The manufacturing sector registered a fairly robust growth rate of 6.2 percent per annum. Evidently, most of the growth in these three sectors occurred during the period 2014-15 to 2017-18.

Figure 3.3: Gross District Domestic Product at Constant Prices (2011-12) (Rs. Thousand Crores), 2016-17



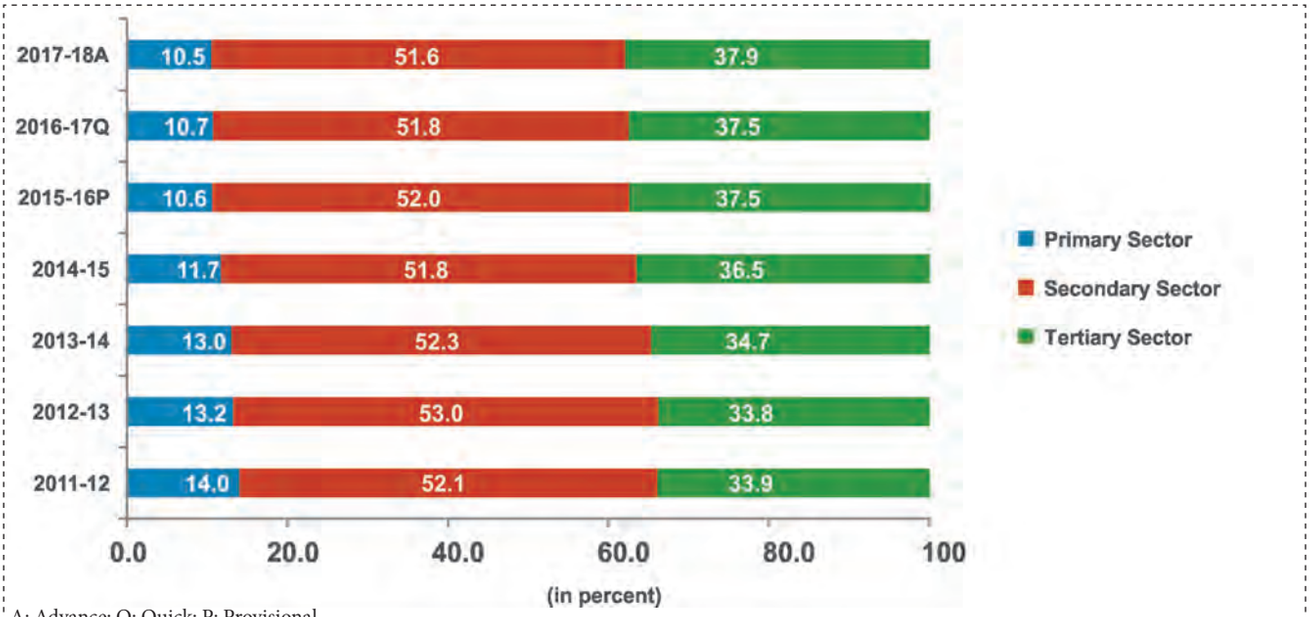

*Source:* Economic Survey, Government of Uttarakhand, 2017-18

Figure 3.4: District-wise Average Per Capita Income, (in Rs. Lakh), 2016-17




*Source:* Economic Survey, Government of Uttarakhand, 2017-18

Figure 3.5: Broad Sectoral Distribution (%) of GSDP (at constant prices, 2011-12), 2011-12 to 2017-18




A: Advance; Q: Quick; P: Provisional
*Source:* Economic Survey, Government of Uttarakhand, 2017-18

The tertiary sector grew a little over 7 percent per annum over the period under consideration. Its sectoral contribution rose from 33.9 percent in 2011-12 to 37.9 percent in 2017-18. Most of the growth in this sector came from the sub-sectors comprising transport, storage, communication & services related to broadcasting, that witnessed high growth rates (9.3 percent) and other services (9.5 percent). Trade, repair, hotels and restaurants registered 6.9 percent growth per annum over the period. These sub-sectors are emerging as the fastest growing sectors. Financial services, real estate, ownership of dwellings, professional services and public administration have grown by over 5 percent per annum. Such trends clearly point towards a sectoral transformation in the economic structure of Uttarakhand (Annexure 3.1).

## 3.3 Uttarakhand: Employment, Unemployment Patterns

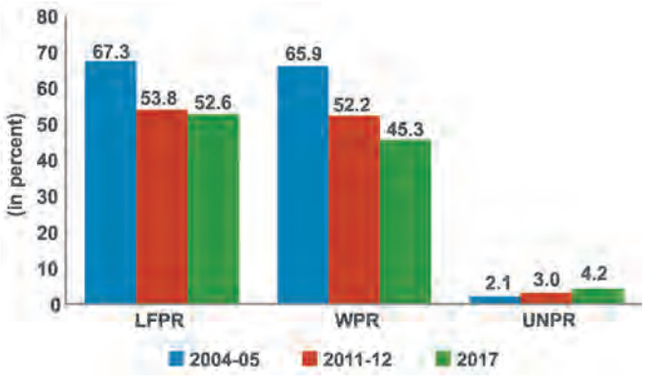
### 3.3.1 Labour force, Workforce and Unemployment

The labour force participation rate is a useful indicator for assessing the proportion of population that is of working age and engaged in the labour market. It comprises working age people who are either engaging in work (working) or are looking for work (unemployed). It therefore gives us a fair idea of the labour supply that is available and when analysed by sex (male-female) and area (rural-urban) it profiles the distribution of the labour force. The LFPR and WPR estimates are based on Primary Status and Subsidiary Status (PS+SS).

The UKHDR Survey reports that approximately 53 percent of adults (15+ years) in Uttarakhand were engaging in work/economic activities and were employed, around 45 percent of the total adult population engaged in some economic activities (WPR), while 4.2 percent, were out of total labour-force and seeking work, reflecting the unemployment rate. These labour market characteristics of the state are slightly higher than the corresponding All-India averages in 2011-12 reflecting that the state has probably not been able to generate enough new jobs to absorb the additional labour force.

Trends in labour force and work force participation rates for Uttarakhand from the NSSO reveal a decline in both these rates over the period 2004-05 to 2011-12. The UKHDR Survey data shows lower proportions for the same, although it needs mention that the two data sets are not strictly comparable. The LFPR of the adult population declined from 67.3 percent in 2004-5 to 53.8 percent in 2011- 12 (Figure 3.6 and Annexure 3.2). While the NSSO and the UKHDR datasets are not comparable for any trend analyses, we find that in 2017, the LFPR for Uttarakhand was 47.3 percent, revealing a decline. Similarly, the WPR also declined from 65.9 percent in 2004-05 to 52.2 percent in 2011-12. The UKHDR data reports it to be 45.3 percent in 2017. Such reductions in the LFPR and the WPR for Uttarakhand can be attributed mainly to increasing participation in higher education, withdrawals from the labour-force due to income effects and the absence of suitable job opportunities, particularly for women, in recent years (Awasthi, 2014; ILER, 2014; CMIE, 2017).

Figure 3.6: Changes in LFPR(%), WPR(%) and UNPR(%) (PS+SS) 2004-05, 2011-12 & 2017




LFPR: Labour Force Particpation Rate; WPR: Work Participation Rate; UNPR: Unemployment Rate
*Source:* NSSO, 2004-5/2011-12 and UKHDR Survey, 2017

The UKHDR Survey collected data on WPR and unemployment rate disaggregated by sector, region, social groups, income quintiles and educational levels to understand better the spatial distribution of the employed and unemployed (Annexure 3.3). At the sectoral level, work participation rate estimates were higher in the rural areas (48 percent) as compared to the urban areas (40.7 percent) for the state as a whole. The unemployment rate was higher in the urban areas (6 percent) vis-à-vis the rural areas (3.3 percent).

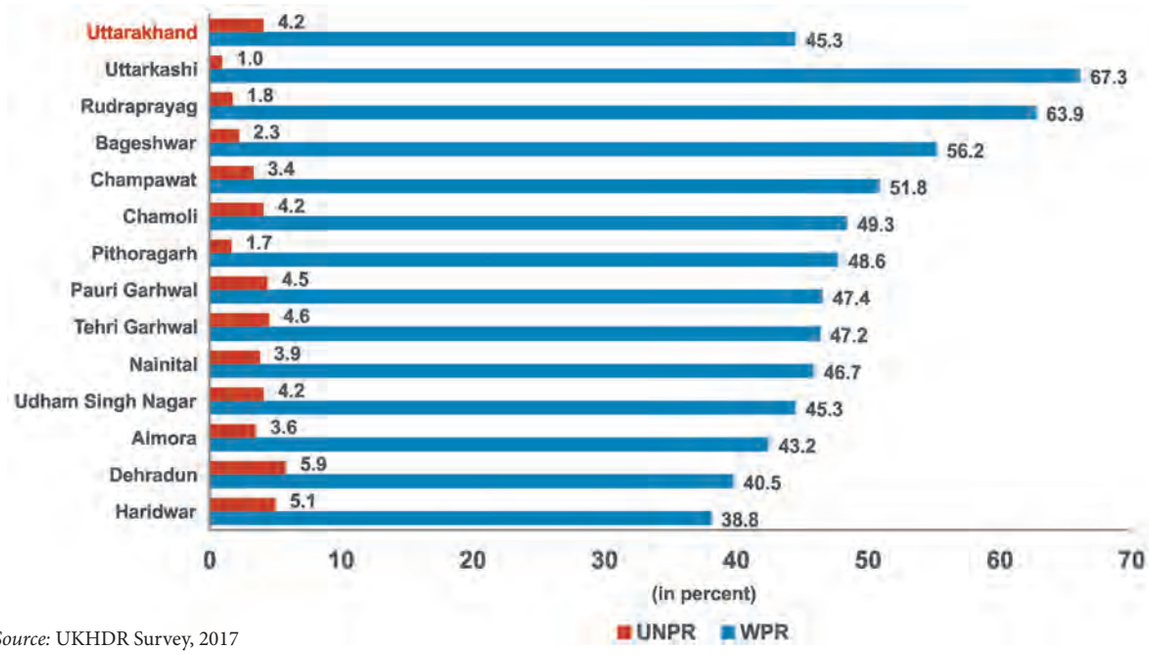
There is also an evident gender gap in female participation in economic activities with the female work participation rate (25.5 percent) lagging well behind the male work force participation rate (66.3 percent) for the state as a whole. At the sectoral level, the gender gap in work participation rates was wider in urban areas (51.2 percentage points) as compared to rural areas (35.4 percentage points). Thus, women participate in work in much smaller proportions as compared to men. At the aggregate level, while work force participation rates in the hills (50 percent) are higher than that in the plains (41.5 percent), the gender gap in work participation rates continues to exist in the hills as well as in the plains with women in the hills engaging in work in higher proportions (37.8 percent) as compared to the plains (14.2 percent). Also, the high unemployment rates of women in the plains

(5.7 percent) and in urban areas (6.3 percent) could be a reflection of the unavailability of suitable jobs and poor working conditions.

Work force participation rates across income quintile groups see a decline as we move from the poorest to the richest quintile groups at the aggregate level as well as for males and females. The unemployment rate in the state shows an opposite trend across income quintiles, increasing as we move up the ladder from the poorest 3.4 (percent) to the richest households (4.9 percent). Across the social groups, the scheduled castes have the highest work participation rates (48.9 percent) followed by the scheduled tribes (45.5 percent). Within these social groups the gender gap in work participation rates is stark (40.3 percentage points for the SCs and 46.1 percentage points for the STs). Work participation by educational levels reports a mixed trend as it rises with education levels up until the middle school level and then falls again. This is a pattern that needs to be properly researched as one would ideally expect work force participation rates to increase as educational levels of the population rise. A wide gender gap in work participation exists at all levels of education. The unemployment rate is the highest for technical and professional education wherein close to a fifth of the population in these categories is unemployed.

At the district level, the hills district of Almora (43.2 percent) and the plains districts of Dehradun (40.5 percent) and Haridwar (38.5 percent) have work force participation rates less than the state average of 45.3 percent[1]. All the other districts have work participation rates higher than the state average (Figure 3.7). The unemployment rate is also high in the plains districts of Dehradun (5.9 percent) and Haridwar (5.1 percent) pointing towards the need for policy measures to address the low rates of employment and relatively high rates of unemployment in these districts. High work force participation rates could be taken to indicate well-being of the population but on the flip side, in less developed regions like the hills of Uttarakhand, work force participation could be higher as they are

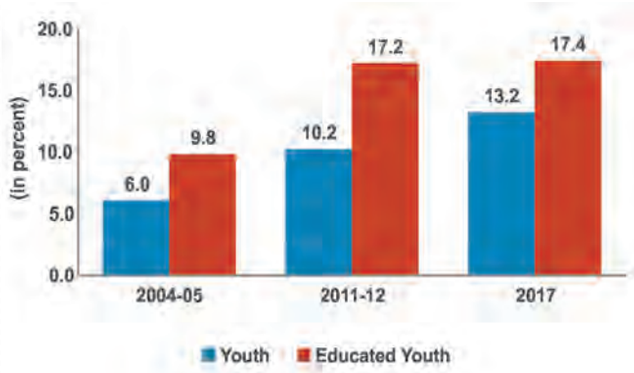
Figure 3.7: District-wise Distribution of Work Participation Rate (%) and Unemployment Rate (%), 2017




*Source:* UKHDR Survey, 2017

1 Highest WPR (67 percent) and lowest unemployment rate (1 percent) have been reported in the Uttarkashi district. The reason being that the Uttarkashi is an important Hindu pilgrimage Centre--the Char Dham (the small circuit of four abodes) -- Badrinath, Kedarnath, Gangotri and Yamnotri attract a lot of tourists for about 4-5 months in a year. Pilgrimage tourism helps boost the activities of the local economy in terms of the demand for tour operators, lodges and small restaurants (dhabas). This is one of the important livelihood sources of the people in the district. In addition, the district produces local vegetables, apples and the woolen products that also generate livelihood opportunities for the locals there.

Figure 3.8: Youth (15-29 years) Unemployment Rate (%)




*Source:* NSSO, 2004-5/2011-12 and UKHDR Survey, 2017

poverty driven. In the hills districts of Uttarakhand, people do not have any perennial source of employment and engage mostly in less productive agriculture and other non-farm activities. Thus, high work participation rates, especially for the men, in these districts, is not a reflection of affluence but rather, reflects the more important livelihood and sustenance issues.

## Youth Unemployment

The youth (15-29 years) unemployment rate in Uttarakhand increased from 6 percent in 2004-05 to 10.2 percent in 2011-12 (Figure 3.8). This is more twice the adult unemployment rate of 4.2 percent, pointing towards the increasing proportion of unemployed youth in the state. The UKHDR Survey pegs the youth unemployment rate in Uttarakhand at 13.2 percent. The spatial distribution of this indicator shows that youth unemployment is higher in the plains (14.9 percent) vis-à-vis the hills (11.1 percent) and more in urban (17.4 percent) as compared to rural areas (10.8 percent). Contrary to the overall scenario, youth unemployment is the highest for females in the plains (16.9 percent) and males resident in the hills (15.8 percent). The gender gap in youth unemployment is much wider in the hills (11 percentage points) and in rural areas (7 percentage points), with female youth showing much lower unemployment rates than males in these areas. In the plains, female youth are at a disadvantage showing higher rates of unemployment (16.9 percent) vis-à-vis male youth (14.5 percent).

What is of importance is the finding from the survey that the unemployment situation is worse amongst the educated youth (above secondary level) at 17.4 percent for the state as a whole, with the unemployment rate for the educated male youth being higher (19.9 percent) compared to educated female youth (12.3 percent). In the plains, youth unemployment is higher for males (18.7 percent) as compared to females (6.8 percent). In the hills on the other hand, female youth unemployment is higher (24.8 percent) and for males it is lower 20.7 percent). Such high youth employment rates are important pointers for policy interventions.

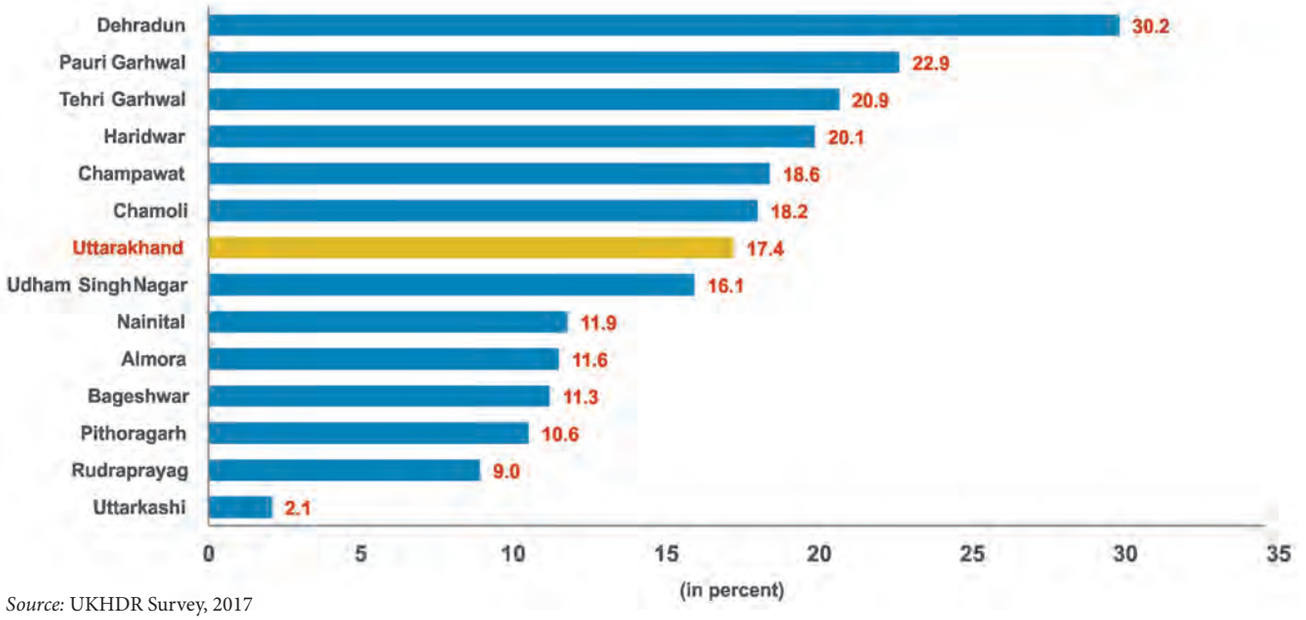
Youth unemployment is high amongst the men the in plains districts and urban areas of the state (Table 3.1). The area wise difference is significantly higher among girls compared to boys, four times more in the hills districts vis-à-vis the plains districts and more than double in urban areas as compared to rural areas . Clearly, this reflects alarmingly high unemployment amongst the youth population posing a major policy challenge.

Table 3.1 Spatial Distribution of Youth Unemployment Rate (%), 2017

| Male | | Youth | | | Educated Youth | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Persons | Male | Female | Persons |
| Region | Hills | 15.8 | 4.9 | 11.1 | 18.7 | 6.8 | 13.6 |
| | Plains | 14.5 | 16.9 | 14.9 | 20.7 | 24.8 | 21.5 |
| Sector | Rural | 13.0 | 6.0 | 10.8 | 17.2 | 8.4 | 14.2 |
| | Urban | 17.9 | 15.5 | 17.4 | 24.5 | 21.8 | 23.8 |
| **Total** | | **15.0** | **8.7** | **13.2** | **19.9** | **12.3** | **17.4** |

*Source:* UKHDR Survey, 2017

Figure 3.9: District-wise Youth Unemployment Rate (%) for Educated Youth (secondary and above), 2017




*Source:* UKHDR Survey, 2017

District-wise distribution of the unemployment rate for educated youth (secondary and above) (Figure 3.9) shows that the plains districts of Dehradun had the highest proportion of such unemployed youth (30.2 per cent) followed by Haridwar (20.1 per cent) and the lowest being in the case of Uttarkashi (2.1 per cent). The overall unemployment rate has also been reported highest in the plains districts of Dehradun followed by Haridwar (5.9 and 5.1 per cent, respectively). Close on the heels of these districts are Tehri Garhwal (4.6 percent), Pauri Garhwal (4.5 percent), Udham Singh Nagar and Chamoli (4.2 percent) (Annexure 3.4).

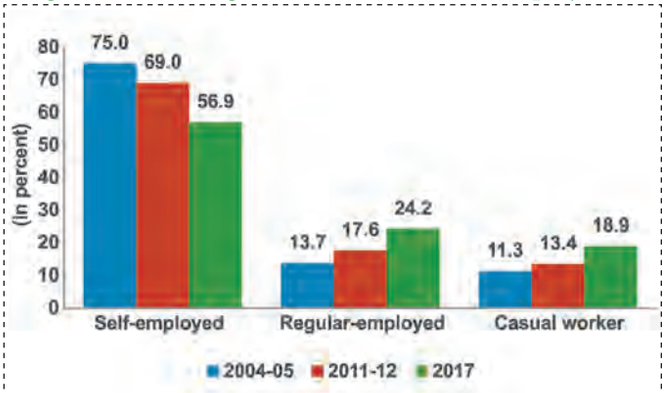
The above discussion on the overall labour market situation in the state indicates several broad tendencies and consequently, throws up some fundamental challenges. Despite high growth, employment in the state has grown slowly. The growth process has hardly reached the hills districts and rural areas of the state which still face many challenges. Declining and low labour force and work force participation rates coupled with an increasing unemployment rate, particularly amongst the youth, have important implications for the Uttarakhand economy. This worrying situation finds expression in employment related out-migration within the state and towards other states, as a livelihood coping strategy adopted by a considerable section of the people.

## 3.4 The Status of Employment

The status of employment encompasses the nature of jobs or activities that the working class is engaged in, although it does not necessarily measure the quality of employment. Employment status can be segregated into three broad categories viz., self-employment (SE), regular employment (RE) and casual workers (CW). Regular or paid employment is generally considered secure and self-employment fairly secure, even though incomes from certain types of self-employment activities might be highly irregular, inadequate and sometimes even uncertain. For typical casual workers, neither the duration of employment nor the income from it is certain.

NSS data for the two rounds under consideration show that for Uttarakhand, the self-employment base reduced from 75 percent 2004-05 to 69 percent in 2011-12. The UKHDR Survey puts the proportion of self-employed in Uttarakhand at 56.9 percent, that is, over half the working population in the state is self-employed, although this proportion has been dropping over the years. The proportions engaged in regular wage/salaried work increased from 13.7 percent in 2004-05 to 17. 6 percent in 2011-12. The proportion was higher in 2017 at 24.2 percent, implying that close to a fourth of the population engaged in regular work. Casual workers

Figure 3.10: Changes (%) in the Status of Employment




*Source:* NSSO, 2004-5/2011-12 and UKHDR Survey, 2017

showed an increase from 11.3 percent in 2004-05 to 13.4 percent in 2011-12. In 2017, the proportion of casual workers was 18.9 percent, thereby showing a steady increase (Figure 3.10). In particular, the proportion of regular workers has improved sharply (6.4 percentage points) as compared to casual workers (5.5 percentage points) between 2011-12 and 2017 (Annexure 3.5).

16.7 percent respectively). A similar pattern is seen for casual workers, 24.3 percent men and 9.9 percent of women engage in such work. Thus, the predominance of women in self-employment and the decrease in the proportions engaged in this sector is a cause for concern and an important policy flag. Self-employment is also predominant in rural areas (60.6 percent) and hilly regions (60.8 percent) of the state. Regular/salaried jobs are higher in urban areas (40.4 percent) and the plains (31.5 percent). Engaging in casual labour (26.6 percent) is highest in the plains of Uttarakhand.

District-wise employment status shows variations across the districts for all the three employment categories considered. In the five hills districts of Rudraprayag, Pithoragarh, Bageshwar, Uttarkashi and Champawat, over two-thirds of the populace was self-employed in 2017, well above the state average of 57.1 percent (Figure 3.11). The plains districts of Dehradun, Udham Singh

Table 3.2: Spatial Distribution of Employment Status (%), 2017

| Status | Sex | | Area | | Region | |
|---|---|---|---|---|---|---|
| | Male | Female | Rural | Urban | Hills | Plains |
| Self-employment | 46.9 | 73.3 | 60.6 | 42.3 | 60.8 | 41.9 |
| Regular/Salaried | 28.8 | 16.7 | 20.1 | 40.4 | 22.3 | 31.5 |
| Casual | 24.3 | 9.9 | 19.3 | 17.3 | 16.9 | 26.6 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

*Source:* UKHDR Survey, 2017

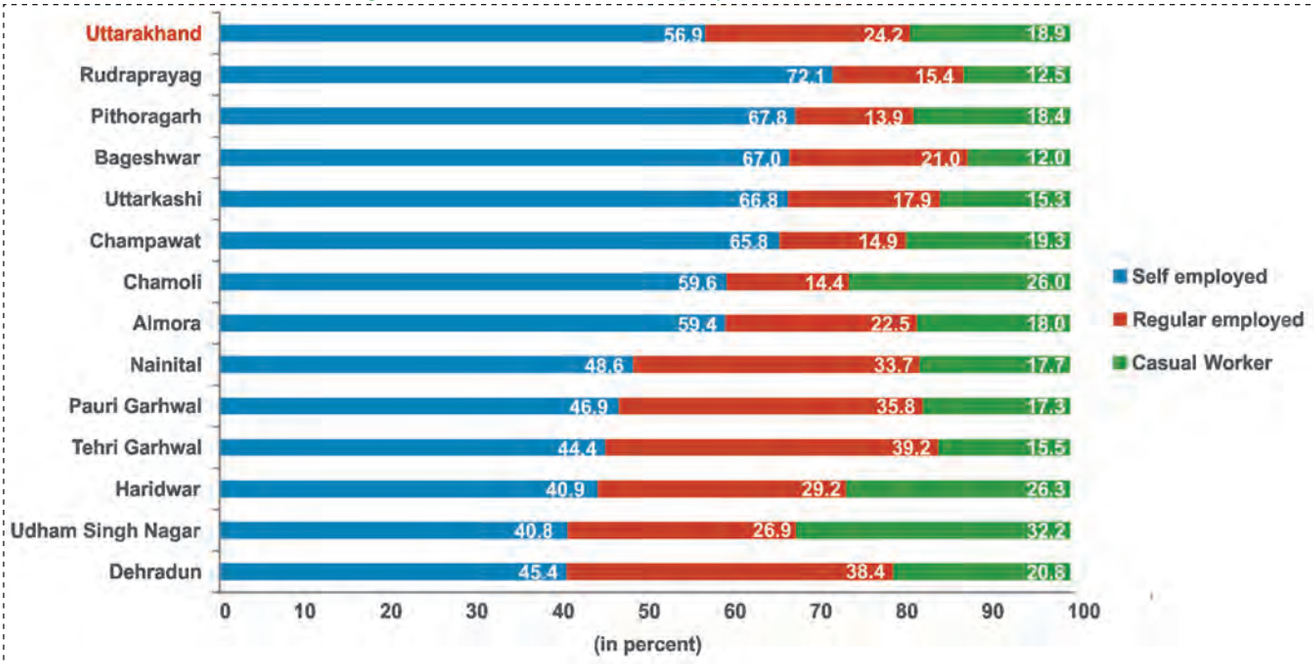
The drop in self-employment and the shift towards regular employment or casual labour (NSSO data and UKHDR Survey) could possibly be reflecting high under-employment in agriculture & related activities, and the absence of income generating non-farm self-employment activities in the state.

When disaggregated by sex, rural-urban and hills versus plains, the employment status of individuals throws up some interesting findings (Table 3.2). The UKHDR Survey data reveals that while overall 75 percent of individuals are engaged in self-employed activities, a much larger proportion of women (73.3 percent) are self-employed as compared to men (46.9 percent). Men engage in higher proportions in regular/salaried jobs as compared to women (28.8 percent and

Nagar and Haridwar are ranked at the bottom for population self-employed (40.8 percent, 40.9 percent and 44.4 percent respectively). Thus we find that self-employment is higher in the hills vis-à-vis the plains. Regular employment is high in the hills of Tehri Garhwal, Pauri Garhwal, Nainital and Almora and in the plains of Dehradun where over a third of the population is employed. Employment as casual labour is the highest in the plains districts of Udham Singh Nagar (32.2 percent) and Haridwar (26.3 percent) followed by the hills district of Chamoli (26.0 percent) (Annexure 3.6).

It is not just the mere availability of work that is important to enhance livelihoods. The nature, regularity and returns from work are also equally if

Figure 3.11: District-wise Employment Status (%), 2017



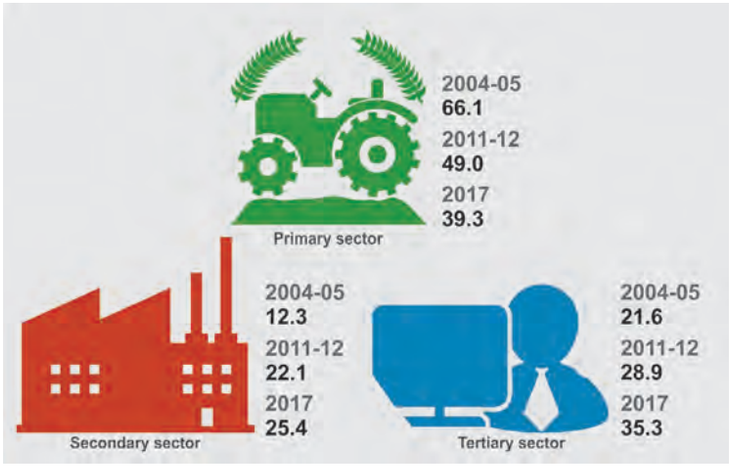

*Source:* UKHDR Survey, 2017

not more important. The poor cannot really afford to remain idle and therefore the observed LFPR and WPR are high in the rural and hills regions where most people engage in low-paying work such as self-employment and in family enterprises including petty vending activities. The UKHDR Survey shows that more than three-fourths of workers are either engaged in self-employment or in casual work. Although employment in regular work has been on the rise in recent years, particularly among women, its quality, remuneration and impermanent nature are issues that need proper research and understanding.

## 3.5 Employment by Type of Industry

Sector wise (type of industry) collection and analysis of employment data was also carried out in the UKHDR Survey. When we look at the data by type of industry from the NSS Rounds under consideration, we find that, employment in the primary sector saw a good drop of around 17 percentage points from 66.1 percent in 2004-05 to 49 percent in 2011-12 (Figure 3.12). The same sector had an employment rate of 39.3 percent in 2017 showing that a little over a third of the population

Figure 3.12: Changes in Employment Structure by Type of Industry (%)




*Source:* NSSO, 2004-5/2011-12 and UKHDR Survey, 2017

was engaged in work in primary sector activities. The share of employment in the secondary sector reported an almost doubling over the two NSS time periods (12.3 percent to 22.1 percent) while for the tertiary sector, the increase was from 21.6 percent to 28.9 percent. The corresponding employment figures from the UKHDR Survey were 25.4 percent for the secondary and 35.3 percent for the tertiary sector. District level analysis reveals that the rise in the share of secondary sector employment could possibly be attributed to a steep rise in construction activities accounting for around 15 percent of the employment in this sector (Annexure 3.7). The rise in the share of employment in the tertiary sector could be due to the availability of employment in public administration, health and education sectors (12.2 percent) as well as trade, hotels and restaurants sectors (15.2 percent).

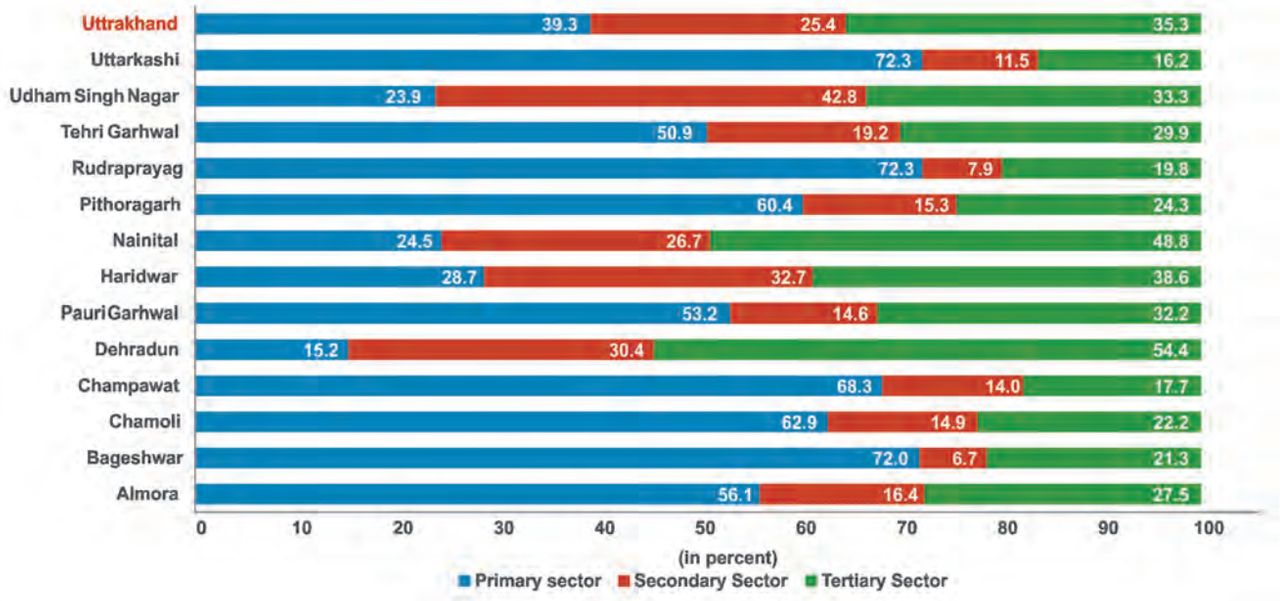
Employment by type of industry disaggregated by sex reveals that in 2017, women were predominantly engaged in primary or farm employment (68.5 percent) while men engaged more in jobs in the tertiary (40.2 percent) and secondary (29.4 percent) sectors (Figure 3.13). When the same is disaggregated by sector or by region, primary sector employment is found to be higher in rural areas (55.0 percent) and in the hills (55 percent). The tertiary sector provides employment in higher proportions in urban areas (63.2 percent) and the plains (43.0 percent). The same is the case with secondary sector employment (30.9 percent in urban areas and 33.0 percent in the plains).

Secondary sector employment is higher in urban areas and in the plains districts but highly concentrated in low wage construction and less numerous in manufacturing. Employment in the construction sector has increased with infrastructural development such as building construction, road construction and public programmes such as the MGNREGS, contributing to an increase in employment in this sector. On the other hand, employment in manufacturing is a cause for serious concern because this sector has huge potential to generate productive employment for semi-skilled and unskilled labour but its share has been hovering around just 9 percent since, 2011-12, significantly lesser than its share in GSDP. One can plausibly argue that industrial stimulus through concessional packages provided in 2003 by the Government of India to establish industries, spurred industrial activities. But these activities were concentrated only in the plains districts and could not provide many opportunities to people in the hills districts. However, the government later also implemented an industrial policy for the hills areas which has been ineffective in attracting investments and generating employment. This is reflected from their low share of employment particularly in hills districts (5 percent) compared to the plains districts (13.7 percent) in 2017. In the tertiary sector, the most prominent sub-sectors are trade, hotel and restaurants; services and transport, storage &

Figure 3.13: Spatial Distribution of Industrial Structure (%), 2017


*Source:* UKHDR Survey, 2017

Figure 3.14: District-wise Distribution of Industry (%), 2017




*Source:* UKHDR Survey, 2017

communication; and public administration, health and education sectors.

At the district level, the UKHDR Survey data finds primary employment concentrated in the hills of Uttarkashi (72.3 percent), Rudraprayag (72.3 percent), Bageshwar (72 percent), Champawat (68.3 percent), Chamoli (62.9 percent), Pithoragarh (60.4 percent), Almora (56.1 percent), Pauri Garhwal (53.2 percent) and Tehri Garhwal (50.9 percent). In these districts, the employment proportions in the secondary sector are lower than those in the tertiary sector (Figure 3.14). The plains districts of Dehradun, Udham Singh Nagar and Haridwar show a preference towards tertiary sector employment ( 54.4 percent, 48.8 percent and 38.6 percent respectively) followed by secondary sector employment (30.4 percent, 26.7 percent and 32.7 percent respectively). What is interesting to note is that in the hills district of Nainital, employment is highest in the tertiary sector (48.8 percent). In most of the hills districts, the secondary manufacturing sector seems to have been side lined and there is a movement directly from primary sector employment to tertiary sector employment. This has important implications for labour market policy making in the state of Uttarakhand (Annexure 3.8).

Lack of regular employment opportunities outside the farm sector coupled with the high incidence of underemployment in terms of unutilized labour time, particularly in farm activities, is a major problem in the rural areas and hills districts of Uttarakhand. Due to hills specificities, rural households are forced to diversify their activities or migrate-out for survival. Hence, apart from engaging in multiple activities, migration has emerges as an important household strategy to cope with the seasonality and uncertainty of production. The most stylized concomitant of economic progress is the movement of labour from agriculture to manufacturing, and from manufacturing to commerce and services. Such a transformation is visible in Uttarakhand where over the years, more and more people have shifted out of the agricultural (primary) sector and have sought employment in the secondary and tertiary sectors. What is more visible is the bypassing of the secondary manufacturing sector and the direct shift from the primary agricultural sector to the tertiary sector for employment.

## 3.6 Occupational Structure

As has been discussed in the previous section, the employment structure in Uttarakhand has seen a transformation over the years, shifting from the primary sector towards the tertiary sector (a range

of service related occupations) and to some extent towards the secondary sector. The UKHDR Survey collected data on the occupational distribution of the population to throw light on the diversities in jobs that the populace engages in, especially in the services sector. Based on worker skills, the occupations were broadly divided into three categories viz., (i) High skilled (senior officials, managers, professionals, technicians & associate professionals); (ii) Medium skilled (clerks, service, shop & market sales workers, agriculture & fishery, craft & related trades, plant & machine operators & assemblers) (iii) Low skilled (elementary occupations such as labour in agriculture; construction, mining, manufacturing, transport, sales and services).

(5.8 percent) and technical & associated activities (3.0 percent). Low skilled workers (24.9 percent) engage as daily wage workers or labourers in both farm and non-farm activities.

Gender-wise occupational distribution of workers shows that in Uttarakhand, women engage predominantly in medium skilled occupations, in agriculture activities (57.8 percent), while men are employed more in low skilled occupations (29.2 percent) (Table 3.3 and Annexure 3.9). In the rural areas and the hills, employment is higher in skilled agriculture, craft & related trade activities (Table 3.4). On the other hand, in the urban areas and the plains, employment is more in services work

Table 3.3: Occupational Distribution of Workers by Level of Skill (%), 2017

| Skill level | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| High | 7.7 | 4.9 | 6.9 | 13.8 | 26.9 | 15.5 | 9.9 | 8.9 | 9.6 |
| Medium | 61.7 | 85.4 | 68.4 | 59.5 | 58.4 | 59.4 | 60.9 | 80.5 | 65.5 |
| Low | 30.7 | 9.7 | 24.8 | 26.7 | 14.7 | 25.1 | 29.2 | 10.6 | 24.9 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

*Source:* UKHDR Survey, 2017

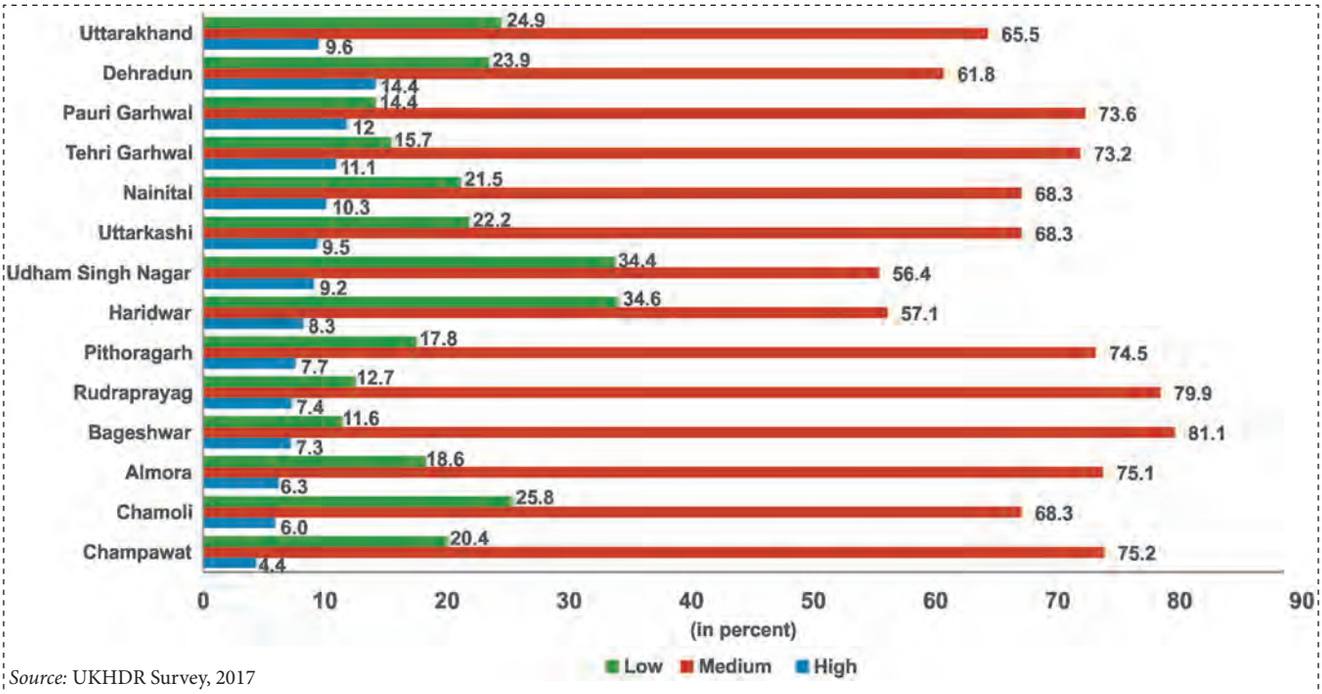
The UKHDR Survey data on the occupational distribution of the populace reveals a predominance of middle-skilled (65.5 percent) workers followed by low (24.9 percent) and high skilled workers (9.6 percent). Middle-skilled workers mainly engage in farm & related work (28.2 percent); services work, shop & market sales activities (20.2 percent), craft and related trades (8.1 percent), and plant & machine operators & assembling activities (6.0 percent). The high skilled workers engage mostly in professional & shop and market sales activities, elementary occupations (labour activities) and professional activities. The higher proportion of people engaged in elementary or low skilled occupations in the urban areas and plains districts may be due to out-migration from the rural and hills districts in search of livelihood activities, with the migrating populace eventually engaging in whatever employment opportunities are available, as a survival and livelihood strategy.

Table 3.4: Spatial Dimensions of Occupations (%), 2017

| Skill level | Sector | | Region | |
|---|---|---|---|---|
| | Rural | Urban | Hills | Plains |
| High | 6.9 | 15.5 | 8.6 | 10.6 |
| Medium | 68.4 | 59.4 | 72.8 | 58.4 |
| Low Skilled | 24.8 | 25.1 | 18.6 | 30.9 |
| **Total** | **100** | **100** | **100** | **100** |

*Source:* UKHDR Survey, 2017

Figure 3.15: District-wise Occupational Distribution of Workers by Skill (%), 2017




*Source:* UKHDR Survey, 2017

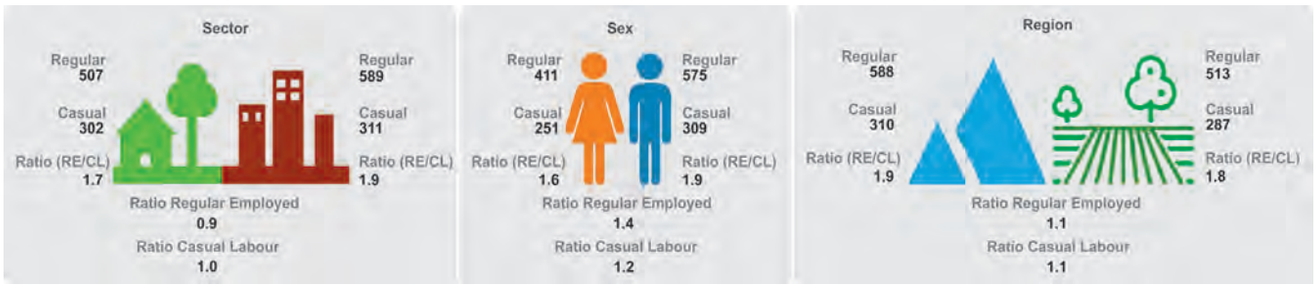
The occupational distribution of workers by skill at the district level shows that in 2017, the proportions of workers engaging in high skilled activities was higher in Dehradun (14.4 per cent), Nainital (10.3 per cent), Tehri Garhwal (11.1 per cent) and Pauri Garhwal (12.0 per cent) than the state average (9.6 percent). The hills districts such as Champawat (75.2 per cent), Almora (75.1 per cent), Bageshwar (81.1 per cent), Rudraprayag (79.9 per cent), and Pithoragarh (74.5 per cent) had higher proportions of medium skilled workers. Workers engaged in significantly higher proportions in low skilled activities such as non-farm labour only in the plains districts of Haridwar (34.6 per cent) and Udham Singh Nagar (34.4 per cent) as compared to the state average (24.9 percentage) (Figure 3.15).

## 3.7 Income/Wages and Productivity

The average daily earnings/wages of regular workers (Rs. 545) was significantly higher than that of casual workers (Rs. 303) (Figure 3.16).

As expected, a substantial difference exists in the average daily wages of regular employees (RE) and casual workers (CL) across male-female, rural-urban, and the hills-plains districts. In addition, men earn higher daily wages than women, people in urban areas earn more than their urban counterparts and surprisingly, those in the hills earn more than those in the plains across the regular and casual worker categories. The higher earnings in the hills could possibly be because of smaller populations and the higher demand for labour in the local labour market. This is also exacerbated due to male-specific out-

Figure 3.16: Spatial Dimension of Wages / Average Daily Earnings (in Rs.), 2017




*Source:* UKHDR Survey, 2017

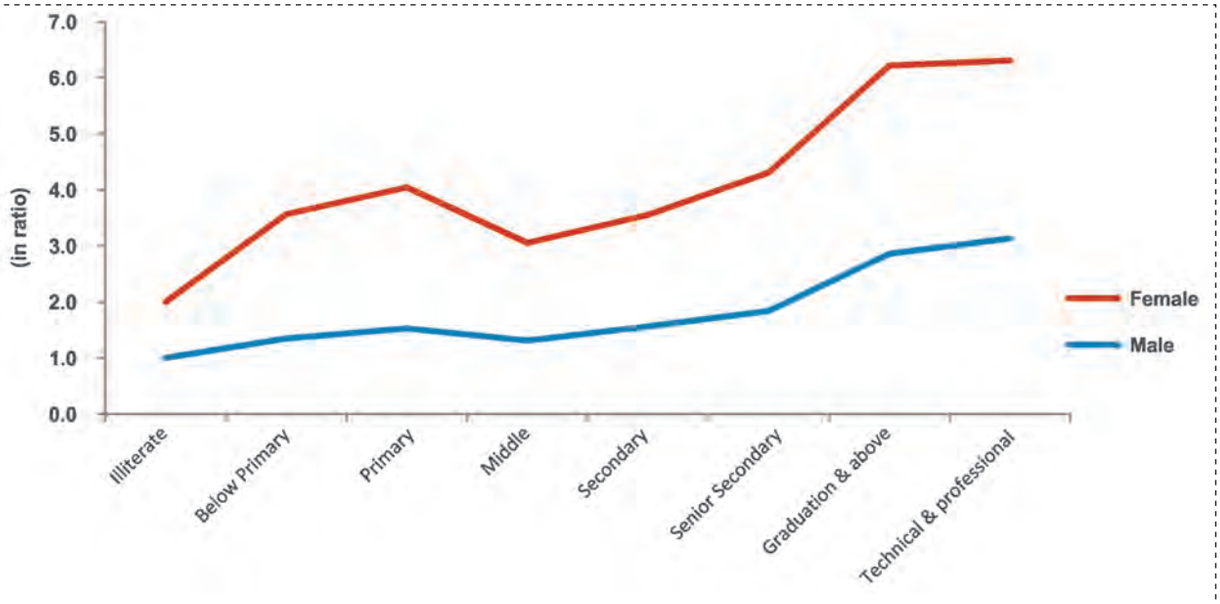
Male Female Plain Hill Rural Urban

Table 3.5: Spatial Distribution of Average Daily Earnings/Wages (in Rs.), 2017

| | | Regular | | | Casual | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Total | Male | Femle | Total |
| Sector | Rural | 543 | 352 | 507 | 308 | 249 | 302 |
| | Urban | 612 | 484 | 589 | 314 | 264 | 311 |
| Region | Hills | 626 | 446 | 588 | 319 | 248 | 310 |
| | Plains | 540 | 378 | 513 | 288 | 262 | 287 |
| Educational Level | Illiterate | 291 | 329 | 253 | 301 | 250 | 289 |
| | Below Primary | 392 | 730 | 340 | 298 | 256 | 293 |
| | Primary | 444 | 829 | 394 | 308 | 278 | 306 |
| | Middle | 381 | 574 | 359 | 313 | 245 | 309 |
| | Secondary | 455 | 655 | 437 | 311 | 220 | 307 |
| | Senior Secondary | 535 | 812 | 524 | 315 | 237 | 310 |
| | Graduation and above | 832 | 1105 | 769 | 322 | 233 | 318 |
| | Technical and professional | 912 | 1044 | 848 | 394 | 242 | 329 |
| | **Total** | **575** | **411** | **545** | **309** | **251** | **303** |

*Source:* UKHDR Survey, 2017

Figure 3.17: The Returns to Education for Regular Workers




*Source:* UKHDR Survey, 2017
*Note:* Returns to education is the increase in the earnings from an additional year of education for an individual who makes the investment decision on education.

migration from the hills districts. In addition, within the regular workers category, the Survey finds a three-fold difference in wages in the public sector (Rs. 1020) vis-à-vis the private sector (Rs. 358) (Annexure 3.10). A possible reason for this could be lack of relevant education and marketable skills among employees resulting in comparatively low wages and poor working conditions in the private sector as compared to the

public sector (Awasthi, 2012) (Table 3.5).

Wages of regular and casual workers when mapped against educational levels reveal that the earnings in wages increase as the educational level of the workers increases, in both the regular as well as casual work categories, up to the primary level and this holds for both rural and urban areas and the hills as well as the plains. There is a sudden dip in wages at the middle school level after which the wages again show an increase as the educational levels rise, peaking at the technical and professional education levels.

A clear female advantage is seen in wage earnings in regular work while in casual work, the men earn more than women across all the education categories. Figure 3.17 maps the returns to education for regular workers, taking the value for illiterates as 1. It is found that the daily earnings of regular workers increases as their educational level increase.

## 3.8 Poverty and Inequality

### Monthly per capita expenditure

In 2017, the average monthly per capita expenditure (MPCE) of the state was Rs. 2928, rural areas having lower MPCE vis a vis the urban areas (Rs 2673 and Rs 3417, respectively) and the hilly regions also reporting lower MPCE as compared to the plains regions (Rs 2849 and Rs 3000 respectively) (Table 3.6). In terms of social groups, the Scheduled tribes (Rs 3109) and General castes (Rs 3231) had comparatively higher MPCEs.

### Food and Non-Food Expenditures

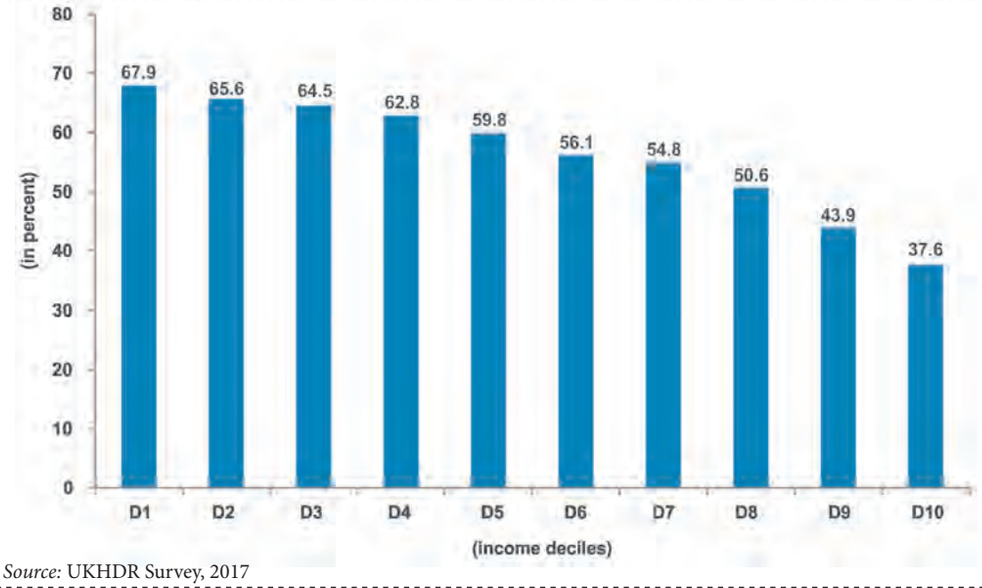
The data on share of food and non-food items in household expenditures collected by the UKHDR Survey reveals that the proportions spent on both by the households are almost the same (food 49 percent and non-food 41 percent) (Figure 3.18). As expected, the share of food expenditures declines as we move up the income quintiles showcasing that while poor households spend their incomes largely on food, richer households spend their incomes on non-food items. The share of food expenditure was 50 percent of household incomes in rural areas and 46 percent in urban areas. In particular, the rural-urban gap in food expenditures is widening at higher levels of income (MPCE deciles). The households residing in the hills districts (52 percent) spend more on food items as compared to those in the plains districts (46 percent). However, the gap between the hills and the plains districts is declining with increases in incomes. This reveals that people are spending more on non-food items as their income levels rise, more so in the plains districts.

Table 3.6: Spatial and Social Group Distribution of Household Monthly per Capita Expenditure (in Rs.), 2017

| | | MPCE |
|---|---|---|
| Area | Rural | 2673 |
| | Urban | 3417 |
| | Total | 2928 |
| Region | Hills | 2849 |
| | Plains | 3000 |
| Social Group | Scheduled Caste | 2306 |
| | Scheduled Tribe | 3109 |
| | Other Backward Classes | 2759 |
| | General caste | 3231 |

*Source:* UKHDR Survey, 2017

Figure 3.18: Share of Food Expenditure in Total Expenditure by Income Deciles (%), 2017

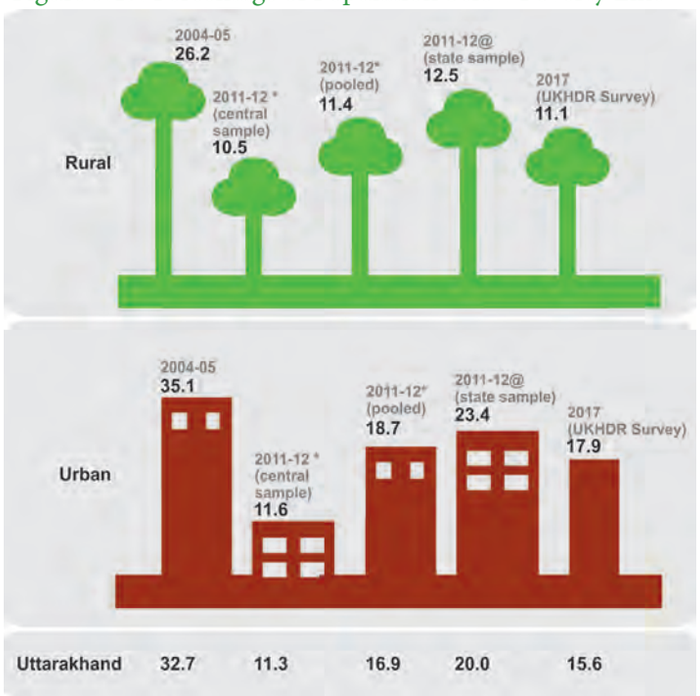



*Source:* UKHDR Survey, 2017

## Poverty Ratios

The poverty ratios presented here were calculated using the UKHDR Survey data and are based on the Expert Group Tendulkar Methodology (2014). Uttarakhand reported a poverty rate of 15.6 percent with rural poverty at 17.9 percent and urban poverty at 11.1 per cent in 2017. These poverty rates are in tandem with those reported by GIDS Lucknow (2011-12). A comparison of earlier NSS based estimates of the poverty rate in Uttarakhand reveals that poverty saw a radical decline over the period 2004-05 to 2011-12 from 32.7 percent to 11.3 percent in the state (Figure 3.19). However, the

Figure 3.19: Percentage of Population below Poverty Line**




*Estimation of District level Poverty in Uttarakhand, GIDS Lucknow, 2017
**MPCE value for 2011-12 has been deflated using consumer prices of rural and urban areas of Uttarakhand to get the 2017 poverty line.
@Derived based on the central sample and pooled estimates.
*Source:* NSSO, 2004-5/2011-12 and UKHDR Survey, 2017

GIDS Lucknow study places the poverty rate for the state at 16.9 per cent in 2011-12, much higher than the NSS based estimate of 11.3 percent, based on pooled datasets considering both 'central sample' data (collected by NSSO) and 'state sample' data (collected by the state DES, Uttarakhand) as part of NSS 68th round (2011-12). This leads to a poverty rate of roughly 20.0 percent for the year 2011-12 as per the data collected by the state DES. This is 4.6 percentage points higher than the poverty rate for the year 2017 based on the UKHDR Survey. As per the UKHDR Survey, the poverty rate for Uttarakhand is 15.6 percent implying that close to a sixth of the state's population is below the poverty line. Amongst the social groups, one-fifth of the scheduled caste population and one-sixth of the Other Backward Classes are below the poverty line. The scheduled tribes report the lowest poverty rate at 12.1 percent. The poverty rate in the hills regions (17.9 percent) is much higher than that in the plains (13.6 percent). Within the hills and the plains regions, the poverty ratios are higher for rural areas than the urban areas (Table 3.7).

The three hills districts of Champawat (35.2 percent), Almora (30.7 percent) and Chamoli (27.5 percent) report the highest proportions of population below the poverty line (Figure 3.20). The plains of Dehradun report the lowest poverty rate (7.1 percent). In the plains of Udham Singh Nagar (18.7 percent) and Haridwar (15.3 percent), the poverty rates are also relatively high. A clear and expected rural-urban divide is seen in the poverty rates with rural areas having higher proportions of population below the poverty line across all the districts. Champawat reports the highest rural and urban poverty in 2017 (36.4 percent and 27.6 percent) vey closely followed by Udham Singh Nagar (19.9 percent rural and 16.6 percent urban). In the plains district of Dehradun, where the poverty rates are the lowest, rural poverty (12.4 percent) is much higher than urban poverty (3.3 percent). These are useful pointers for the formulation and targeting of poverty alleviation policy interventions (Annexure 3.11).

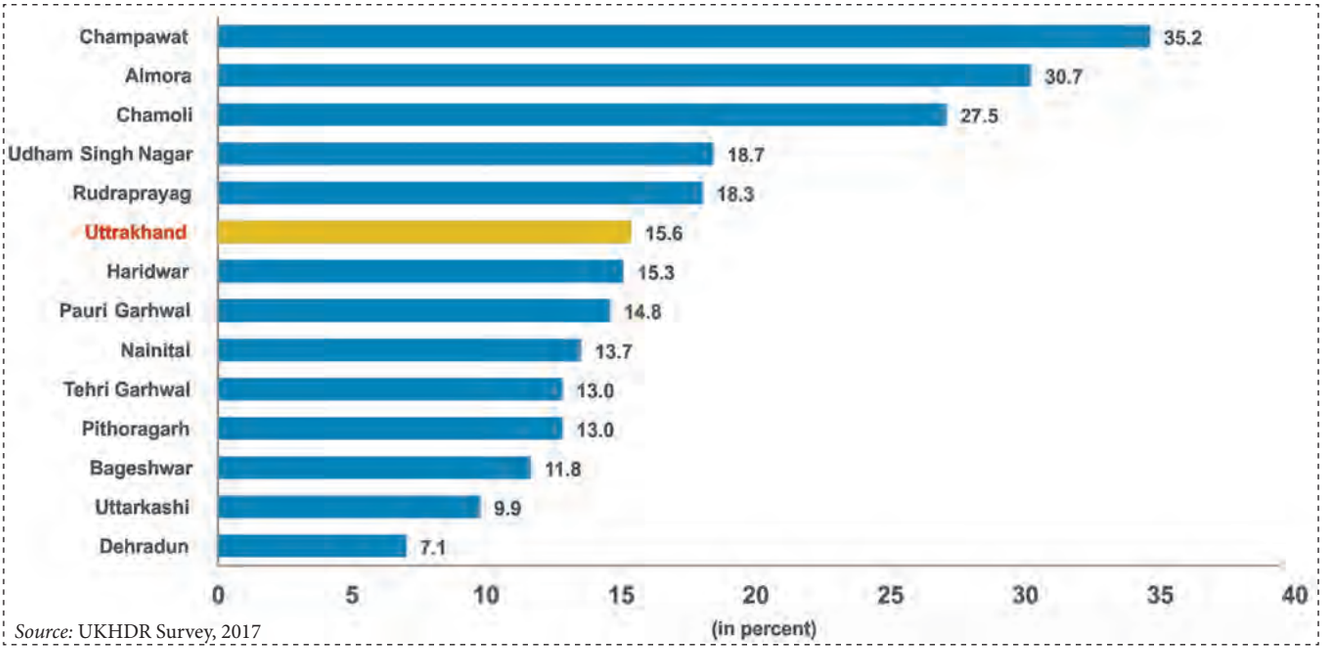
Despite the data presented from the UKHDR Survey which clearly shows a higher incidence of poverty in the hills than in the plains in states like Uttarakhand, it has been argued that the commonly used statistical indicators of poverty do not always accurately capture and reflect the poverty scenario in hilly areas (Papola, 2002). The conditions, terrain and climate in the hills make it absolutely necessary for people to have a higher minimum energy and caloric intake for their survival. They also need to have minimum clothing including warm clothing and permanent shelter, to protect themselves from the tenacities of the hilly weather and climate. In addition, consumption levels in the mountain are not always met by local income generation but also by remittances to a significant extent, making their sustainability rather precarious. Poverty ratios based on common consumption norms used for calculating the 'poverty line', would very likely indicate that many people who are actually not able to meet their basic survival needs according to the local conditions are non- poor. Thus, it is possible that the incidence of poverty is lower in the hilly areas, sometimes lower than even the relatively better-off regions in the plains.

Table 3.7: Spatial Distribution of Poverty Rates (%), 2017

| | | Rural | Urban | Total |
|---|---|---|---|---|
| Region | Hills | 19.6 | 11.3 | 17.9 |
| | Plains | 15.7 | 11.1 | 13.6 |
| Social Group | SC | 23.7 | 18.6 | 21.9 |
| | ST | 12.8 | 9.3 | 12.1 |
| | OBC | 18.0 | 13.9 | 16.4 |
| | Gen | 16.1 | 5.9 | 12.9 |

*Source:* UKHDR Survey, 2017

Figure 3.20: District-wise Poverty Rates (%), 2017




*Source:* UKHDR Survey, 2017

## Inequality Measures – the MPCE

The most common measure of inequality is the MPCE as it reflects inequalities in living standards and well-being. It is observed that the top 20 percent of people in the state have around 52 percent share in the MPCE while the share of the poorest 20 percent is only around 6 percent. This shows widening inequalities. The extent of inequality would be much higher if we look at the relative shares of the richest 20 percent and the poorest 20 percent of the population. It emerges that, on an average, the poorest quintile of the population has a consumption level that is approximately one-tenth that of the richest quintile. The disparity is high in urban areas (the top 20 percent accounts about 58.4 percent while the share of the bottom 20 percent is only 2.4 percent) as compared to rural areas (top 20 percent consumes about 47.2 percent and bottom 20 percent consumes 8.3 percent). District-wise, the disparity between the bottom and top 20 percent is more in Bageshwar, Chamoli, Uttarkashi, and Dehradun than the state average.

## The Gini Coefficient as a Measure of Inequality

The Gini Coefficient calculated using the UKHDR Survey data is 0.31, which is marginally higher than the national average of 0.30 in 2011-12 (GIDS, 2017). Across regions, the Gini coefficient is marginally high in urban areas (0.31) as compared to rural areas (0.30), and marginally higher in the plains districts (0.31) as compared to the hills districts (0.30). In the rural areas and the hills districts, the inequality is more among the higher income groups and substantially less among the lower income groups. Similarly, across social groups, among the general castes and other backward classes, inequality is more than it is among the other groups. Again, the inequality within the higher income group in each social group is substantially higher than that for the other households (Table 3.8).

District-wise distribution of inequalities presented in Figure 3.21 shows four different poverty and inequality patterns viz., (i) low poverty and high inequality (Uttarkashi, Pithoragarh, Dehradun, Pauri Garhwal, Tehri Garhwal);

2 High poverty rate and a relatively high Palma ratio indicates widespread poverty and huge inequalities across income groups which need focused interventions to support livelihood programmes. However, Rudraprayag, a high poverty district, is an exception to this broad trend. It has a relatively low Palma ratio indicating that despite a high poverty ratio, the income gap is relatively lower between the top and lowest income groups.

3 Medium poverty and relatively lower Palma ratio refers to a situation where the difference between the higher and low income groups is relatively low. However, a medium poverty district like Pauri Garhwal appears to be an outlier which reports a higher Palma ratio indicating a higher gap between the lower and higher income groups. This needs concentrated efforts to support lower income groups through income enhancing activities.

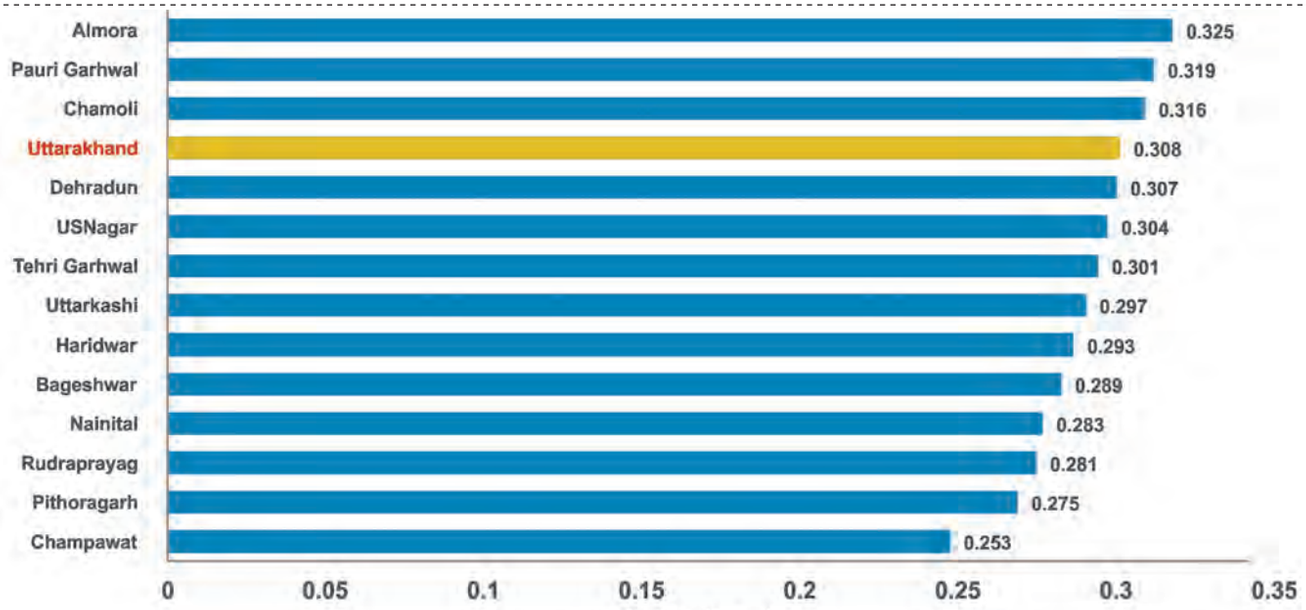
4 Low poverty and medium Palma ratio shows relatively low difference between higher and low income groups. A low poverty district Tehri Garhwal is an exception as it shows a comparatively high Palma ratio.

Table 3.8: Distribution of Inequality, 2017

| | District | Gini |
|---|---|---|
| Sector | Rural | 0.30 |
| | Urban | 0.31 |
| Region | Hills | 0.30 |
| | Plains | 0.31 |
| Caste | SC | 0.28 |
| | ST | 0.28 |
| | OBC | 0.30 |
| | GEN | 0.31 |
| Uttarakhand | | 0.31 |

*Source:* UKHDR Survey, 2017

Figure 3.21: District-wise Distribution of Inequality (Gini), 2017




*Source:* UKHDR Survey, 2017

(ii) high poverty and high inequality (Chamoli, Almora, Udham Singh Nagar); (iii) high poverty and low inequality (Champawat, Rudraprayag) and (iv) either moderate or low poverty/inequality (the remaining districts). Hence, the low poverty level districts do not necessarily have low inequalities (e.g., the mountainous districts like Uttarkashi, Pauri Garhwal, Garhwal, Pithoragarh and the plains district of Dehradun). On the other hand, an association between poverty and inequality is seen in Chamoli, Almora and Udham Singh Nagar.

The Palma ratio is considered a better measure of inequality than the Gini Coefficient as it captures the extreme income distribution (top 10 per cent to bottom 40 per cent) while the Gini Coefficient focuses more on incomes in the middle and hence underestimates the importance of top incomes. The Gini Coefficient does not show much variation across districts in the state while the Palma ratio shows variations across districts, though no uniformity is reported in the three poverty ranges across districts (Table 3.9).

Table 3.9: The Palma Ratio

| Districts with high poverty and relatively higher Palma ratio[2] | | |
|---|---|---|
| | Poverty Ratio | Palma Ratio |
| Champawat | 35.25 | 1.73 |
| Almora | 30.73 | 1.63 |
| Chamoli | 27.52 | 2.37 |
| Udham Singh Nagar | 18.69 | 1.66 |
| Districts with medium poverty and lower Palma ratio[3] | | |
| Pithoragarh | 13.05 | 1.33 |
| Nainital | 13.66 | 1.02 |
| Haridwar | 15.26 | 1.32 |
| Districts with low poverty and relatively medium Palma ratio[4] | | |
| Dehradun | 7.11 | 1.24 |
| Uttarkashi | 9.87 | 1.51 |
| Bageshwar | 11.85 | 1.57 |
| **Uttarakhand** | **15.60** | **1.84** |

*Source:* UKHDR Survey, 2017

The analysis of NSS and the UKHDR Survey data presented in the preceding sections reveals that economic growth is not always successful in alleviating poverty. Lopsided regional development strategies lead to lessened job opportunities and poverty in some parts of the state and to the concentration of a bulk of economic activities in some other parts of the state. This pushes people to relocate to areas where economic opportunities are available, particularly to the plains districts of Haridwar, (an important pilgrimage destination), Dehradun (a tourist destination) and Udham Singh Nagar (an industrial and agricultural hub).

## 3.9 Government Programmes for Enhancing Employment and Livelihoods in Uttarakhand

Various employment and livelihood promoting programmes and schemes have been implemented in Uttarakhand by both the central and state governments. The UKHDR Survey interrogated the households surveyed about such programmes to understand their implementation status and some useful findings emerge. The National Rural Livelihood Mission (NRLM) has benefitted those eligible in largest proportions (41 percent) having a higher impact in the hills with more than half the hills population that was eligible for this scheme benefitting from it (Figure 3.22). The Mukhya Mantri Satata Jivika (MMSJ) has benefitted close to a third of the eligible households, more so in the hills (36.1 percent) as compared to the plains (20.7 percent). The Shilpi Gram Yojana (SGY) has benefitted 38.2 percent of rural households. Most government schemes have larger proportions of beneficiaries in rural areas and hilly regions. In addition to the programmes detailed in the table, the Integrated Livelihood Support project (ILSP) under the International Fund for Agricultural Development (IFAD) via self-help groups (SHGs) has also been implemented for the improvement of people's livelihoods in the state.

## 3.10 Impact of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

The MGNREGS was an important step towards the realization of the right to work and to enhance the livelihood security of households in rural areas. Its aim was to enhance people's livelihoods on a sustained basis by developing economic and social infrastructure. The UKHDR Survey finds that the MGNREG provided on an average, employment for 44 days, at a daily wage rate of Rs.183. Also, 78 percent of the people who had applied for jobs had

obtained employment. The hills areas reported lower average days of work (43) compared to the plains areas (53) (Annexure 3.13). In most cases, the market wage rates in the hills districts were higher than the wages stipulated under the MGNREGS. The UKHDR Survey data reports the daily wage rates for both the hills and the plains as almost similar (Rs. 175 and Rs. 178 respectively). Also, belonging to the lower quintile income groups availed of more days of employment compared to those in the highest quintile income groups. The highest quintile groups reported higher wages per day for the work they got. The districts of Haridwar (90), Almora (60) and Nainital (55) reported the highest days of work with the lowest being in Rudraprayag (28) and Bageshwar (32). A possible reason for Haridwar reporting the highest average work days under this employment scheme could be the availability of intermittent work which people are willing to take on at the prevailing wage rates. It is also possible that the gap between the market wage rate and the MGNREGS wages is also not that high.

## 3.11 The Public Distribution System (PDS)

The Public Distribution System (PDS) facilitates the supply of food grains and the distribution of essential commodities to a large number of the poor through a network of fair price shops, at a subsidized price. This is a lifeline for the poor and those marginally above the poverty line. The UKHDR Survey finds that, a majority of people have ration cards (88 percent), of these, 45 percent reported having Below Poverty Line cards and 4 percent having Antyodaya cards. A little over half the population (51 percent) was Above Poverty Line card holders (Annexure 3.14). The hills have a larger proportion of ration card holders (92 percent) compared to the plains (85 percent). As expected, the dependence on ration cards and the Antyodaya is higher in the lower income quintile groups.

The beneficiaries of the PDS were also questioned about their use of the PDS facility three months prior to the UKHDR Survey. A large majority of the beneficiaries (73 percent) availed of the PDS facility more than once a month, 15 percent used it at least once a month, while approximately 11 percent had never used the facility (Annexure 3.15). In the hills areas, the proportions utilizing the PDS services was much higher (79 percent) compared to the plains (68 percent). Similarly, in rural areas, the use of PDS card for availing the facility was significantly higher (75 percent) as compared to urban areas (68 percent). The lower income quintile groups use the facility more than those in the higher income quintile groups. The hills districts of Pithoragarh, Rudraprayag, Champawat, Chamoli and Tehri Garhwal reported high dependence on the PDS facility, it being used more than once a month, with over 80 percent of the population reporting the same. The plains of Dehradun, Haridwar and Udham Singh Nagar had a smaller proportion of the population using the PDS facility more than once a month (66.1 percent, 66.8 percent and 70.4 percent respectively).

When the respondents were probed about whether they had been receiving the full quota of their PDS entitlements, a little over half (53 percent) replied that they got their full quota 'always'; about a quarter (24 percent) said that they received their full quota 'most of the times'; 16 percent responded as 'some of the times' and 5 percent responded that they 'never got' the quota of their PDS entitlements (Annexure 3.16).

The proportions availing of the PDS entitlements 'most of the times' was higher for the hills vis-à-vis the plains (28.7 and 18.8 percent respectively) and the proportions availing the same 'only sometimes' was higher for the plains (17.3 percent) as compared to the hills (14.5 percent). The lower mpce quintile groups seem to be availing of the PDS entitlements rather well with a little over half the beneficiary population in the hills and plains reporting always receiving their food entitlements. Large district level variations exists in the proportions of population who reporting 'always' getting the full quota of their PDS entitlements. While at the state level the proportion was 53.1 percent, the districts having the highest proportions of population who were always availing of the PDS resided in the hills districts of Pauri Garhwal (70.3 percent), Tehri Garhwal (69.5 percent), Pithoragarh

Figure 3.22: Percentage of Households Benefitted by Government Employment and Livelihood Schemes, 2017

| Region / % Benefited those eligible | Total | Area | | | |
|---|---|---|---|---|---|
| National Rural Livelihood Mission (NRLM) | 41.1 | 51.2 | 26.5 | 41.1 | NA |
| Mukhya Mantri Satata Jivika (MMSJ) | 30.8 | 36.1 | 20.7 | 40.0 | 9.7 |
| Shilpi Gram Yojana (SGY) | 29.5 | 38.2 | NA | 29.5 | NA |
| National Urban Livelihood Mission (NULM) | 23.4 | 49.1 | 19.3 | NA | 23.4 |
| Mudra Loan Yojana (MLY) | 22.9 | 12.8 | 33.4 | 24.0 | 19.5 |
| Scheme for Development of Economically Backward | 19.0 | 19.2 | 18.8 | 22.1 | 4.9 |
| VCSG Self-Employment Scheme in Tourism (VCSGSES) | 12.3 | 8.0 | 15.8 | 13.6 | 8.1 |
| Skill Development Mission (SDM) | 10.3 | 13.3 | 7.3 | 13.8 | 2.5 |

*Source:* UKHDR Survey, 2017

(67.0 percent) and Almora (60.6 percent). The three plains districts had a little over half their beneficiary population reporting always availing of the PDS.

The useful and remarkable feature of the PDS in Uttarakhand is that 67.8 percent of the respondents reported that they were facing no difficulty in getting their PDS quota (Annexure 3.17), more so for the populations belonging to the lower mpce quintiles. Close to a tenth of the population reported insufficient quantities or bad quality of the PDS supplies. The other problems with the PDS included non-availability of supplies on time and irregular PDS supplies.

## 3.12 Summing Up

The Uttarakhand economy had a growth rate of approximately 7 percent in 2016-17 and it is estimated to grow at a pace of 6.8 percent in 2017-18 keeping pace with the All India growth rates. Despite the good growth rate, the increasing labour force has not been able to access productive and remunerative work, raising cause for concern given that the unemployment rate has also shown an increase. What is of pressing concern is the high rate of unemployment amongst the educated youth and the widening gender gap in employment with work force participation rates of women almost half that of men. While employment rates maybe high in the poor regions such as the rural and hilly areas, the poor can hardly afford to remain idle and tend to engage in low paying self-employment and petty jobs. Therefore, it is not just mere employment availability that is important. For those employed, the quality of employment and earnings therein emerge as areas of concern.

While the government of Uttarakhand has initiated Skill Development Mission (SDM) Plans to provide placement–linked skill training to the educated unemployed youth, the effectiveness of such programmes needs proper monitoring and implementation. The government has recently started establishing growth centers in the villages of the hills districts and exploring possibilities for using natural resources like the abundantly available aromatic plants, to make different products by engaging the local youth.

In Uttarakhand, while the secondary sector dominates the sectoral distribution of the GSDP, the primary and tertiary sectors have a larger share in employment. A shift is seen in the employment

structure with workers moving away from the primary sector and towards the tertiary sector, seeking employment in trade, repair, hotels and restaurants, transport, storage and communication. The occupational spread shows that there has been a discernible move of workers from the agriculture sector to a myriad of service related occupations. It is the middle skilled workers who form a large proportion of the workforce in the state.

In terms of wages, the earnings of regular workers are higher than those for casual workers across the state. The incomes of regular workers increases with increases in the levels of education, with graduates and technical/professional workers earning more than three times higher incomes than illiterates. There is an urgent need for state intervention in the labour market to make available gainful employment for the entrants into the labour force. A skilled and educated labour force also needs to be built through proper education and training.

The starkly evident disparities across the employment, growth, per capita, poverty and inequality indicators between the hills and the plains puts focus on the need for suitable policy initiatives to bridge the disadvantages and unbalanced development faced by the hills districts in the state.

Women play a prominent role in operating and managing most agricultural and household activities, more so in the hills due to huge male out migration. This includes working in the fields, rearing cattle, fuel, fodder and water collection, cooking and childcare. They are thus considered the backbone of the hills economy of Uttarakhand. Yet, they continue to largely engage in low productive agriculture and related activities in the hills districts and in domestic & care activities along with remaining underemployed due to lack of suitable jobs in the plains. Women need to be given more rights such as land ownership, particularly in the hills districts and in rural areas. Without ownership of land, women remain disadvantaged in terms of securing credit, entering into contracts, or undertaking other non-farm activities. Encouraging women's ownership of land is a key measure for improving and encouraging women's entrepreneurship and promoting their participation in non-farm productive activities. Given the benefits of empowering women to improve the socio-economic status of households, especially in the hills and rural areas of Uttarakhand, it is recommended that women's empowerment in the state be enhanced with legislation to encourage and support female ownership of land.

For providing productive assets and income generating employment opportunities to the poor, many state and centrally sponsored schemes have been implemented in Uttarakhand. The MGNREG Scheme is an important demand-driven employment guarantee programme that has been providing employment for those who depend on casual work for their livelihood. Although the overall days of employment are low (one and half months) under this scheme, the dependence on such employment is higher among the lower quintile income groups compared to the higher income quintile groups.

In Uttarakhand, the PDS is an important means of sustenance and a majority of the people have ration cards (88 percent) of which 45 percent are have BPL cards and 4 percent have Antyodaya cards. Dependence on ration cards is huge in the hills and rural areas compared to the plains and urban areas. While there are a few problems associated with the PDS, a large majority of the respondents (68 percent) faced no difficulty in getting their PDS quotas.

At the industrial policy level, the real challenge for Uttarakhand is to create an environment-friendly micro and small enterprises sector in the hills districts. In particular, the imperative need is to create an industry-friendly environment for attracting new investments as well as linking local based industries with local markets. In this context, the 'MSME Policy 2015', the 'Mega Industrial and Investment Policy 2015' and the 'Start-up Policy 2016', could provide a supportive regulatory environment for boosting investments and employment in the state.

# 4
# Livelihoods

# 4 Livelihoods

Enhancing the livelihoods of a populace intrinsically means contributing towards the human development attributes of the people. It implies increasing people's control over natural resources, improving the access of people to food and the basic necessities of life and empowering the poor and disadvantaged groups by supplementing their skills, education and resources. In The Vision 2030 Document, Uttarakhand identifies agriculture and tourism as the two main drivers for creating sustainable livelihoods. In particular, transforming hill agriculture, with emphasis on horticulture, aromatic and medicinal plants, to improve productivity and to create livelihoods, along with promoting state-wide tourism, carried out on a Mission Mode, will help the state in generating the necessary livelihood options. The Micro, Small and Medium Enterprises (MSME) sector could link to up to the growth-driver sectors to help generate further employment downstream. This chapter contains a discussion on agriculture and tourism in Part I and Part II, respectively pointing towards ways to create sustainable livelihoods in the state, which could contribute immensely to enhancing the human development of its people.

## PART I: AGRICULTURE AND ALLIED SECTORS

### 4.1 The Importance of Agriculture

Like many parts of India, agriculture plays a significant role in the Uttarakhand economy with 70 percent of the rural population engaging in this sector for their livelihoods. The State is an important producer of non-seasonal vegetables like peas, potatoes, cabbage etc. A large number of orchards in Uttarakhand produce various fruits like apples, pears, litchi etc. The local production of fruits has stimulated the growth of a large processing industry in the state.

The percentage of agricultural workers in the total workforce was 58.4 percent in 2011, similar to the All India proportion of 50.2 percent (Table 4.1). At the national level, male agricultural workers as a proportion of total agricultural workers was around 71 percent, while for females the proportion was much lower at 30 percent. On the other hand, female workers' constituted a higher share in the agricultural workforce (52.2 percent) compared to their male counterparts (47.8 percent) establishing the fact that agriculture employs a larger proportion of female workers in the state. The large-scale migration in the state, especially from the hills districts, has resulted in a relatively greater role for women in agricultural activities. Household industry workers formed a small proportion both in the state and at all India level (3.4 per cent). However, other workers constituted 39 per cent in the state and 46 per cent at the all India level (Table 4.1).

While agriculture is a major activity in Uttarakhand, the share of agriculture along with its allied sectors in Gross State Value Added (GSVA) is very low. As can be seen from Table 4.2, the share of agriculture, forestry and fishing in GSVA was only 8.6 per cent during 2017-18 in the state as against 14.8 per cent for All India. It also needs to be noted that over the years, the percentage share of agriculture in GSVA has shown a consistent decline both for Uttarakhand and all India.

Table- 4.1: Occupational Classification of Main Workers in Uttarakhand and India, 2011

| Category | Uttarakhand | | India | |
|---|---|---|---|---|
| **I. Agricultural workers ('000)** | **Number** | **Percent** | **Number** | **Percent** |
| Male | 874 | 47.8 | 1,28,273 | 70.5 |
| Female | 954 | 52.2 | 53,735 | 29.5 |
| All | 1,828 | 100.0 (58.4) | 1,82,008 | 100.0 (50.2) |
| **II. Household industry workers ('000)** | | | | |
| Male | 43 | 60.6 | 7,540 | 61.1 |
| Female | 28 | 39.4 | 4,791 | 38.9 |
| All | 71 | 100.0 (2.2) | 12,331 | 100.0 (3.4) |
| **III. Other workers ('000)** | | | | |
| Male | 1,077 | 87.4 | 1,37,336 | 81.7 |
| Female | 154 | 12.6 | 30,771 | 18.3 |
| All | 1,231 | 100.0 (39.4) | 1,68,107 | 100.0 (46.4) |

*Source:* Uttarakhand profile, Office of the Registrar General & Census Commissioner, India, 2011

Table 4.2: Gross State Value Added (GSVA) from Agriculture for India and Uttarakhand, (at constant prices, 2011-12) (in Rs. Crore)

| Item | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|---|---|---|---|---|---|---|---|
| **Uttarakhand** | | | | | | | |
| Agriculture, forestry and fishing | 13,302 | 13,556 | 13,397 | 13,357 | 13,126 | 13,595 | 13,797 |
| Total GSVA at basic prices | 1,08,333 | 1,16,103 | 1,25,545 | 1,32,249 | 1,42,308 | 1,50,313 | 1,60,347 |
| Percent | 12.3 | 11.7 | 10.7 | 10.1 | 9.2 | 9.0 | 8.6 |
| **All India** | | | | | | | |
| Agriculture, forestry and fishing | 15,01,947 | 15,24,288 | 16,09,198 | 16,05,715 | 16,15,216 | 17,16,746 | 17,74,573 |
| Total GVA at basic prices | 81,06,946 | 85,46,275 | 90,63,649 | 97,12,133 | 10,503,348 | 1,12,47,629 | 1,19,76,155 |
| Percent | 18.5 | 17.8 | 17.8 | 16.5 | 15.4 | 15.3 | 14.8 |

*Source:* Directorate of Economics and Statistics, Uttarakhand and MOSP, Govt. of India, 2017-18

Given that agriculture remains the main source of livelihood for a large proportion of the people of Uttarakhand, it is obvious that per worker productivity remains very low. As such, it is imperative that agricultural growth in the state be accelerated. This needs to be accompanied with diversification of agriculture in terms of cash crops, horticulture, animal husbandry, etc, such that the livelihoods and incomes of those primarily dependent on agriculture and its allied activities get a boost.

## 4.2 Land Use Patterns and Operational Holdings

The state of Uttarakhand is characterized by changing land formations like plains, slopes, mountainous forms, high and low altitudes etc., which complicate land utilization patterns. Land use patterns in Uttarakhand have also undergone transition as a consequence of urbanization and industrialization.

The total area available in the state for land use purposes is 5.99 million ha. Of the total available land, the area used for cultivation, measured as the net sown area, is very small (11.7 percent). Around 3.8 percent of the total area is not available for agriculture, being barren and uncultivable land, while the remaining area (3.8 percent) is used for non-agricultural purposes. Cultivable wastes, grazing land & trees/groves constitute 15 percent of the available land (Figure 4.1).

Table 4.4 presents district-wise land use patterns for Uttarakhand. In the hilly regions, due to decreasing fertility of agricultural land, cold climate, and other adverse natural circumstances, land use is worsening in Uttarakhand. The area under forest cover is 63.4 percent of the available land (2015-16). A report by the Forest Survey of India (2015) indicates a decline in the forest cover of Uttarakhand by 268 km sq during the period 2013-15. Felling of trees and diversification of forest land for development activities are the two main reasons for the decrease in forest cover in the state. At the district level, the hills district of Uttarkashi has the maximum forest cover followed by Rudraprayag, Pithoragarh, Nainital and Tehri Garhwal. These districts have a higher share compared to the state average, while the districts in the plains, namely Dehradun, Haridwar and Udham Singh Nagar have lower proportions of forest cover.

Figure 4.1 Land Use Pattern in Uttarakhand, 2017

| Land Use Type | Area (Thousand Ha.) | Share (%) |
|---|---|---|
| Total geographic area | 5348 | |
| Reporting area for land use purposes | 5992 | 100.0 |
| Forests | 3800 | 63.4 |
| Not available for land cultivation | 450 | 7.5 |
| Permanent pasture and other grazing land | 192 | 3.2 |
| Land under misc. trees, crops and groves | 389 | 6.5 |
| Cultivable waste land | 317 | 5.3 |
| Fallow land other than current fallows | 86 | 1.4 |
| Current fallows | 57 | 0.9 |
| Net area sown | 701 | 11.7 |

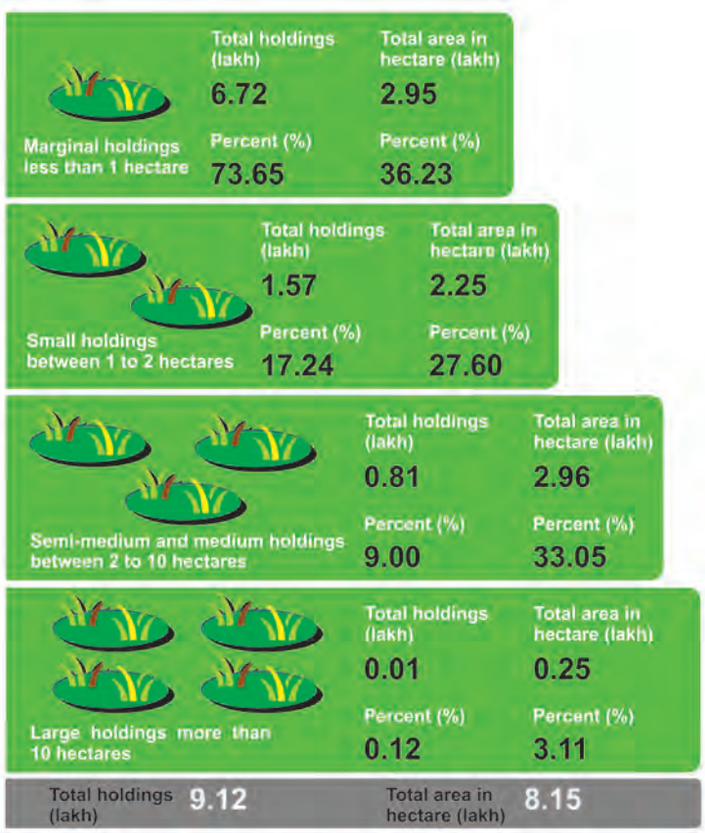
*Source:* India State of Forest Report, 2017

Table 4.3: District-wise Land Use Patterns in Uttarakhand (%)
(Land in Hectare), 2015-16

| District | Forest | Barren & uncultu-rable waste | Land other than agriculture uses | Culturable waste | Permanent pasture and grazing | Land under trees | Current fallow | Fallow other than current fallow | Net sown area | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Uttarkashi | 88.8 | 5.0 | 0.7 | 0.3 | 0.6 | 0.5 | 0.1 | 0.3 | 3.7 | 100.0 |
| Chamoli | 59.4 | 8.5 | 7.2 | 1.3 | 3.2 | 16.4 | 0.0 | 0.1 | 3.9 | 100.0 |
| Tehri Garhwal | 66.2 | 1.2 | 1.5 | 15.2 | 0.0 | 0.9 | 2.0 | 1.8 | 11.1 | 100.0 |
| Dehradun | 55.5 | 0.7 | 6.3 | 14.9 | 2.7 | 3.8 | 1.7 | 3.5 | 10.9 | 100.0 |
| Pauri Garhwal | 57.6 | 5.1 | 2.5 | 6.4 | 5.1 | 8.0 | 2.2 | 3.8 | 9.3 | 100.0 |
| Rudraprayag | 76.8 | 3.7 | 2.2 | 1.1 | 1.2 | 6.1 | 0.0 | 0.0 | 8.9 | 100.0 |
| Haridwar | 31.1 | 1.5 | 12.8 | 0.8 | 0.0 | 0.7 | 2.5 | 1.7 | 49.0 | 100.0 |
| Pithoragarh | 72.3 | 2.8 | 1.5 | 4.7 | 6.2 | 5.7 | 0.4 | 0.8 | 5.6 | 100.0 |
| Almora | 50.8 | 5.2 | 2.6 | 8.2 | 6.3 | 8.3 | 0.4 | 1.3 | 16.8 | 100.0 |
| Nainital | 73.1 | 0.2 | 2.6 | 6.4 | 0.1 | 5.2 | 0.8 | 0.9 | 10.8 | 100.0 |
| Bageshwar | 53.0 | 3.1 | 2.3 | 5.3 | 10.3 | 13.5 | 0.1 | 0.7 | 11.7 | 100.0 |
| Champawat | 56.7 | 3.2 | 2.0 | 6.9 | 7.1 | 10.0 | 2.5 | 4.3 | 7.3 | 100.0 |
| Udham Singh Nagar | 33.3 | 0.4 | 11.6 | 1.1 | 0.0 | 0.5 | 2.0 | 1.7 | 49.4 | 100.0 |
| Total | 63.4 | 3.8 | 3.8 | 5.3 | 3.2 | 6.5 | 1.0 | 1.4 | 11.7 | 100.0 |

*Source:* Directorate of Economics & Statistics, Planning Department, Government of Uttarakhand

Figure 4.2: Operational Holdings in Uttarakhand, 2010-11




*Source:* Economic Survey 2017-18, Government of Uttarakhand

In Uttarakhand, a large majority of farmers belong to the small and marginal landholders' category. In 2008-2009, the average size of land holdings was 1.52 hectares and this declined to 0.68 hectares in 2012-2013 (Agriculture Census, 2015). Due to diverse agro-climatic conditions, agriculture in the hills and the plains varies with farmers in the plains engaging more in commercial farming while those in the hills engaging in subsistence farming. Also, in the hills, the average land holding size is as low as 0.35 hectares and approximately three-fourths (74 percent) of the holdings are marginal. Around 17 percent of the holdings are small with farmers operating less than 2 hectares of land (Figure 4.2). Given the small size of land holdings, farmers are unable to benefit from economies of scale in agriculture, making cultivation a rather unviable option for their subsistence. Therefore, such farmers opt for subsistence farming which doesn't need costly resources. The policy imperative is initiatives to develop small holdings and to promote horticulture, floriculture, cultivation of high value crops like medicinal and aromatic plants, to increase the per unit money value for small landholdings in the state.

Uttarakhand has an advantage over other states in terms of diverse agro-climatic conditions, producing a wide range of high-value off-season vegetables and fruits. Yet the identification of suitable crops for different zones of the state such that larger incomes are reaped from agriculture, remains a challenge. The major crops cultivated in Uttarakhand can be categorized as Kharif (arhar, bajra, maize, paddy and sugarcane) and Rabi (barley, gram, lentil, mustard and wheat). Fruits like apples, oranges, pears, peaches, litchis and plums are widely grown and are important to the large food processing industry. Rice and wheat dominate agricultural production across the state.

Nearly 90 percent of the total cropped area in Uttarakhand is devoted to subsistence food crops, the produce from which is consumed largely

domestically. Commercial or cash crops contribute a very negligible proportion of crop production. Thus, Uttarakhand is a predominantly subsistence agriculture based economy.

## 4.3 Livelihoods Creation in the Agriculture Sector

Strategies for providing sustainable livelihoods in agriculture in Uttarakhand will need to rely on transforming hill agriculture with emphasis on horticulture, including aromatic and medicinal plants, to be able to improve productivity and create livelihoods [1]. The Micro, Small and Medium Enterprises (MSME) sector could link up to this sector to help generate further employment downstream.

Transformation of the agriculture sector is essential for providing sustainable livelihoods, especially for those in the less productive hills districts. This is because a majority of citizens in the state are still dependent on this sector although it is far less productive than the secondary and tertiary sectors.

### *Horticulture*

Hill agriculture, comprising mainly horticulture, is a key sector for Uttarakhand. The variance in the climatic conditions of the region makes it an ideal location for growing temperate, sub-tropical, and tropical fruits that fetch a high price in both domestic as well as international markets. As average income rises for the people, the demand for such fruits and vegetables could be slated to grow in the coming years.[2] Thus, the horticulture sector is strategically placed to act as a growth driver in the hill economy. The main horticultural products for the state are fruits, vegetables, potatoes, spices, and flowers. There are around 650 food processing units in the state, providing a link to the MSME sector. At present, around 2.5 lakh farmers, 88 percent of whom are small and middle farmers, are associated with horticultural activities [3]. This has resulted in annual business of around Rs 3200 crore in horticultural products, which (including processing) is around 30 percent of the value of output of the agriculture and allied sectors.

In 2016-17, the total area under fruit production in Uttarakhand was 177,324 hectares[4] and in 2015-16, the area was slightly lower at 175,329.96 hectares. Among fruits, mangoes (20.8 per cent), apples (14.2 per cent) and citrus (12.1 per cent) occupied the top three positions in terms of area under horticultural crops in 2015-16 (Figure 4.3a).

The production of fruits was 6,62,847 metric tonnes (MT) in 2016-17 and 6,59,094.15 MT in 2015-16. Mango (22.7 per cent), citrus (13.5) and pear (12 per cent) were the three most produced fruits in Uttarakhand in 2015-16 (Figure 4.3b).

The total area under vegetable production (excluding potatoes) as of 2016-17 was 65,200 hectares, while total production was 5,84,913 metric tonnes. During 2015-16, considering potatoes under the vegetables group, potatoes, peas and tomatoes were the most important vegetable crops (Table 4.4). The share of potatoes in total production of vegetables was high, both in terms of area and output, while output-wise tomatoes came second.

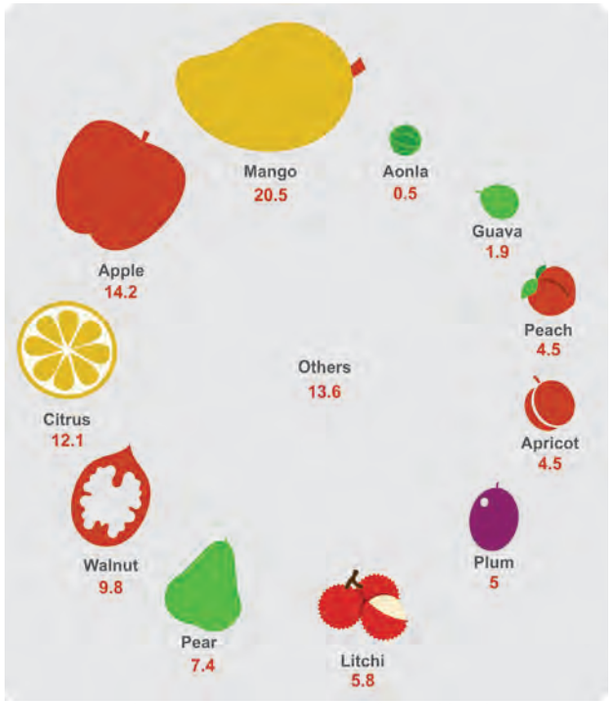
Among spices, in 2016-17, the area under production of turmeric was 1,482 hectares with a production of 12,653 MT, while that under ginger was 4,475 hectare producing 47110 MT.

In order to realize the potential of the horticulture sector to provide sustainable livelihoods, the area under horticultural products needs to be expanded and its productivity improved. The processing capacity of horticulture produce is planned to be enhanced from 7.5 percent to 15 percent of the total horticulture production by 2030 [5]. It is also important to take advantage of the growing export market for fruits and vegetables and thus there is the need for concerted export promotion for these products.

In order to increase the area under horticultural crops, 3.6 lakh hectare culturable fallow land is planned

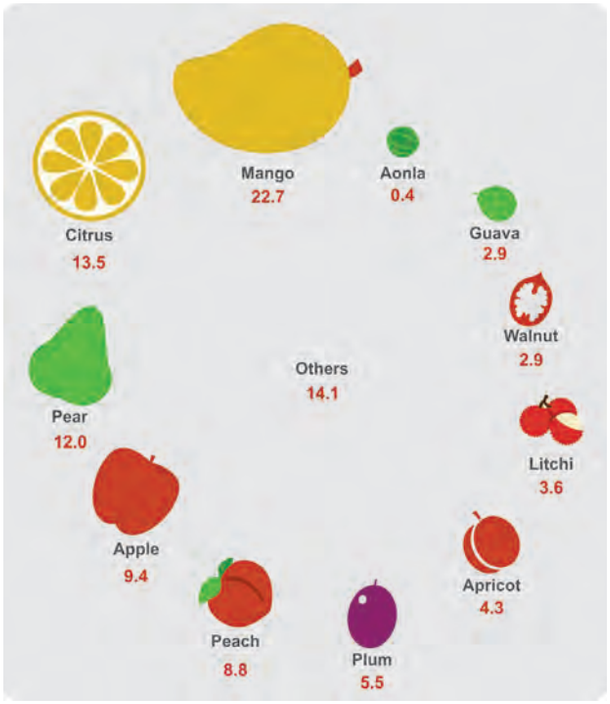
1 Vision 2030 Uttarakhand
2 See Annual Plan, 2013-14, State Planning Commission, Government of Uttarakhand, for further details.
3 Economic Survey 2017-18. Government of Uttarakhand
4 ibid
5 Vision 2030 Uttarakhand

Figure 4.3a Share (%) by Area under Production of Fruits, 2015-16




*Source:* Horticulture Mission, Government of Uttarakhand, 2015-16

Figure 4.3b Share (%) by Production of Fruits, 2015-16




*Source:* Horticulture Mission, Government of Uttarakhand, 2015-16.

Table 4.4: Area and Production of Major Vegetables (%), 2015-16

| Vegetables | Share in Area | Share in Production |
|---|---|---|
| Potato | 28.8 | 37.9 |
| Tomato | 9.5 | 9.9 |
| Pea | 13.2 | 8.8 |
| cabbage | 6.8 | 7.1 |
| Radish | 5.6 | 6.0 |
| Onion | 4.5 | 4.4 |
| French bean | 6.3 | 4.2 |
| Cauliflower | 3.3 | 4.1 |
| Brinjal | 2.8 | 2.8 |
| Okra | 3.6 | 2.6 |
| Capsicum | 2.8 | 1.5 |
| Others | 12.8 | 10.8 |
| **Total** | **100.0** | **100.0** |

*Source:* Horticulture Mission Uttarakhand

to be targeted. Land use and land cover mapping serve as the basic inventory of land resources and this needs to be carried out for the state using the application of remote sensing and GIS. Mapping plant hardiness zones in the state, whereby farmers can determine which plants are most likely to thrive in extreme climates, could be helpful in the coming years, especially in view of the climatic changes that are taking place. In crop-specific clusters, assessments of input requirements such as fertilizers and a phased planning of necessary augmentation of supply should be done.

The focus areas for the horticulture sector till 2020 are:

1. Commercial horticulture development through post-harvest management (pack house/cold storage/refrigerating vans/ripening chambers)
2. Expansion of area under fruits, vegetables, spices, flowers and mushroom production
3. Strengthening government gardens and rejuvenating senile orchards
4. Expansion of weather based crop insurance schemes
5. Establishment of food processing industries and mega food parks, including mini spices parks
6. Protected cultivation involving poly houses and upgradation of old poly houses

7. Human resource development: training of farmers and staff
8. Establishing new nurseries
9. Distribution of quality planting material and horticulture tools

The above areas are aimed to be addressed with the help of centrally sponsored schemes as well as schemes at the state level. The National Mission for Sustainable Agriculture, a centrally sponsored scheme, aims at making agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific, integrated /composite farming systems; soil and moisture conservation measures; comprehensive soil health management; efficient water management practices and mainstreaming rainfed technologies. Other important components of the NMSA include the Rainfed Area Development Programme and Soil Health Management. The issue of improving efficiency of water management on farms was tackled by the 'Per Drop More Crop (PDMC)' component of the Pradhan Mantri Krishi SinchayeeYojana (PMKSY) during 2015-16. The Prime Minister Crop Insurance Scheme and the Rashtriya Krishin VikasYojana are among other important schemes. There are also state sector schemes which focus on implementing agricultural development schemes in 68 villages with a concentration of Scheduled Caste and Scheduled Tribe households. In 2017-18, the Veer Shiromani Madhav Singh Bhandari 'Ekikrita Adarsh Krishi Gram' scheme was initiated, to be implemented at the cluster level. The cluster would comprise at least 100 farmers.

### *Medicinal and Aromatic Plants*

The medicinal and aromatic plants sector is an upcoming growth area for the state and has great potential for generating livelihoods. Aromatic plants and their products, including essential oils such as Japanese mint oil, sandal wood oil, citronella oil, lemon grass oil, etc. are increasing in importance as export items with growing demand from many developing countries in Asia. Table 4.5 lists the major crops selected for scale cultivation and extension in the farmers' fields in Uttarakhand following agronomic trials.

Table 4.5: Aromatic Crops Selected for Cultivation

| Area | Crops |
|---|---|
| Lower Hills | Lemongrass, Japanese Mint, Sandalwood, Palmarosa, Tagetes (patula), Citronella |
| Middle Hills | Damask Rose, Cinnamon, Chamomile, Tagetes (minuta), Geranium, Artemisia |
| Upper Hills | Damask Rose, Caraway, Costus |

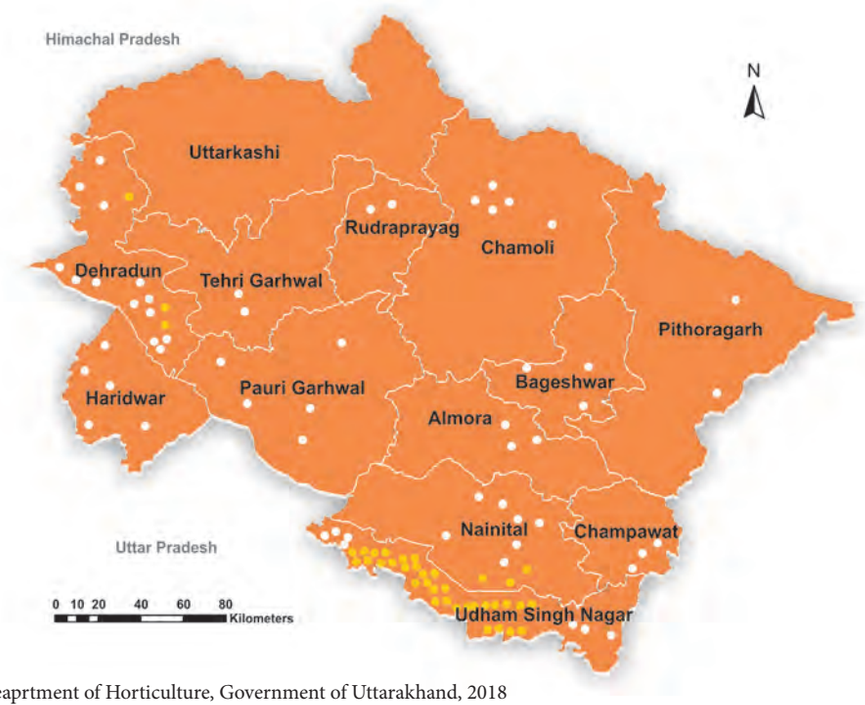
*Source:* Uttarakhand State Government, 2018

The focus is on cultivating these as bonus crops to generate additional incomes and maximize land utilization from the existing cropping pattern. Aromatic grasses are being promoted as waste land crops in abandoned land, damask rose as a boundary crop, Japanese mint as an inter-crop in wheat, chamomile as a short-duration crop after paddy harvesting and cinnamon as an agro-forestry crop.

There are plans that village level Farmers' Groups will be formed to develop aroma entrepreneurs and to initiate the establishment of necessary infrastructure support for the aroma clusters which will have a distillation unit within a radius of 5-6 km and will eventually be linked to SMEs so as to promote the socio-economic growth of rural families.

At present, aromatic crops are being successfully cultivated in 109 clusters. 178 field distillation units of varying capacities have been installed and are successfully working in aroma clusters for processing the aromatic produce. The network of Field Distillation Units is shown in the accompanying map (Map 4.1) and the distribution of Aroma Clusters is presented in Table 4.6.

Map 4.1 Network of Field Distillation Units for Aromatic Crops in Uttarakhand, 2017




*Source:* Deaprtment of Horticulture, Government of Uttarakhand, 2018

Table 4.6 Distribution of Aroma Clusters in Uttarakhand, 2017

| | District | Block | No. of Clusters |
|---|---|---|---|
| 1 | Dehradun | Chakrata, Kalsi, Vikasnagar, Shashpur, Doiwala, Raipur | 12 |
| 2 | Haridwar | Bhagwanpur, Narsan, Khanpur | 4 |
| 3 | Pauri Garhwal | Pauri, Kot, Pawo, Kalzikhal, Dugadda, jairikhal, Dwarikhal, Bironkhal | 9 |
| 4 | Tehri Garhwal | Pratapnagar, Jhakhnidhar, Devprayag | 5 |
| 5 | Rudraprayag | Ukhimath | 2 |
| 6 | Chamoli | Joshimath | 5 |
| 7 | Uttarakashi | Mori | 1 |
| 8 | Nainital | Haldwani, Dhari, Ramnagar, Okhalkanda, Betalghat, Kotabhag, Ramghar | 11 |
| 9 | US Nagar | Bajpur, jaspur, Kashipur, Gadarpur, Sitargang, Khatima | 47 |
| 10 | Pithoragarh | Didihat, Dharchulla | 3 |
| 11 | Bageshwar | Garud Bageshwar | 3 |
| 12 | Almora | Takula, Bhikyasan, Sayalde, | 4 |
| 13 | Champawat | Lohaghat | 3 |
| **14** | **Total** | | **109** |

*Source:* Uttarakhand State Government, 2018

The AYUSH department aims to establish herbal gardens and its future plans include the identification, cultivation and marketing of herbal medicines, strengthening of the Rishikul Government Drug Testing Laboratory at Haridwar and increasing the manufacturing capacity of Rishikul/Gurukul Government Ayurvedic pharmacies. All these action plans are expected to increase livelihood opportunities in the hills.

Not only can the horticulture sector, including the medicinal and aromatic plant sector, generate livelihood for farmers, there is scope for employment whereby the MSMEs could connect with the orchards and distilleries for further downstream activities, and the local youth could find employment in the yoga and wellness centres promoted by AYUSH. There is potential of further employment generation, particularly in the hills, if synergy with tourism is developed to promote agro-tourism, or culinary themes for tourist activities and tours.

Any strategy for improving the overall productivity of the agriculture sector would involve adoption of an integrated farming approach, increased use of organic farming, use of bio-fertilizers, etc. The state plans to promote millets as a priority product, which are already produced in 60 per cent of the cropped area and have good market value. The use of certified seeds and the adoption of a cluster approach for millet farming would benefit the farmers by eliminating middlemen. Tying up production with supply for the Mid-day Meal Schemes and Anganwadis is also expected to give it a boost.

Recognizing the health and environment related benefits of organic farming, the Uttarakhand government has taken many initiatives to promote the same in the state including Organic Uttarakhand, Ecologic Governance and Ecological Sustainability Plan. The Uttarakhand State Organic Certification Agency was also set up by the government which is an independent wing of the State Seed and Organic Production Agency that certifies the organic production and handling systems in the state as per national and international organic standards.

For sustainable agriculture, the area under organic farming can be expanded by suitably identifying crops for each agro-climatic zone, and utilising fallow land. In this context, soil health management is extremely important [6]. There needs to be judicious use of pesticides and fertilisers. There is also a need for branding organic products from the state.

**Box 4.1: Organic Farming in Uttarakhand – Some Success Stories**

Girish Joshi, Jajut village, Pithoragarh district, a Master Trainer who is committed to bio-agriculture, is growing onions using 3 tons of compost per acre, CPP and liquid manures. Last year, he grew 15 percent extra onions and a growth in bulbs was also observed.

In Champawat, tea plantations at 22 sites covering an area of 209.6 hectares have been developed with a unique organic tea variety – orthodox black leaf tea (the China hybrid 'Camelia Sinensis'), providing employment opportunities to large number of people, particularly women. The tea is in hugely demand in both national and international markets.

*Source:* UKHDR Survey, 2017

## 4.4 Diversification of Agriculture in Other Areas

The potential areas for diversification in agriculture, other than horticulture, are animal husbandry, poultry, fisheries, etc.

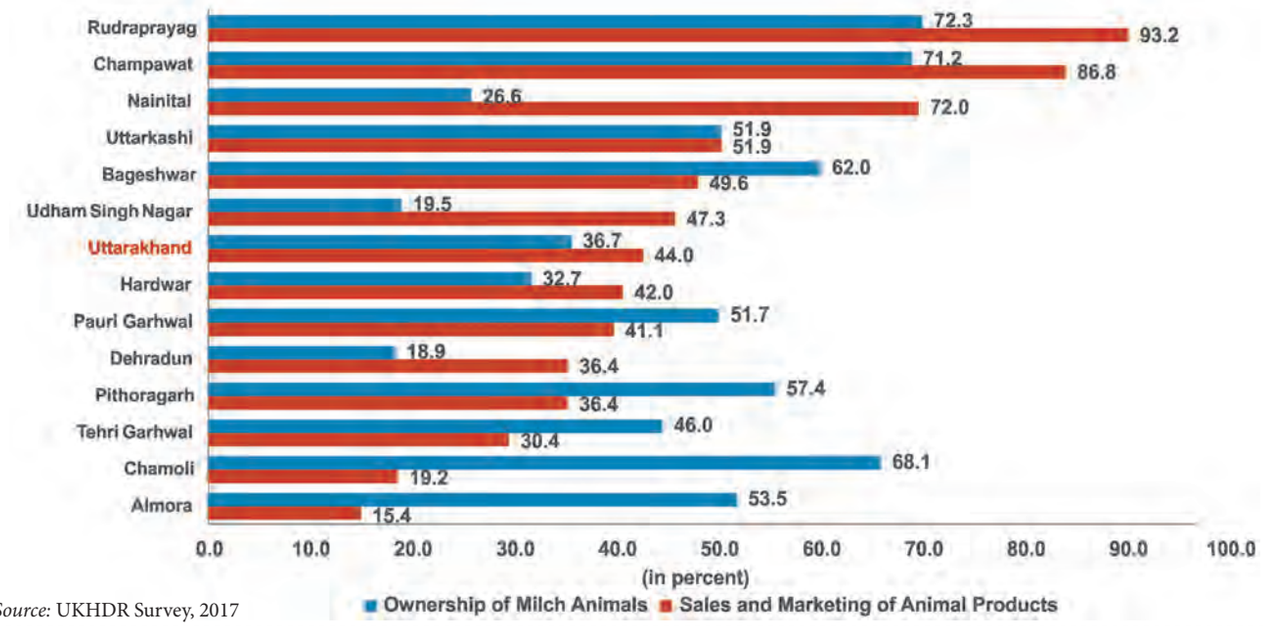
### *Animal Husbandry and Dairy*

Livestock is an integral part of farming. Fishery and floriculture are also parts of production systems in certain areas. The share of the primary sector in total GSDP has declined over time, from 14 percent in 2011-12 to 10.5 percent in 2016-17, while the share of livestock products has remained stable at around 2.6-2.9 percent [7]. This indicates that the prospect of employment generation in this sector is positive. Uttarakhand ranks eighth in India in terms of milk production, with the output in dairy being 16,92,000 metric tonnes of milk in 2016-17. The production of

6 Vision 2030 Uttarakhand

7 Economic Survey 2017-18 of Uttarakhand accessed at http://des.uk.gov.in/pages/display/

Figure 4.4 District-wise Response (%) of Ownership of Milch Animals and Sale/Marketing of Animal Products, 2017




*Source:* UKHDR Survey, 2017

wool in the same year was 538 thousand kgs, Egg output stood at 4119 lakh and meat production was 284 lakh kg. In the dairy sector, the government has also made efforts for artificial insemination, fodder availability, dairy, and vaccination. The other initiatives include the development of a cattle zone, setting up of an Agriculture University and mandis for marketing.

The UKHDR survey provides some indication regarding diversification into dairy activities in the districts (Figure 4.4). On an average, 36.7 percent of respondents owned milch cows/buffaloes and 44 percent of them said that there had been some sale or marketing of animal products. As might be expected, the hilly districts showed higher shares of possession of milch cows/ buffaloes compared to the districts in the plains. But the commercial use of animal products was not high in most hills districts, with the exceptions of Rudraprayag, Champawat and, to some extent, Bageshwar and Uttarkashi. Nainital and Udham Singh Nagar, largely in the plains, had relatively high commercial use of milch cattle although the ownership of the same was low.

Various schemes for livelihood generation in this sector are: Backyard Poultry Scheme for SC/ST communities, Self-employment schemes for dairy, as well as sheep and goat farming for poor and backward families, along with initiatives for controlling disease among animals, mobile veterinary vans, etc., to assist in the livelihood efforts.

### *Fisheries*

Fishing and aquaculture, although comprise a very small share in agriculture and its allied sectors, nonetheless they have the potential for generating employment and income, especially among the poor and backward classes. The abundant water in the form of 2686 km large rivers, 20075 ha reservoirs, 297 ha lakes and 676.41 rural ponds in the state holds considerable promise for livelihood generation.

To encourage the practice of fisheries in the hills districts, the state government set up grants for the construction of ponds, while in the plains disctricts, awareness generation campaigns about the benefits of fishery programmes are being conducted. The hill regions of Uttarakhand provide favourable environment for the culture and capture of cold water fish whereas the plains areas of Haridwar, Dehradun, and Udham Singh Nagar are suitable for fishery operations for Indian major carps and exotic carps. The vision for the Fisheries Department is that all the water sources need to

be utilized for fish production as well as for the conservation of fish and the promotion of fishing activities. In particular, there are plans for focus on trout farming, including the construction of trout reservoirs and hatcheries.

Under the Game Fisheries Scheme, licenses have been issued for fishing in lakes and rivers for domestic and foreign tourists, so that tourism can be promoted in Uttarakhand. Angling licenses are being issued in Nainital, Bhimtal, Sattal, Nukuchiyatal and Baranganga Hatheri (Chamoli). For the purpose of connecting fisheries and employment opportunities to the socially backward groups such as the Scheduled Castes and Scheduled Tribes, the Scheduled Caste Deployment and Tribal Sub-plan is being carried out under which ponds are being constructed in mountainous and meadow areas. Housing and drinking water facilities are being provided to the

**Box 4.2: Some Success Stories and Best Practices**

In Pithoragarh, village Bhateri, block Munakot, SHGs named 'Surryavanshi Utpadak Samuh' and 'Bhateri Utpadak Samuh' earned Rs 11.7 lakh during January, 2017 to July, 2017 with a turnover of 55.4 lakhs from poultry farming. They started with the assistance of various government schemes and with the support of the Integrated Livelihood Co-operative Development Project. New initiatives such as own outlets in nearby markets and home delivery have been initiated.

In Pauri, 'One village one farm', is an example of supporting sustainable livelihoods for mountain communities. 'Gauri', is a Self Help Group, started in Gaurikot, a small village situated 9 kms from Pauri, the head-quarters of Garhwal. Migration is a harsh reality for the people of the hills, prompting some women of this village to form a group on June 1, 2013. Soon eighteen women became members and with the help of this SHG, they vowed to cultivate the fallow land near their village. The Integrated Community Development Programme (ICDP) under the Co-operative Department encouraged them to opt for an integrated farming approach, where off-season vegetables, broiler poultry, fishery, horticulture, etc., are all pursued using an integrated approach.

In Udham Singh Nagar, Sri Satendra Choudhari from village Shahdoura, Sri Vinay Pal Singh from village Rikhi and Sri Om Prakash from Aitpur village of block Kitchha adopted the innovative practice of trench system by ensuring appropriate intervals between two crops. This has increased their yields by 25-30 percent above the earlier traditional farming practices. They also used the middle space for mixed farming such as wheat, barley, peas, mustard, gram, cabbage, onion, tomato, chilli, brinjal etc., resulting in doubling their overall incomes.

In Almora, a specific iron plough was invented by Mr. Vishwakarma, based on the geographical conditions of hilly areas. Three types of iron ploughs have been developed viz., one for high altitude, the second for mid-altitude, and the third for valleys. This kind of plough has huge demand in the hilly areas of the other districts in the state as it is easy to carry and ploughs large areas at the same time with great efficiency.

In Nainital, Prayavarniya Pravodhini (NGO) focuses on community awareness and development programmes through the innovative idea of community radios. Its focus areas include education, promoting aromatic and ornamental plants, wall paintings on social issues and skill development of local artisans. This NGO depends on government aid but often faces lack of financial assistance.

In Haridwar, 10 SHGs in Kangadi are manufacturing jute bags and are involved in Prasad distribution in the Maa Mansa Devi and Maa Chandi Devi temples.

The manufacture of sanitary napkins is also being carried out by 10 SHGs which have installed a vending machine for the same at SIIDCUL. The production of organic jelly is also being undertaken by them.

*Source:* Workshop Report, Institute for Human Development, 2017

weak fishermen community through the National Fisheries Welfare Scheme.

### *Sericulture*

Uttarakhand has climatic conditions suitable for the production of silk. It has a niche in sericulture as it is the only state in India which produces four kinds of cocoons. There is good potential for rearing oak tasar in Champawat and Pithoragarh districts. There are more than 70 mulberry farms, spread across more than 500 acres. Also, there are more than 5 cocoon markets (with storage capacity of 130 million tone), 1-4 societies, 1-training school, 9 research stations/units of the Central Silk Board, 7 reeling units (70 basins) in the private sector, 1 Silk Seed Production Centre and a Regional Sericulture Research Station in the state. The production of mulberry silk cocoons has been around 110 million tones, that of the oak tasar cocoon around 31 lacs, while raw production was 13 million tones. Around 80 per cent of cocoon production in the state is concentrated in Dehradun district itself.

Sericulture can generate an estimated employment of 11 man days per kg of raw silk production (in on-farm and off-farm activities) throughout the year. Currently, 60 lakh persons are engaged in various sericulture activities in the state [8]. Aware of the benefits of sericulture, the state government has been instrumental in spreading this farming technique across the state through sericulture agencies. Incentives are being given by the State Government for green cocoon production to the rearers. Incentives are also given by the Central Silk Board on raw silk and subsidies on all CSS schemes in the ratio of 80:10:10 as Special Status State.

### *Beekeeping and Mushroom Production*

In Uttarakhand, beekeeping has been the traditional practice for farmers in the hilly regions for a long time and has not been utilized for money-making appropriately to its prospective levels. Beekeeping is used not just for producing honey, but also for better fertilization, in order to increase agricultural productivity. The species of honeybee raised in Uttarakhand are Apis Mellifera and Apis Indica in the plains and hills respectively. These are the best performing species in the bhabhar areas. There is one nodal agency in Uttarakhand to promote beekeeping i.e. the Khadi and Village Industries Commission (KVIC). In 2017-18, around 5,566 bee-keepers were engaged in honey production in 62,490 bee colonies in the state [9]. Thus, by promoting beekeeping, the state can expand employment and also increase the production of crops which will further generate job opportunities and incomes.

Mushroom production in Uttarakhand was given a huge boost in 2013 when Divya Rawat, a resident of Chamoli, came up with an innovative way for producing mushrooms at a relatively low investment cost. Her success story has made an impact on livelihood generation in the state. Mushroom production is being promoted by the state government through the provisioning of 50 percent subsidy to farmers for mushroom spawn and compost, as well as the provisioning of training facilities at the village level.

## 4.5 Agricultural Marketing

The efficient functioning of agricultural markets contributes towards the welfare of the producers as well as the consumers. In Uttarakhand, agricultural marketing mechanisms are ridden with problems such as fragmented supply chains, dominance of multiple market players leading to high wastages thereby adversely affecting efficient marketing (GOI, 2013). As mentioned earlier, while agriculture is a dominant occupation in Uttarakhand, the difficult terrain, remote and inaccessible villages and weak infrastructure make it very difficult for agriculture to be a viable livelihood proposition for the populace.

Agricultural marketing in Uttarakhand is governed by the Agricultural Produce Market Committee (APMC) Act. This Act was amended in the state in the year 2011. There are 27 principal market yards, 31 sub market yards and 27 weekly markets for the marketing of agricultural produce in the state. The districts of Udham Singh Nagar, Haridwar, Nainital,

8 Accessed at https://investuttarakhand.com/themes/backend/uploads/IP-UK%20Sericulture%20Sector%20Profile%202018_09_05.pdf
9 Economic Survey 2017-18, Government of Uttarakhand

Champawat and Dehradun have principal markets, with three of them being plains districts. In the hills districts, the markets do not function efficiently and the state also lacks regulated markets for agricultural produce. Districts in the hill regions like Chamoli, Pithoragarh, Uttarkashi, Tehri and Almora do not have functioning agricultural markets, leading farmers to sell their produce in the nearby states.

The major marketing constraints faced by farmers in Uttarakhand include:

- Lack of scientific storage at the farm level
- Insufficient information about market prices and market charges
- Distress sales
- Lack of transportation facilities to and from the market
- Exploitative practices by the traders in the market
- Lack of space for auction/sale of products
- Malpractices adopted by traders in weighing
- Undue charges by traders
- Delays in payment by traders

For marketing, there is need to fix the Minimum Support Prices (MSP) of agriculture and related products. The APMC has announced the MSP for some rabi crops in 2017-18. There is need for a network of local crops as well as medicinal and aromatic plants for connecting the market with the producers. To reduce post-harvest losses initiatives for creating facilities for cleaning/grading, drying, storage, extraction, milling, fortification, packaging, transportation and handling of the produce at the farm level or in nearby locations need to be put into place in the short-term.

The UKHDR 2017 throws up useful suggestions from the stakeholders for improving the performance of the agriculture and allied sectors, which would eventually tie up with more livelihood generation in these sectors. These suggestions from the ground level are presented in Box 4.3.

**Box 4.3 Suggestions from Stakeholders for Agriculture and Allied Sector in Uttarakhand**

- Land consolidation (Chakbandi) and cluster farming.
- Setting up seed and fodder banks.
- Setting up local preservation centres for milk and milk products.
- Ensuring easy accessibility of credit and setting up local mandis.
- Processing units for perishable items to be established in local areas to minimize cost of transportation.
- Promoting organic farming and branding of organic products.
- Universalisation of schemes rather than restricting them to only for the Scheduled Castes and Scheduled Tribes.
- Loss of crops due to animal menace to be covered under the Prime Minister Crop Insurance Scheme.
- Installing solar pumps for lifting water to high altitudes.
- Increased focus on mushroom production and bee keeping.
- Regular exposure visits of progressive farmers outside the state, to learn new techniques, especially in the context of hill farming.

*Source:* "Workshop Report", Institute for Human Development, Delhi (2017)

## PART II: TOURISM

### 4.6 Introduction

Tourism can have an important positive impact on the host economy in a number of ways, its primary impact being on increasing incomes and generating employment for the local population. Promotion of tourism can also spur governments to invest in infrastructure creation, giving a general boost to local sales and demand for the goods and service providers. This sector is accepted as a growth driver for inclusive social and economic progress as a result of its forward and backward linkages and its ability to create employment in the economy. The high employment potential of tourism is reflected in the fact that it created an estimated 90 jobs per Rs. 10 lakhs of investment in Uttarakhand. [10] In particular, employment generation opportunities are high in accommodation projects, food-oriented projects, and amusement parks and water sports.

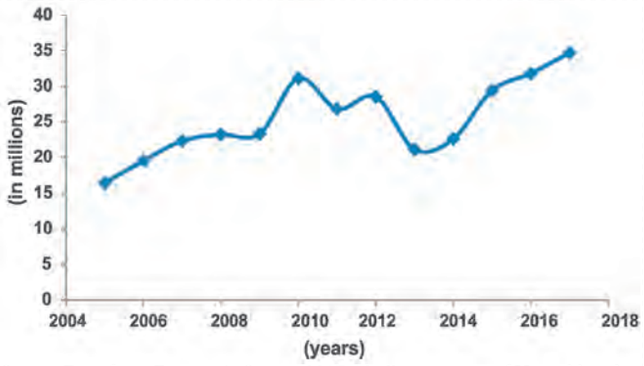
'Dev Bhoomi' Uttarakhand since ancient times has been a tourist attraction for international as well as domestic tourists. The world famous 'Chardham' – Shri Badrinath, Kedarnath, Gangotri and Yamunotri, is a major destination for pilgrimage tourism as are the Hemkund Sahib and the Kaliyar Sharif. Other popular tourist destinations include Haridwar, Hrishikesh, Nainital, Mussourie, etc., many of which have become popular due to their natural beauty as well as religious importance. The state spawns a vast variety of flora and fauna and along with the Corbett and Rajaji National Parks, it is a nature lover's paradise.

With limitless potential for tourism, the state also has to maintain a balance with the fragile nature of the mountain economy, as excessive footfall could destroy the very resources that have attracted tourists to this state over many years. Thus, tourism development in the state, along with the need to generate employment for its people, has to walk a tightrope of attracting tourists while protecting and nurturing the ambient environment.

### 4.7 Present Status of the Tourism Sector

Uttarakhand witnessed tourist arrivals of 34.7 million in the year 2017 (Economic Survey, 2017-18) (Figure 4.5). Despite the dip in tourism in 2013 due to the natural devastation in the state, the footfall of tourists has picked up considerably thereafter, showing it to be an expanding sector, with potential for employment generation. But the full potential of the state as a tourist destination is far from realized. Uttarakhand is ranked ahead of Himachal Pradesh as a tourist destination for domestic tourists, but still accounts for just 1.89 per cent of the all- India tourist arrivals (Table 4.7). As regards foreign tourists, the development of this sector in Uttarakhand lags considerably behind other states.

Figure 4.5 Tourist Arrivals in Uttarakhand (in millions)




*Source:* Data from Economic Survey 2017-18, Government of Uttarakhand
*Note:* Tourist arrivals include pilgrims

The share (%) of budget outlays for tourism, low to begin with, has declined over time from 0.67 percent of the total state budget in 2004-05 to just 0.28 percent in 2017-18 [11]. According to a 2015 state ranking survey, the state ranked sixth, as compared to the top-ranking state Sikkim, which spent 2.8 per cent of the entire state expenditure on tourism vis-à-vis just 0.146 percent by Uttarakhand.[12]

Despite the steady increase in tourist inflows, the acknowledged role of the sector as a

10 Annual Report 2015-16, Ministry of Tourism, Uttarakhand
11 Economic Survey 2017-18 Uttarakhand, Directorate of Economics and Statistics, Government of Uttarakhand
12 HVS State Ranking Survey 2015, available at http://www.hospitalitynet.org/file/152005708.pdf, accessed on April 15, 2017. Based on the premise that tourists are increasingly relying on the internet for making their travel choices and a well-designed tourism website can not only promote a destination effectively and also offer the required information to aid planning and boost visitation to the state, this report has appraised the state tourism websites based on the volume of traffic they have received.

Table 4.7 Tourist Arrivals and the State's Rank as a Tourist Destination, 2016

| | Tourist Arrivals in 2016 (million) | | Rank in 2016 | |
|---|---|---|---|---|
| | Domestic | Foreign | Domestic | Foreign |
| Uttarakhand | 30.5 | 0.12 | 13 | 20 |
| Uttarakhand share (%) in all-India | 1.89 | 0.47 | | |
| Himachal Pradesh | 18.0 | 0.45 | 16 | 12 |
| Himachal Pradesh share (%) in all-India | 1.12 | 1.83 | | |
| **All-India** | **1613.6** | **24.7** | | |

*Source:* Indian Tourism Statistics, 2017, Government of India, Ministry of Tourism

growth driver as well as vehicle for employment generation and the state's ambitious plans for sustainable tourism development [13],the tourism sector in Uttarakhand remains starved of resources. This situation needs speedy rectification if the sector is to play a pivotal role in employment generation, especially in the hilly districts, as well as act as a dis-incentive for migration.

## 4.8 Tourism Segments and Employment Generation

### *Pilgrimage*

This is a driving factor for tourism in the state, as the main purpose of visiting the state for 44.2 percent of the domestic tourists is for pilgrimage/ religious purposes while holiday/sight-seeing account for 43.6 per cent of the tourist visits, according to a snap survey conducted by the United Nations World Tourism Organization (UNWTO).[14] Uttarakhand has many religious sites. The Char dham – Yamunotri, Gangotri, Badrinath and Kedharnath, has a huge number of tourists pouring in for pilgrimages every year. Kedarnath, in the Garhwal Himalayan range, is open for a limited period annually and was the worst affected area during the 2013 flash floods. Yet, the number of visitors for the ChardhamYatra and Hemkund Sahib together during 2017 was about 24 lakh domestic and around 2167 foreign visitors[15]. Figure 4.6 shows the major destination-wise tourist arrivals in the state during 2017, showcasing the overwhelming importance of pilgrimage-based tourism. Haridwar alone accounted for 210 lakh out of 347.2 lakh tourists visiting the state in 2017, amounting to a 60 percent share of the total.

Thus, the scope of employment generation through pilgrimage-based tourism is enormous in the hospitality industry including , as tour operators and guides, the transport sector, local restaurants/ dhabas, etc. But, the carrying capacity of tourists must be kept in mind for the destination and tourist footfall optimized accordingly. In this way, the mountain environment and its fragile equilibrium can be maintained.

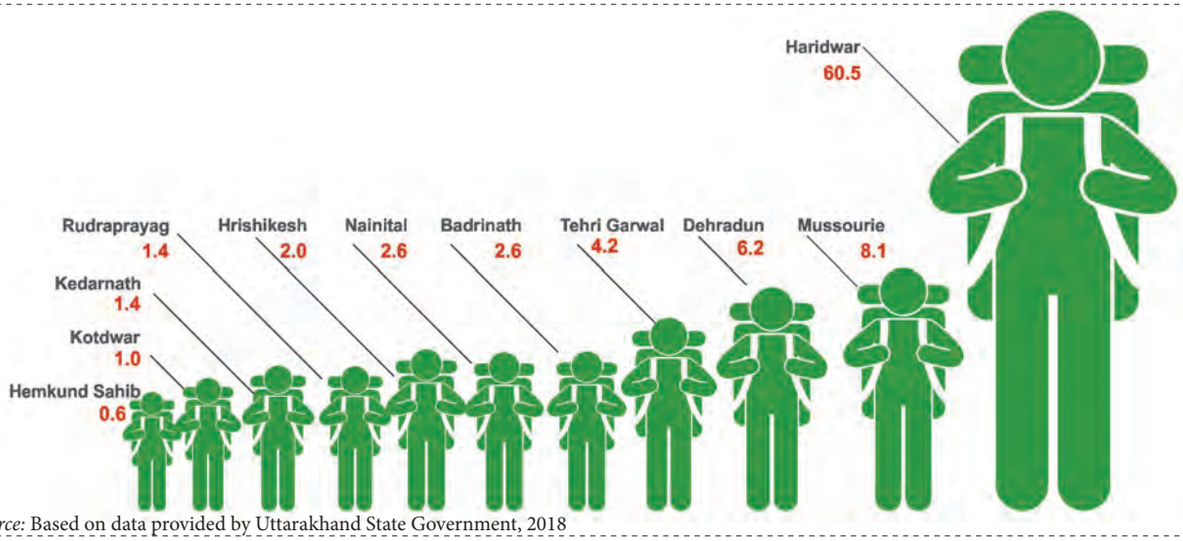
### *Natural Beauty and Sightseeing*

Tourists visiting the state for a holiday are attracted by its natural beauty. The inflow of tourists is from states like Delhi, Uttar Pradesh, West Bengal, Punjab, Uttarakhand, Haryana, Gujarat, Rajasthan, and Maharashtra in that order. The most popular destinations for domestic tourists are Haridwar, Rishikesh, Nainital, Badrinath, Kedarnath, Gangotri, Uttarkashi, Mussoorie, Yamunotri, Almora, Ranikhet and Dehradun[16].

In the case of foreign tourists, on the other hand, holiday/sight-seeing accounted for the bulk (58 per cent) of their visits, while 21.9 per cent of the visits were for health/yoga and about 19.4 per cent for pilgrimage/religious functions [17]. Foreign

13 See Vision 2030 Uttarakhand.
14 Available at http://www.uttarakhandtourism.gov.in/inviting-suggestions-uttarakhand-tourism-draft-policy-2016.pdf , accessed on March 24, 2017.
15 Economic Survey 2017-18 Uttarakhand, Directorate of Economics and Statistics, Government of Uttarakhand
16 Accessed at http://uttarakhandtourism.gov.in/sites/default/files/tenders/document/uttarakhand-tourism-draft-policy-2017.pdf on 26th November 2018
17 Vision 2030 Uttarakhand

Figure 4.6 Share of Major Tourist Destinations in Total Tourist Arrivals (%), 2017




*Source:* Based on data provided by Uttarakhand State Government, 2018

tourists mostly hail from the United States of America, Israel, Australia, Italy, Germany, and Nepal, and the destinations popular with them are Rishikesh, Haridwar, Gangotri, Uttarkashi, Kedarnath, Badrinath, Auli, Nainital, and Gaumukh.

### *Adventure Tourism, Spiritual Tourism, Rural Tourism, Eco-tourism, etc.*

The attraction of Uttarakhand as a pilgrimage site is already well-established, but there is potential for promoting the state as a destination for spiritual purposes, yoga and wellness, as well as for trekking, mountaineering, river-rafting, aero sports and similar adventurous activities (newly emerging segments for tourism). Theme-based circuits with the potential of being showcased as world class tourism products are being considered by the state, around spiritual and religious themes[18]. Adventure tourism encompasses activities such as climbing, trekking, para-gliding, mountain biking, river rafting, etc. For the expansion of all these activities, more numbers of tour operators, guides, trainers, marketing experts as well as associated human resources for transport, food and accommodation would be required. This could then translate into more jobs for the local people.

There is great potential for investment in hotels, resorts, amusement parks, spas, ropeways, etc., so that tourism can be expanded and more people can access livelihood in this sector. Trekking routes along with amenities are being built in Uttarkashi and Rs 23.17 lakh has been allotted in 2017-18 for this purpose. There is a plan to build 50 new trekking, mountaineering routes and mountain trail biking routes in the state by 2020.

Rural tourism and eco-tourism are the other forms of tourism that are being encouraged in Uttarkhand. Under the Swadesh Darshan scheme of the Central Government, Uttarakhand is a site for eco-tourism comprising 'Integrated Development of Eco-Tourism, Adventure Sports, Associated Tourism related Infrastructure for Development of Tehri Lake & Surroundings as New Destination-District Tehri, Uttarakhand'[19]. The project has been allotted Rs 8037.34 lakhs, out of which 60 percent has been utilized. There is a long term plan to develop thirteen new destinations in thirteen districts of the state based on various themes like adventure, leisure, rural, spiritual and wellness. Other themes involve treks/hikes/tours to view famous Himalayan peaks, or treks along the course of the Ganga river, or places of culinary interest, or villages where communities maintain traditional lifestyles that tourists may find interesting. In fact, over and above the typical tourist on a personal holiday or pilgrimage, the scope for

18 https://mediaindia.eu/indian-travel-trade/uttarakhand-to-develop-spiritual-tourism-circuits/ accessed on 2 February, 2018.
19 http://pib.nic.in/newsite/PrintRelease.aspx?relid=137206 accessed on 2 February, 2018.

making Uttarakhand a get-away for official weekend meetings and events would increase manifold if its internet and mobile connectivity were to improve to world class standards.

Rural tourism in particular, has huge potential for livelihood generation. It promotes individual cultures, customs, rituals for festivals/marriages and traditional tales of the state, attracting tourists to experience the local way of life. It could involve local women and the youth, via the expansion of homestays, local tours, etc., and also help in arresting migration from the hills districts. Homestays could also potentially become a platform for marketing local cuisines and handicrafts. There is a plan to increase the number of Gram Panchayats to be developed for rural tourism from the present 73 to 100 by 2020. Box 4.4 below shows with examples, the best practices from various states. Such initiatives need to be backed by adequate resources to become a success.

### *Medical/Ayurveda related Tourism*

UUttarakhand has the potential of promoting medical tourism using medicinal herbs, along the lines of other states such as Kerala. There is scope for promoting processes such as 'Panchakarma', a way of de-toxifying and rejuvenating the body using traditional methods, which is popular among

**Box 4.4: Best Practices in Tourism**

| Himachal Pradesh | Sikkim | Meghalaya | Kerala |
|---|---|---|---|
| Rural Tourism: Successful promotion of villages through the 'Har Gaon ki Kahani' scheme, which attracts tourists through local tales, folklores and anecdotes, and provides tourists an authentic rustic experience. | Organic and Cleanest State: Sikkim became the first fully Organic State in 2016. It was also adjudged as the cleanest state by the Ministry of Tourism. | Community-based Tourism: The state government is promoting community tourism since land tenure is tilted towards the community with very little land held by the government. | Inter-state Co-ordination: The state government has promoted a Regional Tourism Circuit with effective co-operation from other Southern States. |
| Institution funding:<br><br>The state has received direct foreign assistance from ADB. | Eco-tourism: Sikkim is the first state to frame an eco-tourism policy based on the GSTC criteria. The major projects being implemented include the Sikkim Biodiversity Conservation and Forest Management project, and Sikkim Himalayan Homestay Programme. | Institution Funding: The state has been able to attract funding from JICA for infrastructure. | Responsible Tourism: The government has formulated Responsible Tourism Classification for registration of hotels and resorts in line with GSTC criteria |
| Eco-tourism:<br><br>The eco-tourism policy, 2016, has been formulated, with the aim to attract at least 10 per cent of all tourists visiting by 2030. The Forest Department of the state acts as a nodal department for promoting eco-tourism. | Adventure Tourism: This is being promoted through a collaboration with the Indian Mountaineering Federation for trekking, mountaineering and other adventure activities around Mt. Kanchenjunga. | Adventure tourism: The state has formulated safety and security guidelines for adventure tourism. | Eco-tourism: The state Forest Department has taken community-based eco-tourism initiatives and effective forest management through the involvement of tribal people who are employed as tourist guides and forest watchers. |

*Source:* Uttarakhand State Government; cited in Vision 2030 Uttarakhand

**Box 4.5: Learning from Success Stories**

In 2009, Bharat Patwal encouraged many families to provide home stay facilities in Sankri Saund village in Uttarakashi district. Currently, 7 families are providing home stay accommodation and 14-15 families, through Mr Patwal, have applied for registration to provide home stays.

Jeevan Lal of Kanda village in Bageshwar district has made his remote village an ideal tourist spot. His experience has shown the way for the concept of eco-tourism and social work. R.O.S.E. (Rural Opportunity for Social Elevation) is a small help group in Kanda established in collaboration with Jeevan Paying Guest Unit (JPGU), Sunargaon. Kanda is a hilly province comprising 30 villages and has a population of over 20,000 people. More than 50 percent of the population in Kanda is below the poverty line. Just as most of the people of Uttarakhand, in Kanda also, the locals are dependent on agriculture, animals and nature for their sustenance.

ROSE Kanda works at the grass roots level to provide opportunities to locals to actively participate in developing a better life for themselves. Tourists not only stay in 5 rooms as Jeevan's paying guests, but also use their skills to bring about a difference. The project also helps generate employment in an area where there are very few employment schemes. Foreign tourists who flock Kanda in large numbers, make their stay meaningful. They begin their day with a shramdaan, leading to a cleaner environment. They involve themselves in different chores. They not only go trekking and chase butterflies but also give lessons in working English to the poor Dalit and backward people. And in the evening, they enjoy a sumptuous Kumauni meal with Jeevan's family. Many houses here are even repaired by the volunteers.

Jeevan Lal has won many state and national level awards for his innovative practices and activities such as eco-tourism, adopted from the home-stay concept, alongwith rearing an indigenous breed of cow named Badri, which produces high value milk, combining it with a bio-gas plant, cattle shed, green house, poly house and bee keeping etc.

*Source:* https://www.euttarakhand.com/rose-kanda-a-success-story-on-eco-tourism and Workshop conducted by IHD in districts of Uttarakhand 2017.

foreign tourists, as well as, increasingly, among Indian tourists.

These types of tourism efforts, along with yoga and wellness centres, under the stewardship of AYUSH, could also generate employment in the hills.

The AYUSH department plans to expand the conduction of special medical procedures such as Panchkarma and Ksharsutra and units for this purpose are going to be set up in the hills districts. The action plan for setting up an Ayush Gram in each district will involve setting up three such villages by 2020.

### *Game Fishing*

Uttarakhand is an ideal place for sport fishing as it is home to many rivers, streams and water bodies like the Ganga, Kosi, Alaknanda, Yamuna, Ramganga etc. and spawns many species of fish like Gonch, Carps, Mahseer, Trouts etc. The Uttarakhand Tourism Development Board could identify such important water bodies that could be given to private investors to open fishing camps. The Department could train locals to work as fishing guides to increase livelihood opportunities. The Department could also make available quality equipment to tourists on a rental

basis. The state could rope in other departments like the Fisheries, Irrigation, Forest Department etc., to ease out the permit processes.

### *Promotion and Marketing related Livelihood Generation*

Considering that the tourism sector involves a lot of marketing and promotional activities, employment could be generated for the youth and local people through such activities, although such opportunities may not be available in the remote hilly areas. For instance, as the state government positions 'Brand Uttarakhand' in the domestic and international markets, the attractions of Uttarakhand as a tourist destination or 'Brand Uttarakhand' could be publicised and marketed to more countries, in order to attract potential tourists. Even advertisements in foreign media of other countries, especially where there is a large Indian diaspora, can be thought of, in collaboration with the central government. Here there would be the possibility of employment and jobs in the marketing sector as well as in IT as a strong presence on the internet would be desirable.

Private sector participation could be sought in collaboration with the state government and the necessary incentives provided in this connection. Earmarking funds for marketing and promotional activities is important for the Tourism Department. A certain share of its revenues could also be utilised as done in the case of the 'Brand USA' campaign where USD 10 from each applicant's visa fee was allocated to marketing.

In order to formalize the processes in the tourism sector, there would be the need for accreditation agencies for various competencies. A process of recognition of prior learners for assessment and certification of current competencies, as well as other such capacity development measures are a must for mountain and destination guides, dhaba owners, porters, cooks, waiters, drivers, etc. It is also important to start a process of registering new entrants for mountain and destination guides, dhaba owners, porters, cooks, waiters, drivers, etc.

## 4.9 Tourism Support Policy in Uttarakhand

The Uttarakhand Government has launched many schemes to foster the growth of tourism as well as create sources of livelihood for its people. There are many central government schemes as well. Apart from investment incentives, some of the schemes relevant for livelihood generation include:

### *Veer Chandra Singh Garhwali Paryatan Swarozgar Yojana (VCSGPSY)*

The Veer Chandra Singh Garhwali Paryatan Swarozgar Yojana (VCSGPSY) was introduced in June 2002. The Government of Uttarakhand launched the first self-employment scheme to make tourism a major source of employment and revenue generation. The prime focus was on developing transport facilities within the State. The scheme offers subsidies and bank loans to unemployed youth who are permanent residents of the state, to set up business in any of the following ten tourism activities:

- Bus or taxi services
- Motor garages and / or workshops
- Fast food centers
- Meditation and / or yoga centers
- 8-10 room motel or paying guest style accommodation
- Souvenir centers
- Adventure activity equipment rental shops
- Public Communication Office (PCO)-cum-tourism information centers
- Tent accommodations
- Development of destination-specific attractions

Under the scheme, private entrepreneurs can get a loan from commercial banks and a state subsidy of around 20-30 percent with a ceiling of around Rs 2 lakh – 5 lakhs, on investments of up to Rs 10-20 lakhs[20]. The scheme also has a provision of reservation for the scheduled castes, scheduled tribes, other backward classes, ex-defense personnel and women. For instance, the 2015-16 state budget proposed a one fifth reservation for women entrepreneurs. Till January 2018, a total of 5931 people had availed of this scheme.

20 Uttarakhand Socio-Economic Mirror, Vol 1, No 2, September 2016, Directorate of Economics & Statistics, Government of Uttarakhand

The UKHDR 2017 Survey found low levels of awareness about the scheme in the state (Figure 4.7). However, among those who were aware of the scheme, a high proportion availed of the scheme.

Regarding the eligibility for the scheme, it was found that Pithoragarh district had the highest proportion of eligible population, with all the people who were aware of the scheme, fitting the eligibility criteria. Chamoli district, which had the highest awareness amongst people about the scheme, fared well in the eligibility criteria with 33 percent of the aware people being eligible. Among the other districts, Dehradun had a large number of people eligible for the scheme, along with Haridwar and Udham Singh Nagar. Overall, more people in the hilly terrains of Uttarakhand were eligible for the scheme as compared to those in the plain areas, with an average 28.6 percent of people who were aware of the scheme in the hills being eligible.

### *Deen Dayal Upadhyaya Griha Awaas Homestay Development Scheme*[21]

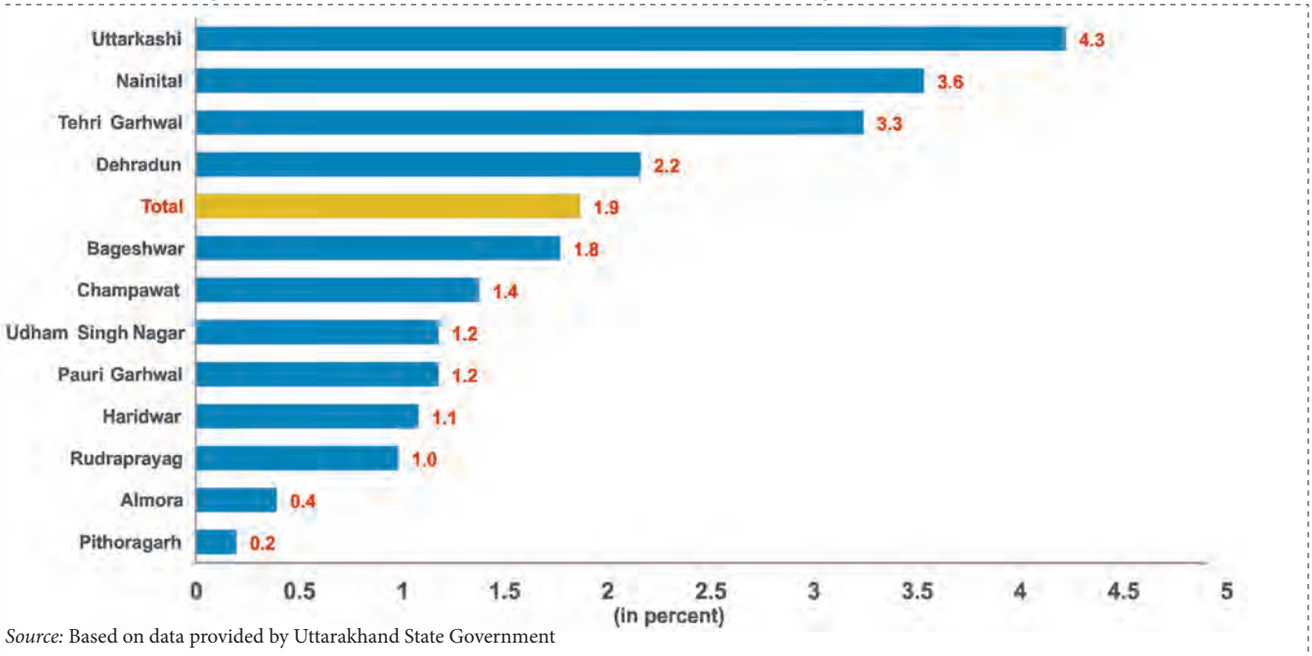
This scheme was introduced to attract tourists to far-flung tourist destinations along with the popular ones, enhance accommodation facilities at the local level, generate employment for native people and provide an additional source of income to house owners.

The main objective behind starting the Deen Dayal Upadhyaya Griha Awaas scheme has been to provide clean and affordable homestay facilities to national and international tourists. The facility also offers travellers the unique opportunity to explore Uttarakhand's culture and savour the delightful delicacies of the state's cuisine [22].

The salient features of this scheme with latest regulations are:

- Purely residential space.
- Family head should be staying in the house along with family.
- Home stays should have minimum 1or maximum of 6 rooms for tourists.
- Under this scheme, for hill areas, the government provides capital subsidy of 33 per cent or 10 lakh, whichever is minimum and for the first five years of loan payment, the interest subsidy is 50% of the interest or Rs 1.50 lakh per year, whichever is lesser.

Figure 4.7 Respondents (%) Aware of Veer Chandra Singh Garhwali Scheme, 2017




*Source:* Based on data provided by Uttarakhand State Government

21 Accessed at https://investuttarakhand.com/themes/backend/uploads/IP-UK-Tourism%20Sector%20Profile-2018-09-10.pdf
22 https://uttarakhandtourism.gov.in/homestays/home-stay-policy.html accessed on 30th January 2019

- For the plain areas, the capital subsidy is 25 per cent or Rs 7.50 lakh, whichever is lesser and the interest subsidy for first 5 years of loan payment is 50 per cent of interest or 1 lakh per year, whichever is lesser.

### *Skill Development and Capacity Building Schemes (central government)*

There are several government schemes for capacity building for the service providers. Some of these include:

- Grants for expenditure per trainee for 3-month training programs (class/Lab) for skill upgradation in general, for existing service providers and language courses for guides and other service providers
- Grants for expenditure per trainee for 6-months training programs (class/Lab) for skill development in general, for fresh candidates
- Special Training Programme for capacity building to ensure promotion of rural tourism of 3-6 months duration in villages
- Tourism Awareness Programme (4-6 days): (a) Dhaba Staff (b) Taxi/ Coach Drivers, Porters etc. (c) Immigration / Customs / Police Staff (d) Hotel Staff
- Testing and certification of candidates who have undergone training programmes
- Conducting certified Hospitality Trainers Programmes
- Earn While You Learn Programmes (programmes to sensitise youth to tourism and work as student volunteers)
- Regional Cuisine SpecialisationProgrammes
- Training of ex-servicemen to build capacity necessary for taking up the job of tourist police

### *Other Initiatives for the Development of Human Resources*

To facilitate the development of human resources, the Uttarakhand government has established the Government Institute of Hotel Management (GIHM) in Almora and Dehradun districts. In 2015-16, the state government inaugurated the GIHM in Tehri district. In 2017-18, a total of 327 youth were trained in these GIHMs.

The number of seats has been increased in the GIHM (Tehri) to boost tourism. The Ministry of Tourism, Government of India, has also sanctioned funds assistance for setting up of a Food Craft Institute at Almora and a Hotel Management Institute in Ramnagar. In the year 2017-18, the government allotted Rs 10.10 lakh for training of 122 tourist guides by the Indian Institute of Tourism and Travel Management (IITTM)[23]. More manpower training and district wise training needs to be imparted to explore the tourism potential of the state as well as create livelihoods in the rural and hilly areas of Uttarakhand.

### *Tourism Related Infrastructure Development*

In order to create a comparative advantage for tourism, infrastructure development needs to be strengthened to create better roads, rail and air connectivity and other amenities such as accommodation, electricity, water, transport, sanitation, internet connectivity etc. Some of the steps taken by the state and central governments to strengthen infrastructure development in Uttarakhand include:

- In 2016, the Centre announced that it would widen the existing 900-km highway connecting the 4 abodes of the Gangotri, the Yamunotri, Kedarnath & Badrinath in the Himalayas.
- In June 2017, the Central Government allocated funds for the development of the Tanakpur-Pithoragarh National Highway to boost connectivity in the Kumaon region.
- The Rishikesh-Karanprayag rail project is being set up in the state and the work for the project commenced in December 2017.[24]
- Initiatives have been undertaken to start monorails in Dehradun, Haridwar and Rishikesh, on the inter-city linkage routes.

23 Economic Survey 2017-18 Uttarakhand, Directorate of Economics and Statistics, Government of Uttarakhand
24 This section is based on information accessed from https://www.ibef.org/download/Uttarakhand-April-20181.pdf on 20th November 2018

## 4.10 Summing Up

### *Agriculture*

In Uttarakhand, a majority of the rural population is dependent on agriculture, but the share of agriculture along with its allied sectors in the Gross State Value Added is very low. Moreover, this share has been declining over the years. This sector is thus characterized by low productivity. Many of the farmers belong to the small and marginal land-holder categories. The state has been impacted by large-scale migration, especially from the hills districts. There is a predominance of women workers now in the hilly regions of the state. Yet, agriculture holds substantial potential for livelihood generation with the help of diversification into areas such as horticulture, aromatic and medicinal plants, as well as animal husbandry including dairy, fisheries, sericulture, bee-keeping, mushroom production, etc.

Variance in the climatic conditions of the state makes it an ideal location for growing temperate, sub-tropical, and tropical fruits that fetch a high price in both the domestic as well as international markets. The main horticultural products include fruits, vegetables, potatoes, spices and flowers. There are around 650 food processing units in the state, providing a link to the MSME sector. At present around 2.5 lakh farmers, 88 percent of whom are small and middle farmers, are associated with horticultural activities.

Medicinal and aromatic plants are another important growth sector having employment potential. The focus could be on cultivating these as bonus crops to generate additional incomes and facilitate maximum land utilization from the existing cropping pattern. At present, aromatic crops are being successfully cultivated in 109 clusters of aromatic crops in the state. The AYUSH department aims to establish Herbal Gardens and its future plans include the identification, cultivation and marketing of herbal medicines. Not only would the farmers benefit from such diversification, there is also scope for employment whereby the MSMEs could connect with orchards and distilleries for further downstream activities. The local youth could find employment in yoga and wellness centres promoted by AYUSH. There is potential of further employment generation, once the synergy with tourism is developed to promote agro-tourism, or culinary themes for tourist activities and tours.

### *Tourism*

Uttarakhand is a proven tourist destination with tourist arrivals in the state increasing over the years, despite a slight downturn in 2013 due to the devastating flash floods. The tourism sector has a lot of backward and forward linkages, and thus considerable potential for livelihood generation, especially in the accommodation projects, food-oriented projects, amusement parks and water sports.

While pilgrimage and sight-seeing for the natural beauty of the state are tried and tested segments for the tourism sector, emerging segments in the form of adventure tourism, spiritual tourism, rural tourism, eco-tourism, etc., hold a lot of promise for generating employment, specially for the youth. With expanding tourist activities in these areas, an increase in demand for hotels, restaurants, tour operators and guides, porters, transport services, etc., can be expected. In particular, with tourism being encouraged in the rural areas and remote villages, homestays are becoming popular, thereby providing direct employment to the local people. This could prove to be a key strategy in arresting migration in the hills districts which lack adequate livelihood opportunities. The state government is developing Gram Panchayats with a view to promoting rural tourism. Uttarakhand has potential for promoting medical tourism using medicinal herbs, and for promoting traditional processes such as the 'Panchakarma' and the 'Ksharsutra'. Such types of tourism efforts, along with yoga and wellness centres, under the stewardship of AYUSH, could also generate employment in the hills.

In the marketing and promotional spheres, employment for youth and the local people is likely to be generated, especially in sales and IT jobs. The state and central government

have been providing support for livelihood generation in the tourism sector in the form of important schemes such as the Veer Chandra Singh Garhwali Paryatan Swarozgar Yojana, Deen Daya lUpadhyaya Griha Awaas Homestay Development Scheme along with various schemes for skill development and capacity building. However, the UKHDR 2017 indicates that awareness about such schemes is very low at the ground level. Awareness building through appropriate policy interventions would be beneficial for the local populace in Uttarakhand.

# 5
# Migration

# 5 Migration

## 5.1 Backdrop

Migration in Uttarakhand is a common phenomenon, particularly in the hills districts. Migration out-flows in the state can be conceptualized using the underdevelopment theory framework and the structuralist postulation that analyze the social relations that influence decisions to migrate. Both these theoretical strands on migration are closely related to each other and are helpful in explaining the causes of out-migration from this region (Awasthi, 2010). This chapter demonstrates that out-migration is not an unusual event, often being a response to the fragile resource base (land and forest), environmental degradation and livelihood insecurities in Uttarakhand.

It has been argued that the relationship between the uplands (hills) and lowlands (urban areas/plains) puts the former in a disadvantageous position because the resources from the highland are pulled into the lowland, with little or no value additions to the former (Jodha, 1997, 2000). Such an unequal highland- lowland relationship tends to create a low economic base for the former, resulting in limited employment and livelihood opportunities (mostly in agriculture), for the growing labour force in this region. With limited livelihood opportunities outside agriculture in the highlands, out-migration becomes an important livelihood diversification strategy. Relatively higher literacy rates and higher educational attainments in the hills have not helped in restricting out-migration. Rather, the process has been accentuated due to lack of employment opportunities in the region.

Studies on migration for Uttarakhand point towards huge and increasing male out-migration from the region (Sharma, 1980; Khanka, 1984; Bora, 1986, 1987). The main reason for such out-migration is the economic backwardness of the region, wherein out migration and economic underdevelopment reinforce each other and produce a vicious circle, further accentuating the process of underdevelopment (Joshi, 1980). What is important to note is that the nature, causes, patterns and consequences of out-migration have changed over time. In the past, the primary reason for long term male out migration was for jobs and earning a living, with strong linkages to one's home, often called the "money order economy" (Bora, 1996). With development taking root in the hill regions, long-term migration has become permanent out-migration leading to many villages transforming into ghost villages in these areas. Migration not just for employment, but also for better educational opportunities has led to lose or no linkages with the places of origin.

## 5.2 Characteristics of Out-migration in Uttarakhand

Migration can be short term, long term or for permanent settlement. As per the National Sample Survey Organization's (NSSO) conceptual framework, all persons migrating for less than nine months during the preceding year are considered as short-term migrants. Persons migrating for a total of nine months or more during the preceding year are considered long-term migrants. Permanently migrated persons, on the other hand, are those

who were earlier a member of the household but have permanently settled elsewhere along with other family members but maintain some sort of social and economic transactions with the place of origin through remittances and occasional visits. Migrating households are defined as those households from where at least one family member reports migration. Those who do not report any migration from the household are defined as non-migrating households.

Micro level studies in the Uttarakhand s areas report that 42 to 57 per cent households have at least one out-migrant (Khanka, 1984; Bora, 1987, 1996). Yet another study finds that 48 percent households reported out-migration, 34 percent reported long-term migration, 16 percent reported permanent migration and 4 per cent reported short-term migration (Awasthi, 2010).

The state of Uttarakhand was created in November 2000 and its development path since its formation has been one of reasonably high economic growth. The state witnessed an impressive increase of over 11.6 per cent per annum in its gross state domestic product (GSDP) during the period 1999-00 to 2004-05 (Mamgain, 2007). What is of consequence is the fact that economic growth in the state has been mainly focused in the three plains districts, leaving the ten hills districts lagging behind. While the plains districts have had access to a large proportion of economic opportunities, the residents of the hills districts have predominantly been earning their livelihoods from agriculture and agricultural labour. This lopsided development has led to large outmigration from the hill areas towards the plains. Data from the Population Census 2011,reveals slow growth of population for the hills districts, with Almora and Pauri Garhwal showing an absolute decline in population over the decade 2001 to 2011, evidence enough of outmigration in large numbers (Mamgain and Reddy, 2016). Lack of economic opportunities and increasing pressures on the local economy are cited as the two possible reasons for such outmigration.

Therefore, migration in the context of a state like Uttarakhand needs to be studied keeping in mind aspects such as the magnitude, regions/ areas more/less prone to migration alongwith the reasons for the same, Development and technological interventions that could bring back the migrants and retain them in their home areas, as well as demographic changes and infrastructural developments in the plains vis-à-vis the hills are imperatives for understanding migration.

## 5.3 Uttarakhand Out-migration: UKHDR 2017 Survey Findings

The UKHDR Survey in Uttarakhand collected data on out-migration across all the 13 districts in the state and provides new insights into the recent trends and patterns of migration. In the Survey, short term (3 to 12 months), long-term out migrants (12 months or more) and daily commuters were considered. To study migration patterns at the state and district levels, short term and long term migrants were taken to represent the set of out migrants. Out-migration was considered in the study both within the state and to outside states.

### 5.3.1 The Magnitude of Migration

*Individual Level Migration*

At the individual level, the survey found that close to a tenth (7.7 percent) of the sample population in the state was migrants (short and long term) with rural migrants recording a much higher proportion (9.1 percent) as compared to urban migrants (3.0 percent) (Table 5.1). Some of the main findings from the Survey on migration include: first, a stark variation in the proportion of migrants in the sample population between the hills and the plains districts. The hills districts had close to a tenth of the population (9.6 percent) as migrants while in the plains, its share was a miniscule 1.3 percent of the sample population. Second, the highest proportion of migrants were from the rural areas of the hills, followed by the urban areas of the hills (4.1 percent) and this is an important finding of the Survey (Table 5.1). Third, migrants from the rural and urban parts of the hills were predominantly long-term, constituting 8.7 percent of the out migrating hill population.

Inter district variations in the proportion of migrants (short and long term) in Uttarakhand are more prominent for long term migration. Long term rural out migration is higher than urban out migration for almost all the districts of the state. Long term out migration from rural areas was also reported much lesser for the plains districts vis-à-vis the hills districts. Rudraprayag district had the highest proportion of out migrating populace in both rural (13.9 percent) and urban areas (6.6 percent). Almora, Chamoli, Pithoragarh, Bageshwar and Champawat were the other hills districts that reported close to a tenth of the populace in rural areas migrating out. (Map 5.1 and Annexure 5.1).

### *Household Level Migration*

In the UKHDR Survey, migration at the household level has been defined as those households from which at least one family member is reported as a migrant. Those who do not report any migration from the household have been defined as non-migrating households.

The magnitude of households that have at least one migrant (short term or long term) is 27.8 percent implying that almost one in every three households has a migrant. However, the magnitude differs significantly between the hills and plains districts. In the hills districts, the proportion of households having at least one migrant was 34.3 per cent while for the plains districts it was 5.3 per cent (Table 5.2). The rural-urban disparity was also stark with more than a third of the households in rural hills areas having at least one migrant vis-à-vis 10.8 percent in urban areas. The data again supports the previous finding that the hill areas have a higher proportion of households with at least one migrant in both rural (38.5 percent) as well as urban areas (14.1 percent) as compared to the rural and urban areas of the plains (4.5 and 6.2 percent respectively).

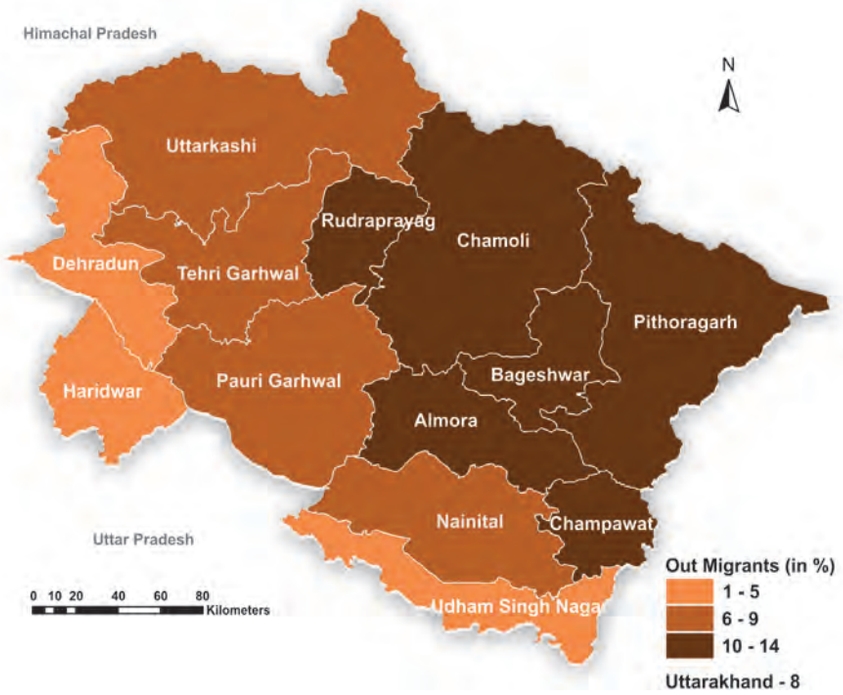
Short term migration accounts for about 2.7 per cent of the population in the state, out of which the hills districts report 3.1 per cent and the plains districts 1.5 per cent. Daily commuters are insignificant (0.6 percent) with a higher share for the hills districts (0.7 percent) compared to the plains districts (0.2 percent). What is of consequence is the rates of long term migration which the Survey finds, varies quite a bit across the districts (Annexure 5.2). As expected, the hills districts showcase higher rates of long term outmigration vis-à-vis the plains districts, migration being higher from the rural areas of the hills districts. In the hills district of Rudraprayag, close to half the population (48 percent) is long term migrants, the rate of long term outmigration in its rural areas being more than double that from its urban areas (51.7 percent and 24 percent respectively). The hills districts of Almora, Bageshwar, Chamoli, Champawat and Pithoragarh report over one-third of their population as long

Table: 5.1 Migration Status of Individual (%), 2017

| Area | | Resident | Daily commuters | Short term Migrant | Long term migrant | Total |
|---|---|---|---|---|---|---|
| Rural | Hills | 89.1 | 0.2 | 0.9 | 9.8 | 100.0 |
| | Plains | 98.8 | 0.1 | 0.5 | 0.6 | 100.0 |
| | Total | 90.7 | 0.2 | 0.9 | 8.2 | 100.0 |
| Urban | Hills | 95.8 | 0.1 | 0.7 | 3.4 | 100.0 |
| | Plains | 98.5 | 0.0 | 0.2 | 1.3 | 100.0 |
| | Total | 96.9 | 0.1 | 0.5 | 2.5 | 100.0 |
| Total | Hills | 90.2 | 0.2 | 0.9 | 8.7 | 100.0 |
| | Plains | 98.6 | 0.1 | 0.4 | 0.9 | 100.0 |
| | Total | 92.1 | 0.2 | 0.8 | 6.9 | 100.0 |

*Source:* UKHDR Survey, 2017

Map 5.1 District-wise Out-migrants (%), 2017




*Source:* UKHDR Survey, 2017

term out migrants, the migration rates again being higher in their rural areas (close to one-third) as compared to their urban counterparts (close to a tenth of the population, Pithoragarh close to a fifth of its urban population). Nainital is a district that has hilly regions as well as plains and long term migration rate in its rural areas (close to a fifth of the population) is higher than that for its urban areas (6.9 percent). Champawat also reports close to a tenth of its population showcasing short term out migration.

The Migration Commission, Government of Uttarakhand, has also estimated the magnitude of out-migration by district and by block, both for semi-permanent and permanent out-migrants over the last 10 years. Semi-permanent out-migrants are estimated as 3.2 times higher than permanent out-migrants, with huge inter block/ district variations. The reasons for out-migration include lack of livelihoods, education, health and infrastructure opportunities, in that order (Government of Uttarakhand, 2018).

It is clear from the UKHDR Survey data that the hills districts are experiencing significantly higher outmigration which can be attributed to lower economic opportunities vis-à-vis the plains, primarily due to specific agro-climatic and socio-economic conditions in the hills and mountains. Jodha (1992) points out that important hill specificities include inaccessibility, fragility and marginality. Inaccessibility produces isolation, sparse habitations, limited links, communication and mobility, which in turn affect the activity and livelihood patterns of the population. Inaccessibility results in marginalisation or exclusion from the mainstream in terms of area, location, activity and people, leading to unfavourable terms of trade for such locations. The fragility of ecosystems and habitats is linked to inaccessibility. Specific geographical and regional characteristics can lead to low economic opportunities and in turn fuel migration.

### 5.3.2 Migration Profile by Sex

It has been documented in the literature that migration in Uttarakhand, especially from the hills districts, has been overwhelmingly male specific (Bora, 1996; Awasthi, 2012). Over the years, this process has been accentuated, finally culminating into permanent out-migration. A more recent and distinctly visible migration trend has been that of women for better

Table: 5.2 Migration Status of Household (%), 2017

| Area | | Resident | Daily commuters | Short term migrant | Long term migrant | Total |
|---|---|---|---|---|---|---|
| Rural | Hill | 60.7 | 0.8 | 3.2 | 35.3 | 100.0 |
| | Plain | 95.2 | 0.3 | 1.9 | 2.6 | 100.0 |
| | Total | 66.5 | 0.7 | 3.0 | 29.8 | 100.0 |
| Urban | Hill | 85.5 | 0.4 | 2.6 | 11.5 | 100.0 |
| | Plain | 93.7 | 0.1 | 0.9 | 5.3 | 100.0 |
| | Total | 88.9 | 0.3 | 1.9 | 8.9 | 100.0 |
| Total | Hill | 65.0 | 0.7 | 3.1 | 31.2 | 100.0 |
| | Plain | 94.5 | 0.2 | 1.5 | 3.8 | 100.0 |
| | Total | 71.6 | 0.6 | 2.7 | 25.1 | 100.0 |

*Source:* UKHDR Survey, 2017

education opportunities, more specifically for higher education and employment, including domestic work (Figure 5.1). This is corroborated by the UKHDR Survey findings.

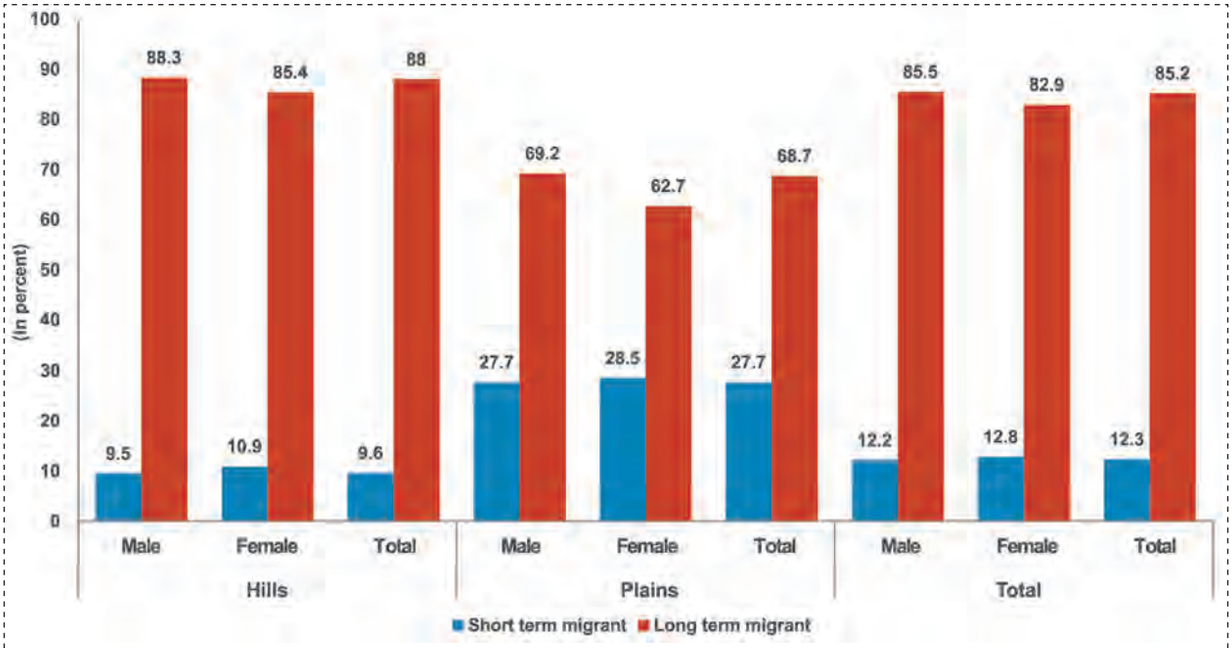
A spread of the migrant figures shows that a large proportion of the migrants are long term (85 percent), followed by short term migrants (12 percent), daily commuters constituting a rather small proportion (2.5 percent) of the same. Long term migration is dominated by male migrants, both in the hills and the plains, more so in the hills. In the plains, the proportion of female short term migrants is larger than that in the hills possibly because in the hill areas, women migrate with the main bread winners for a few months and then return back for seasonal agricultural activities. In the plains areas on the other hand, women migrants are primarily motivated by jobs in the informal manufacturing and service sectors into which they eventually get absorbed. Simultaneously, the data shows that women migrate out of the hills for long term migration in large proportions, a phenomenon that has happened more recently. A possible reason for this could be that women now are accompanying the male bread winners along with their children to access better education opportunities for their children, as well as job opportunities and better health care facilities. This is clearly supported by the huge outmigration taking place from the hill regions of Uttarakhand with many villages with having only the old and the disabled people left behind.

### 5.3.3 The Magnitude

The magnitude of migration actually becomes clearer if resident households are excluded. Data presented in Table 5.3 clearly reveals that overall, long term migrating households account for about 88 per cent of the migrating households and the proportion for the same swells to 89 per cent for the hills. In the plains, 69 percent of migrating households report long term migration. On the other hand, the proportion of migrating households that have migrated for short durations is larger for the plains (27.5 percent) vis-à-vis for the hills (8.8 percent).

The higher magnitude of long term migration from the hills is due to lack of opportunities, hill agriculture having become by and large an unsustainable enterprise. Industrial activities cannot be undertaken barring household or tiny industrial enterprises, due to lack of infrastructure facilities owing to hill specificities. This has forced hills people to migrate for longer durations in search of jobs and livelihoods. Most migrants flock into cities, both within and outside the state, as these provide better livelihood opportunities. In the three plains districts, the share of long term migration is low. The primary reason for such a low share is that these districts are relatively more developed with much higher per capita incomes and have integrated industrial estates that have created better job opportunities.

Figure: 5.1 Migration Status by Sex (%), 2017




*Source:* UKHDR Survey, 2017

The magnitude of migrating households is the highest for long term migration followed by short term migration and commuting households, in that order. This sequence is true for all income quintile groups barring the case of the lowest income quintile group in urban areas where daily commuting households exceed short term migrating households. There is no perceptible variation among long term migrating households across the social groups. The magnitude of long term migrating households is the highest among all the social groups with little variation. OBCs have a relatively lower share compared to others. SC and OBC households have a higher share of daily commuters, possibly due to their low economic base that dissuades them from long term migration. Also, the high cost of migration entails some foothold in the labour market which in turn requires requisite education and skill levels

Table 5.3 Household Migration Status (excluding residents) (%), 2017

| Area | | Daily commuters | Short term migrant | Long term migrant | Total |
|---|---|---|---|---|---|
| Rural | Hills | 2.0 | 8.1 | 89.9 | 100.0 |
| | Plains | 5.5 | 40.0 | 54.5 | 100.0 |
| | Total | 2.0 | 8.9 | 89.1 | 100.0 |
| Urban | Hills | 3.0 | 17.6 | 79.4 | 100.0 |
| | Plains | 1.9 | 14.8 | 83.3 | 100.0 |
| | Total | 2.6 | 17.0 | 80.4 | 100.0 |
| Total | Hills | 2.0 | 8.8 | 89.2 | 100.0 |
| | Plains | 3.7 | 27.5 | 68.8 | 100.0 |
| | Total | 2.1 | 9.6 | 88.3 | 100.0 |

*Source:* UKHDR Survey, 2017

to compete in the urban labour market. Long term migrating households distinctly dominate in all the income quintile groups, clearly showing a higher probability of gaining employment, better wages and incomes compared to short term and daily commuting households (Table 5.4).

### 5.3.4 Sources of Livelihood

In the Uttarakhand region, dependence on multiple sources of income is a common phenomenon as income from agriculture is seasonal and low, and not enough to provide livelihoods beyond a few months in a year. To study the main sources of livelihoods of households in the state, data was collected across eight categories (Annexure 5.3) for rural as well as urban areas. The dominant source of income for households, in both rural and urban areas was found to be from employment in the private sector, accounting for close to a quarter (23.6 percent) of all the sources. The other predominant sources of livelihood were self-employment in non-agriculture (18.6 percent) and employment in government jobs (14 percent). Close to a fifth of the households in the state in general and in rural areas in particular, derived their incomes from casual labour in non-agricultural activities. Transfer incomes, namely remittances and pensions, contributed to about one tenth of the income of rural and urban households.

From the UKHDR Survey data it can be clearly inferred that there is a huge dependence on regular/wage employment as a source of livelihood for the people of Uttarakhand. While over the years, government jobs have shrunk, people seem to be preferring job opportunities in the private sector rather than engaging in cultivation and other related activities, even though incomes may not be that high from such sources. Across the districts, the situation does not change much and regular/salaried employment (in both private and government jobs) contributes the highest to household incomes. In a majority of the districts, wage/salary employment in the private sector is the highest income generating source for households. In Uttarkashi, a third of the population is self-employed in agriculture at the overall level and in its rural areas. Being a high hill zone district, Uttarkashi produces a

Table: 5.4 Migration Status by Location and Social Groups (%), 2017

| | | Daily commuters | Short term migrant | Long term migrant | Total HH |
|---|---|---|---|---|---|
| Hill/plain | Hills | 2.5 | 9.2 | 88.3 | 3,80,666 |
| | Plains | 3.5 | 25.9 | 70.6 | 72,599 |
| | Total | 2.6 | 11.9 | 85.5 | 4,53,265 |
| Income quantile urban | Quintile 1 | 14.0 | 6.8 | 79.2 | 3,282 |
| | Quintile 2 | 0.0 | 20.5 | 79.5 | 6,693 |
| | Quintile 3 | 2.5 | 26.6 | 70.9 | 8,570 |
| | Quintile 4 | 1.5 | 21.6 | 76.9 | 18,960 |
| | Quintile 5 | 2.5 | 8.8 | 88.7 | 30,837 |
| Income quantile rural | Quintile 1 | 4.3 | 9.6 | 86.1 | 46,034 |
| | Quintile 2 | 3.8 | 11.4 | 84.8 | 60,471 |
| | Quintile 3 | 2.6 | 9.0 | 88.4 | 82,400 |
| | Quintile 4 | 2.2 | 13.6 | 84.2 | 93,611 |
| | Quintile 5 | 1.6 | 11.4 | 87.0 | 1,02,407 |
| Category of caste | Scheduled caste | 4.0 | 11.9 | 84.1 | 78,096 |
| | Scheduled tribe | 0.0 | 14.4 | 85.6 | 12,349 |
| | Other backward classes | 6.3 | 14.5 | 79.2 | 45,719 |
| | General | 1.8 | 11.4 | 86.8 | 3,17,101 |

*Source:* UKHDR Survey, 2017

large variety of fruits (apples, pears, walnuts, plums, citrus etc.) and vegetables (potatoes, peas, tomatoes, French beans, cabbage etc.) providing good cash income for the people.

Districts like Haridwar, Dehradun, Udham Singh Nagar and Nainital provide better self-employment opportunities in non-agricultural activities (a fifth of the households). Close to a third of households in Udham Singh Nagar report incomes from casual labour in non-agriculture. This district is agriculturally prosperous and provides many employment opportunities in the non- agriculture sector, through linkage effects. Transfer income is reported as the highest income contributing source in Rudraprayag district (22 percent).

In rural areas of the state, close to a fourth of households source their livelihoods mainly from employment and salaries earned from the private sector, a fifth from casual labour in non-agriculture and 17.7 percent from employment in agriculture. In the urban areas in contrast, a quarter of households earn their livelihoods from employment in non-agricultural activities, 23.4 percent from private sector jobs and close to a fifth from employment in government jobs. Rural and urban households demonstrate a preference for employment in private sector salaried jobs.

District level disaggregation of the same data shows that in rural parts of the plains districts, casual labour in non-agriculture, self-employment in non-agriculture and private employment are predominantly where people are employed. In rural parts of Haridwar, the proportion of households deriving livelihoods from employment in agriculture is also high (30 percent). Urban parts of the plains districts have households sourcing their livelihoods from employment in private salaried jobs, self-employment in non-agriculture and as casual labour in non-agriculture. Urban Dehradun also has households deriving livelihoods from employment in government jobs. The hills districts report a predominance of household employment in salaried private jobs in rural areas with a tilt more towards salaried employment in government jobs in urban areas. Urban parts of Tehri Garhwal have a little over half the population employed in government jobs indicating that the public sector is an important source of livelihoods in the hills districts of the state. Nainital, which is a mix of hills and plains, reports higher proportions of households deriving their livelihoods from self-employment in non-agriculture and salaried private jobs in both its rural and urban sectors.

## 5.4 Migration into Uttarakhand

### 5.4.1 Patterns

The UKHDR Survey made an attempt to study and understand the origin of in-migrants into the state of Uttarakhand by enquiring about their place of birth. Inter-district migration as well as migration from Uttar Pradesh from Bijnaur, Bareilly, Mau, Pilibhit and Ballia districts has been reported. District wise data for place of origin of in-migrants reveals that basically inter-district migration is taking place. Also, what is interesting is that across the districts, a majority of in-migrants are from rural areas of the same district. Such migration has been the trend in recent years in Uttarakhand where people flock into areas like the district headquarters or nearby urban centres to access better quality education for their children as well as better health care facilities. As a result of such migration, many villages have turned into ghost villages or have been left with the old and the disabled, who are forced to engage in agricultural cultivation for their livelihoods.

The Survey questionnaire also probed inter-state migration to find out about the states from which migrants have moved into Uttarakhand. The states of Uttar Pradesh (42 percent), of which Uttarakhand was once a part prior to year 2000 (Annexure 5.4), Bihar (3 percent), Delhi and West Bengal (1 percent) are where the migrants into Uttarakhand are predominantly hailing from. There are settlers from Nepal (0.4 percent) and Bangladesh (1.3 percent) as well.

Inter-district migration is predominant along with migration from Uttar Pradesh. Haridwar (65 percent), Udham Singh Nagar (56 percent), Nainital and Rudraprayag (42 percent), Champawat and Dehradun (38 percent) have a high proportion of migrants from Uttar Pradesh. Migrants from Bihar

are settled mostly in Rudraprayag (10.5 percent), Dehradun (4.2 percent) and Udham Singh Nagar (3.5 percent). Migrants from Delhi are reported in Uttarkashi, Bageshwar and Champawat. The main motivation for inter-state migration into Uttarakhand could be business and trade. Cross-country migration into Uttarakhand is also reported in the UKHDR Survey. Nepalese migrants are reported predominantly in Bageshwar (7.5 percent), Champawat (4.8 percent), Chamoli (3.9 percent) and TehriGarhwal (3.3 percent). Porous borders and extreme poverty has led to migration into these districts. Cross-border migrants from Bangladesh are found to be settled in Udham Singh Nagar (6.9 percent), which could be because of the better agriculture base in this district and the availability of non-farm job opportunities.

### 5.4.2 The Process of First Migration

To further understand patterns of migration in Uttarakhand, the UKHDR Survey asked the migrating household members about the process of first migration of the migrating member(s). Basically, the idea was to probe whether migration took place alone, with family members, with members of the community or village, with any acquaintances outside of the village community or with middlemen. The Survey found that almost three-fourths of migrants had migrated out alone, across all the districts, with some variation seen across districts. Dehradun (93 percent), Almora (85 percent), Pauri Garhwal (82 percent) and Chamoli (76 percent) reported high rates of individual migration and this could be mainly in search of better livelihoods and income earning opportunities. Close to a fifth of households reported migration with family members which is a more recent trend and could be happening not just for better livelihood opportunities but also for improving access to better quality education and health facilities. Udham Singh Nagar (27.7 percent), Tehri Garhwal (25.4 percent) and Rudraprayag (25.9 percent) were districts where a quarter of the migrating households had migrated with their families (Table 5.5).The proportion of those migrating with either their acquaintances or middlemen was quite small. Contractual migration through middlemen was usually seasonal for cultivation, harvesting or for construction.

## 5.5 Reasons for Migration

### 5.5.1 The Pull and Push Factors

There are various socio-economic and cultural factors that govern the process of out-migration. The most common reasons cited in the literature on migration include low income and unemployment, factors that push out migrants with promises of better livelihood opportunities. Some studies also show that out-migration is caused principally by distress (Deshingkar et. al., 2004) or mass poverty and lack of employment opportunities or a combination of these along with other reasons (Sharma, 1997; Deshingkar et. al., 2004). Some studies indicate that migration is not always motivated by push factors and that people do tend to out-migrate to enhance their income earning opportunities and seize better opportunities at the destination area (Deshingkar and Start, 2003; Deshingkar et. al., 2004). The fact of the matter is that the push and pull factors for migration are not co-terminus, being linked to each other and may occur simultaneously due to the enormous diversity in migration patterns across different regions (Srivastava, 2005; ICIMOD/IFAD, 2010).

The reasons for migration have been broadly categorised into push and pull factors in Lee's (1966) framework. Push factors refer to the state of unemployment and low incomes at the source area while pull factors are linked to better economic prospects, better educational facilities and the availability of jobs at the destination. In Uttarakhand, the reasons for out-migration can primarily be attributed to a combination of push factors like lack of employment, low income, subsistence agriculture and pull factors like better opportunities for employment, ability to successfully get employment and children's education etc. The UKHDR Survey conclusively identifies push factors such as employment search, social / political problems, displacement by development projects, health reasons etc., as the possible reasons for out migration. The pull factors include better employment prospects, being able to secure employment successfully, business, education/ training opportunities etc.

The UKHDR Survey highlights three employment related reasons that encourage

Table 5.5 Process of Migration (First Migration) (%), 2017

| District | Migrated alone | With family members | With members of the community/ village | With acquain-tances / friends (other than community/ village) | Middleman/ contractor | Any other | Total |
|---|---|---|---|---|---|---|---|
| Almora | 84.4 | 14.2 | 1.1 | 0.3 | 0.0 | 0.0 | 100.0 |
| Bageshwar | 70.5 | 13.7 | 10.7 | 4.5 | 0.0 | 0.6 | 100.0 |
| Chamoli | 75.5 | 18.9 | 4.4 | 1.0 | 0.0 | 0.0 | 100.0 |
| Champawat | 68.7 | 12.3 | 13.7 | 5.0 | 0.0 | 0.3 | 100.0 |
| Dehradun | 92.7 | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Pauri Garhwal | 82.3 | 12.3 | 3.2 | 1.1 | 1.1 | 0.0 | 100.0 |
| Haridwar | 77.6 | 12.8 | 3.2 | 6.4 | 0.0 | 0.0 | 100.0 |
| Nainital | 70.3 | 20.1 | 4.5 | 1.2 | 0.0 | 3.9 | 100.0 |
| Pithoragarh | 67.6 | 21.0 | 8.8 | 2.6 | 0.0 | 0.0 | 100.0 |
| Rudraprayag | 46.3 | 25.9 | 23.1 | 3.7 | 0.0 | 1.0 | 100.0 |
| Tehri Garhwal | 62.1 | 25.4 | 7.6 | 4.9 | 0.0 | 0.0 | 100.0 |
| Udham Singh Nagar | 69.8 | 27.7 | 0.0 | 2.5 | 0.0 | 0.0 | 100.0 |
| Uttarkashi | 65.9 | 18.8 | 8.8 | 5.3 | 0.4 | 0.8 | 100.0 |
| **Uttarakhand** | **72.1** | **18.0** | **6.6** | **2.6** | **0.1** | **0.6** | **100.0** |

*Source:* UKHDR Survey, 2017

out migration in Uttarakhand viz; (i) search for employment (push factor), (ii) availability of better employment opportunities (pull factor) and (iii) securing employment at the place of migration. Amongst these, the search for employment emerges as the major reason for out-migration (39 percent households), clearly pointing towards shrinking job opportunities in the state that are forcing people to move out under employment duress (Figure 5.2). Across the districts, there exist variations in the intensity of 'search for jobs/ employment' by the migrating households. In the hills districts of Almora (72 percent), Champawat (51 percent) and TehriGarhwal (44 percent), search for employment appears to be the predominant and decisive motivation for households to migrate. The second important reason for out-migration is 'got the employment' viz., the ability to secure employment and get absorbed in the work force, in turn accounting for about one-third of the out-migration in the state. The pull factor of successfully getting jobs has led to high rates of out-migration especially from the two plains districts of Dehradun (68 percent) and Haridwar (61 percent) and the three hills districts of Pauri Garhwal (44 percent), Pithoragarh (43 percent) and Chamoli (42 percent). The third predominant reason cited by households for migrating is the availability of better employment opportunities which is a strong pull factor in the hills districts of Rudraprayag (34 percent), Champawat (24 percent), Tehri Garhwal (20 percent) and Bageshwar (17 percent).

Other than these three employment related reasons, migration for education/training is cited as a push factor by close to a tenth of households in the state. At the district level, this is an important push factor for households in Uttarkashi (28.1 percent), Nainital (15.2 percent) and a tenth of households in Bageshwar, Chamoli and Udham Singh Nagar. The other reasons for migration such as business, transfer of service, proximity to place of work, social/ political problems, displacement by development projects, acquisition of own house,

health care, post-retirement, marriage etc., are reported to have a very small degree of influence on migration. Clearly, push factors emerge far stronger as the predominant causes for out migration of households in Uttarakhand.

### 5.5.2 Place of Migration (Intra-district, Inter-district, Inter-state)

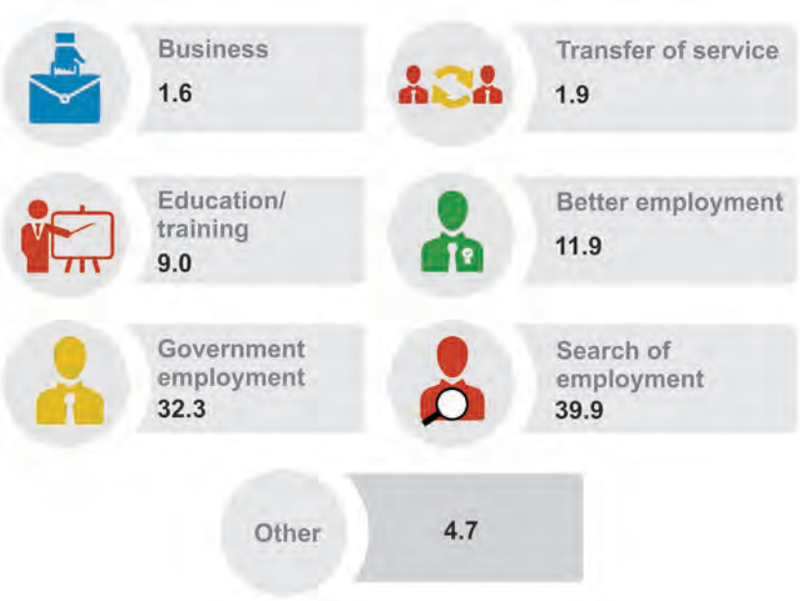
Having understood the factors that motivate households to migrate, it then becomes important to study where the populace is migrating to. The UKHDR Survey did comprehensive canvassing to understand the destination of the migrating households including intra district migration (rural/urban), inter-district migration (rural/urban) intra state migration (rural/urban) and migration outside the country. The data from the Survey clearly shows that households have migrated in large proportions (63.4 percent) from Uttarakhand to urban areas of other states, showcasing a predominant trend of inter-state migration (Annexure 5.5). With the exception of Uttarkashi (28.2 percent), more than half the migrating households have moved to other states with the hills districts of Almora (80 percent), Bageshwar (77.7 percent) and Pauri Garhwal (76.1 percent) and the plains district of Dehradun (77.6 percent) topping the list. Inter-district migration to rural areas is the next choice with a fifth of households reporting the same. Uttarkashi (36.7 percent) had the highest proportion of such households followed by Chamoli, Nainital, Pithoragarh, Rudraprayag and Tehri Garhwal (a fifth of households). People who could not afford to move outside the district or state tended to migrate to the district headquarters or urban centres in the same district such as the tehsil/ block headquarters. They constituted about 7 percent of the migrating households. In Uttarkashi, around a fifth of the households reported migrating to urban centres within the district.

A possible reason for the gradual shift in migrant preference to urban centres within the districts could be the availability of better job opportunities combined with better educational and health care facilities. Many of these district centres are developed in terms of good connectivity, better educational and health care facilities, markets, etc.

## 5.6 Work Status of Migrants

The status of work of current migrants at the destination was enquired from the household members. More than half the migrants were found

Figure: 5.2 Reasons for Migration (%), 2017




*Source:* UKHDR Survey, 2017

to be working as regular/salaried wage employees in the private sector (57 percent) (Table 5.6). Such a scenario is seen in almost all the districts where migrants are getting salaried employment in private sector jobs, the highest proportion being in Almora (76.8 percent). The exceptions were the plains districts of Dehradun (55.8 percent) and Haridwar (44 percent) where migrants were employed as salaried government employees. While overall, employment in salaried jobs in the private sector is the trend for the migrating populace, in some districts it is predominantly public sector jobs that absorb migrants. Close to a tenth of migrants were students with Nainital (19.7 percent) and Uttarkashi (17.2 percent) having the highest proportions of the same.

## 5.7 Migration: The Linkages

Migrants tend to maintain linkages with the family members left behind as part of an implicit understanding between them. Such an association generates a variety of socio-economic linkages between the source and the destination areas of the migrants. These linkages in turn depend upon factors such as the nature and pattern of migration, distance, emotional attachment to kith and kin, personal networks, societal norms and relations, labour market conditions at the destination etc. In the literature on migration, various metaphors have been used for such interconnections such as threads, chains, anchors and umbilical links along with different forms of communication links (Werbner 1990, cited from Christopher and Haan, 1997).

### 5.7.1. Remittances

Remittances as transfer incomes play an important role in the survival of the individual household as well as the local/village economy. They help the households in meeting their daily consumption needs, investment goods expenditures as well as education and health related expenses. The literature on migration argues that remittances are an important means for poor households to diversify their incomes and ensure their survival (Harris 2005, Ellis and Harris 2004).

In the UKHDR Survey, out of the total migrants reported, three fourths (75.5 percent) remitted money to their place of origin (Figure 5.3), pointing clearly towards a huge dependence on remittance incomes. In the hills districts of Champawat, Chamoli, and Rudraprayag, as well as the plains districts of Dehradun and Haridwar, this proportion was quite high (80 percent or more).

### 5.7.2 Remittance Amounts

Remittance income forms an important source of livelihoods for poor households, specially where there is no alternate source of household income. In the hills districts, the phenomenon of household dependence on remittances is referred to as the 'money order economy'. Data from the UKHDR Survey reveals that in Uttarakhand, remittance amounts vary from anywhere between as high as a lakh of rupees to as low as 5000 rupees a year. Almost one fourth (23.5 percent) migrants remitted to Rs.20,000-50,000 during the reference year preceding the date of the Survey and close to a fifth of migrants remitted Rs.1,00,000 and above during the same period (Annexure 5.6). Variations in the amount remitted is discernible across the districts. Highest remittances in the rupees one lakh plus range were reported in over one third households in the districts of Pithoragarh and Udham Singh Nagar followed by Dehradun (29.4 percent), Nainital (29.3 percent) and Rudraprayag (26.1 percent). While Uttarkashi (a fifth of households), Almora and Tehri Garhwal (a tenth of households) each were at the other end of the spectrum with remittances in the Rs. 5000 range. Remittances across the districts were observed to be predominantly in the Rs. 20,000 to Rs. 50,000 range, reflecting the remittance capacity of migrants.

Average remittances from long-term migrants was at Rs. 81,823 per year. Mean remittances from the plains areas were higher (Rs.1,11,360) than from the hills areas (Rs.76,742), (45 per cent). Remittances from the bottom quintile income groups were the lowest in both rural and urban areas, although rural areas reported a slight edge over urban areas in the same. When studied by income quartiles, as expected, the amount of

Table: 5.6 Work Status of Migrants (%) (current migration), 2017

| District | Worked in HH enterprise (self- employed) own account worker | Employer | Worked as helper in HH enterprise (unpaid family worker) | Worked as regular salaried/ wage employee (govern-ment) | Worked as regular salaried/ wage employee (private) | Worked as casual wage labour in public works | Worked as casual wage labour (agriculture) | Worked as casual wage labour (non- agriculture) | Student | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Almora | 1.4 | 0.0 | 1.6 | 10.8 | 76.8 | 0.8 | 0.0 | 1.9 | 6.7 | 100.0 |
| Bageshwar | 1.5 | 0.6 | 0.3 | 24.3 | 63.4 | 0.3 | 0.3 | 0.0 | 9.3 | 100.0 |
| Chamoli | 2.2 | 0.6 | 0.3 | 26.4 | 63.7 | 0.8 | 0.0 | 1.7 | 4.3 | 100.0 |
| Champawat | 1.4 | 0.0 | 0.0 | 21.5 | 69.8 | 0.6 | 0.0 | 0.6 | 6.1 | 100.0 |
| Dehradun | 5.7 | 0.0 | 0.0 | 55.8 | 36.1 | 0.0 | 0.0 | 0.0 | 2.4 | 100.0 |
| Pauri Garhwal | 0.5 | 0.0 | 0.0 | 33.6 | 63.2 | 0.0 | 0.0 | 0.0 | 2.7 | 100.0 |
| Haridwar | 6.9 | 8.6 | 1.6 | 44.0 | 30.9 | 0.0 | 0.0 | 8.0 | 0.0 | 100.0 |
| Nainital | 5.3 | 1.8 | 2.3 | 25.9 | 45.0 | 0.0 | 0.0 | 0.0 | 19.7 | 100.0 |
| Pithoragarh | 0.9 | 0.0 | 1.3 | 33.7 | 47.8 | 0.3 | 0.6 | 0.0 | 15.4 | 100.0 |
| Rudraprayag | 2.6 | 0.7 | 0.8 | 19.2 | 66.9 | 1.4 | 0.0 | 0.8 | 7.6 | 100.0 |
| Tehri Garhwal | 4.6 | 0.4 | 1.6 | 19.7 | 69.8 | 0.0 | 0.4 | 0.0 | 3.5 | 100.0 |
| Udham Singh Nagar | 14.8 | 0.0 | 5.0 | 30.1 | 34.9 | 0.0 | 5.1 | 0.0 | 10.1 | 100.0 |
| Uttarkashi | 17.4 | 4.9 | 1.3 | 29.3 | 27.7 | 0.2 | 0.5 | 1.5 | 17.2 | 100.0 |
| Total | 4.0 | 1.1 | 1.2 | 26.5 | 57.0 | 0.4 | 0.4 | 1.1 | 8.3 | 100.0 |

*Source:* UKHDR Survey, 2017

remittances to the households increased from the lowest to the highest income groups (Table 5.8) and this pattern again held for both rural and urban areas. Remittances disaggregated by social groups showed that scheduled castes (SCs) remitted incomes in lowest proportions as compared to scheduled tribes (STs) and other backward classes (OBCs). This appears to be quite plausible since the SCs, STs and OBCs are the economically weaker sections of society and hence their remittance capacities could be lower.

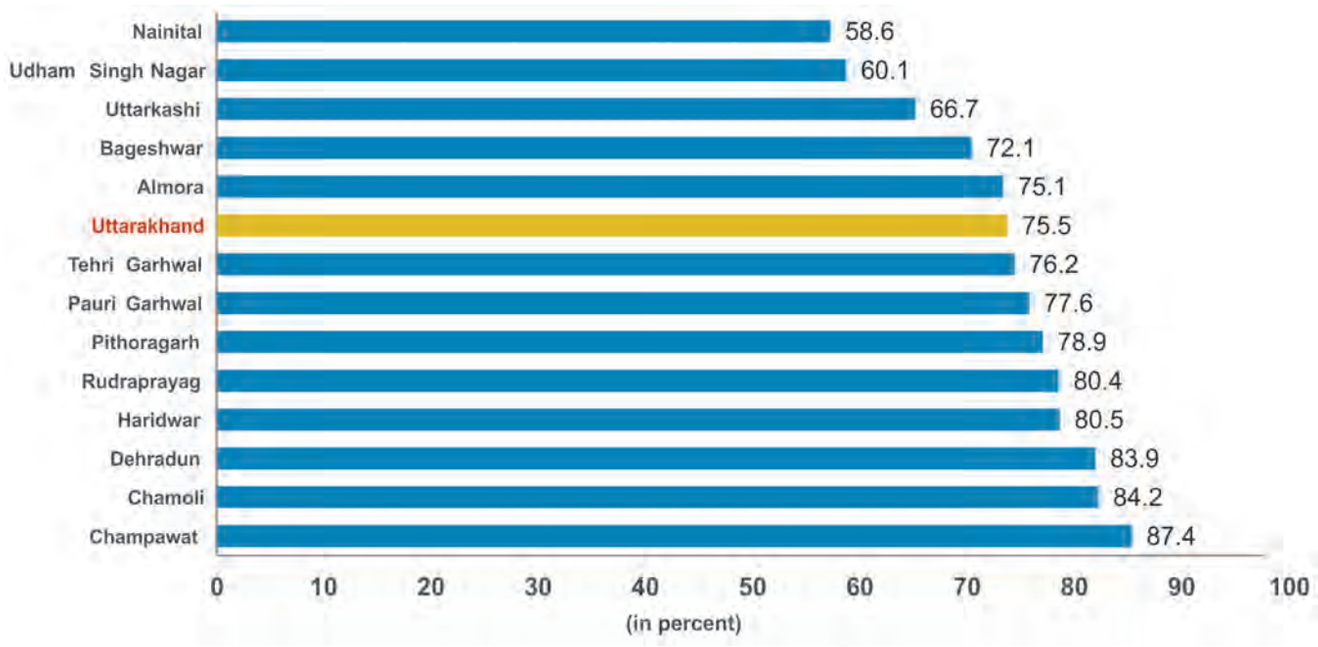
### 5.7.3. Frequency of Remittances

The frequency of remittances by those who have migrated depends largely on the average size of incomes and the extent of dependence on remittances by the households. The Survey finds the most common frequency of remittances to be on a monthly basis (42 percent) with quarterly remittances coming in next, accounting for about one third (32.5 percent) of households receiving the same. Yearly and any time remittances had much lesser frequency (Table 5.9). When studied at the district level, more than half the households in the hills districts of Chamoli (61.8 percent), Pithoragarh (65.4 percent) and Rudraprayag (63.3 percent) and in the plains district of Udham Singh Nagar (52.0 percent) received monthly remittances. Quarterly remittances were more the norm in the districts of Pauri Garhwal (44.3 percent), Tehri Garhwal (43.7 percent) and the plains district of Haridwar (50.3 percent). Bageshwar reported highest annual remittances received by households in the state (18 percent).

### 5.7.4. Frequency of Visits

Frequency of personal visits by migrating individuals or families is an important communication link with households as well as their place of origin. Different forms of communication links include writing letters, telephoning, sending messages in person and personal visits. The UKHDR Survey investigated personal visits of migrants during 365 days prior to the enquiry. The data showed a strong linkage of migrants to their native place through regular visits. The highest frequency of visits was twice a year with one third migrants (32.6 percent) visiting their native places. A little over one fifth (21.7 percent) of migrants visited their naïve place in the state once

Figure: 5.3 Shares of Remitters (%), 2017




*Source:* UKHDR Survey, 2017

Table: 5.7 Mean Remittances per Year (Rs.), 2017

| | | Amount of remittance sent during the last 365 days (Rs.) |
|---|---|---|
| Hill/plain | Hill | 76,742 |
| | Plain | 1,11,360 |
| Income quantile rural | Quantile 1 | 42,252 |
| | Quantile 2 | 51,410 |
| | Quantile 3 | 58,506 |
| | Quantile 4 | 76,870 |
| | Quantile 5 | 1,16,603 |
| Income quartile urban | Quantile 1 | 35,243 |
| | Quantile 2 | 54,113 |
| | Quantile 3 | 72,843 |
| | Quantile 4 | 1,54,205 |
| | Quantile 5 | 1,52,386 |
| Category of caste | Scheduled caste | 60,917 |
| | Scheduled tribe | 73,902 |
| | Other backward classes | 81,773 |
| | General | 87,370 |
| | Total | 81,823 |

*Source:* UKHDR Survey, 2017

a year while 194 percent households did so thrice a year (Table 5.10). Only a small minority of migrants (3.5 percent) did not visit their native place at all.

At the district level, data on frequency of visits to the native place by the migrants revealed high frequency of once a year in the four hills districts of Bageshwar (40 percent), Rudraprayag (36.3 percent), Pithoragarh (32 percent) and Chamoli (31.2 percent). Approximately half the migrants made a visit twice a year to their native place in the hills district of Champawat, close to a third did so in the hills districts of Chamoli (34.5 percent) and Rudraprayag (38 percent) and a third in the plains district of Haridwar (38.4 percent). Migrants visiting thrice a year were much lesser in proportion with approximately a third doing so in the plains district of Haridwar (30.7 percent), a quarter in the hills of Tehri Garhwal (25.2 percent) and the plains of Dehradun (24.4 percent) and Udham Singh Nagar (22.4 percent). Such visits by migrants to their native place, clearly establishes strong social and economic transaction links between them and their place of origin.

Out-migration has obvious implications for labour markets, agriculture, and gender relations. Out-migration from the hill regions results in a high sex ratio of women to men and the tightening of local labour markets, both of which eventually lead to high female drudgery. Even men, whose main activity is cultivation, are relatively less burdened than their female counterparts, as they perform only specific tasks of cultivation such as ploughing, sowing, hoeing, ditching and threshing. Gender inequality is not only related to work but also to education, health, other productive resources and participation in economic activities.

Table: 5.8 Frequency of Remittances (%), 2017

| Districts | Monthly | Quarterly | Half yearly | Yearly | Any time of the year | Any other | Total |
|---|---|---|---|---|---|---|---|
| Almora | 33.8 | 29.8 | 29.3 | 4.6 | 1.1 | 1.4 | 100.0 |
| Bageshwar | 10.1 | 31.5 | 33.1 | 18.0 | 2.5 | 4.8 | 100.0 |
| Chamoli | 61.8 | 29.7 | 4.3 | 3.3 | 0.0 | 1.0 | 100.0 |
| Champawat | 39.9 | 29.6 | 27.6 | 1.9 | 1.0 | 0.0 | 100.0 |
| Dehradun | 46.8 | 29.4 | 20.1 | 3.8 | 0.0 | 0.0 | 100.0 |
| Pauri Garhwal | 26.2 | 44.3 | 20.8 | 5.2 | 2.8 | 0.7 | 100.0 |
| Haridwar | 35.6 | 50.3 | 6.7 | 0.0 | 2.0 | 5.4 | 100.0 |
| Nainital | 43.6 | 38.8 | 12.0 | 2.0 | 1.8 | 1.8 | 100.0 |
| Pithoragarh | 65.4 | 14.5 | 14.8 | 4.8 | 0.0 | 0.4 | 100.0 |
| Rudraprayag | 63.3 | 27.3 | 6.1 | 2.3 | 0.3 | 0.8 | 100.0 |
| Tehri Garhwal | 17.0 | 43.7 | 31.2 | 2.0 | 2.0 | 4.0 | 100.0 |
| Udham Singh Nagar | 52.0 | 31.8 | 16.2 | 0.0 | 0.0 | 0.0 | 100.0 |
| Uttarkashi | 44.4 | 24.9 | 17.6 | 7.7 | 2.0 | 2.7 | 100.0 |
| **Total** | **42.0** | **32.5** | **18.6** | **4.0** | **1.2** | **1.7** | **100.0** |

*Source:* UKHDR Survey, 2017

The draining out of young people has cascading socio-economic effects on the migrating family and the local labour market. To some extent, the shortage of labour is offset by women putting in long hours of work, thereby further increasing their drudgery and by children helping in cultivation and animal caring activities. Shortage of labour has adverse effects on agricultural productivity and gets manifested in the labour market through increased wage rates, which are generally higher than the market determined wage rate. High amounts of drudgery, that provide little or no opportunity for upward mobility and skill formation, raise issues of another kind (Awasthi and Dev Nathan, 2016).

Out-migration in high magnitudes from the hills regions has implications for urban centres/ locations in terms of the pressures that it exerts on scarce social and economic infrastructure and the job market. More often, migrants have to face stiff competition in the urban labour market, primarily because of the lack of relevant skills and education, which is typically reflected in low wage/earnings attached to their jobs.

## 5.8. Summing Up

It is widely acknowledged that individuals and households derive their incomes by engaging in diverse and multiple activities. Migration is definitely one of the important livelihood sources for the populace, more so in the hills districts of Uttarakhand. It is a conscious household strategy to enhance incomes as a voluntary response to various socio-economic factors. Migration of individuals and households has implications for both the source and destination areas. At the source areas specially, it depletes human resources and in particular, the able bodied stock, thereby turning villages into empty or ghost villages. Nearly 8 per cent of the sample population in Uttarakhand was recorded as migrants and in the hills districts it was higher (10.7 per cent). At the household level, the extent of migrating households was around 28 per cent and in the hills districts it was significantly higher (38.5 per cent) corroborating the high levels of out migration from the hills districts of the state.

Regular wage/salary employment in the private sector is reported as the dominant source of incomes of households (24 percent). Self-

Table: 5.9 Frequency to visit Native Place in last 365 days (%), 2017

| District | Nil | 1 | 2 | 3 | 4 | 5 | Above 5 | Total |
|---|---|---|---|---|---|---|---|---|
| Almora | 1.2 | 15.6 | 34.9 | 15.4 | 3.0 | 0.8 | 29.1 | 100.0 |
| Bageshwar | 3.1 | 40.0 | 23.5 | 22.7 | 5.6 | 2.5 | 2.6 | 100.0 |
| Chamoli | 1.8 | 31.2 | 34.5 | 11.6 | 11.9 | 3.3 | 5.7 | 100.0 |
| Champawat | 2.1 | 20.7 | 54.7 | 15.4 | 4.1 | 1.2 | 1.8 | 100.0 |
| Dehradun | 5.2 | 3.3 | 44.3 | 24.4 | 5.9 | 3.3 | 13.6 | 100.0 |
| Pauri Garhwal | 3.9 | 16.7 | 27.0 | 31.4 | 8.4 | 7.4 | 5.2 | 100.0 |
| Haridwar | 2.2 | 9.2 | 38.4 | 30.7 | 14.1 | 2.2 | 3.2 | 100.0 |
| Nainital | 2.6 | 22.2 | 31.1 | 20.6 | 8.1 | 4.3 | 11.1 | 100.0 |
| Pithoragarh | 0.2 | 32.0 | 26.6 | 10.5 | 14.9 | 3.5 | 12.3 | 100.0 |
| Rudraprayag | 10.5 | 36.3 | 38.0 | 8.6 | 2.8 | 0.6 | 3.2 | 100.0 |
| Tehri Garhwal | 6.9 | 13.9 | 29.1 | 25.2 | 14.8 | 4.3 | 5.8 | 100.0 |
| Udham Singh Nagar | 4.8 | 19.9 | 19.9 | 25.5 | 22.4 | 2.6 | 4.9 | 100.0 |
| Uttarkashi | 5.8 | 13.3 | 23.7 | 24.4 | 13.3 | 3.5 | 16.0 | 100.0 |
| **Total** | **3.6** | **21.7** | **32.6** | **19.4** | **9.5** | **3.0** | **10.2** | **100.0** |

*Source:* UKHDR Survey, 2017

employment in non-agricultural activities, casual labour in non-agriculture and earnings from government jobs are the other important sources of household income.

Out-migration in Uttarakhand can primarily be attributed to a combination of push and pull factors like lack of employment, low income, subsistence agriculture, better opportunities for employment and children's education etc. 'Search for employment' is the single major reason for outmigration, clearly showcasing shrinking job opportunities in the state. This factor shows large inter-district variations as well. Remittances play an important role for individual households as well as for the village economy and they form one of the main sources of livelihoods for those who largely depend on such transfer incomes.

Migration is a conspicuous phenomenon resulting primarily due to low economic base as well as low employment and earning opportunities. From a policy point of view, addressing migration is a great challenge. Enhancing the economic base and livelihood opportunities by focusing on niche activities, in which the region has comparative advantages, like horticulture, tourism and amenity services and micro hydel plants coupled with improved provisioning of educational and health infrastructure and services can eventually help restrict out-migration from Uttarakhand.

# 6
# Education

# 6 Education

## 6.1 Introduction

Education is an important tool for fostering human development. It enriches our minds and gives individuals the capabilities to enhance and improve their own human resources so that they can attain improved well-being and livelihoods. Education, through its effect of enhancing individual capabilities, raises the income earning capabilities of people, makes them aware of their rights and empowers them to demand what is due to them. Education generates many positive externalities, thereby enhancing the welfare of society (Tilak, 2008). It is also known to have positive implications for the welfare of future generations through intergenerational effects, with better educated parents having healthier and more educated children (Dreze and Sen, 2002).

The Sustainable Development Goal 4, emphasizes the need for quality education, one that is inclusive and equitable and that promotes life-long learning opportunities for all, by 2030. The importance of education cannot be emphasized enough in any study of human development. In this Uttarakhand Human Development Report we study and analyse the issues around education including educational attainments, infrastructure, policy imperatives, shortcomings at different levels of education and how the gaps can be effectively tackled and addressed.

## 6.2 Status of Education

### 6.2.1 General Education Level

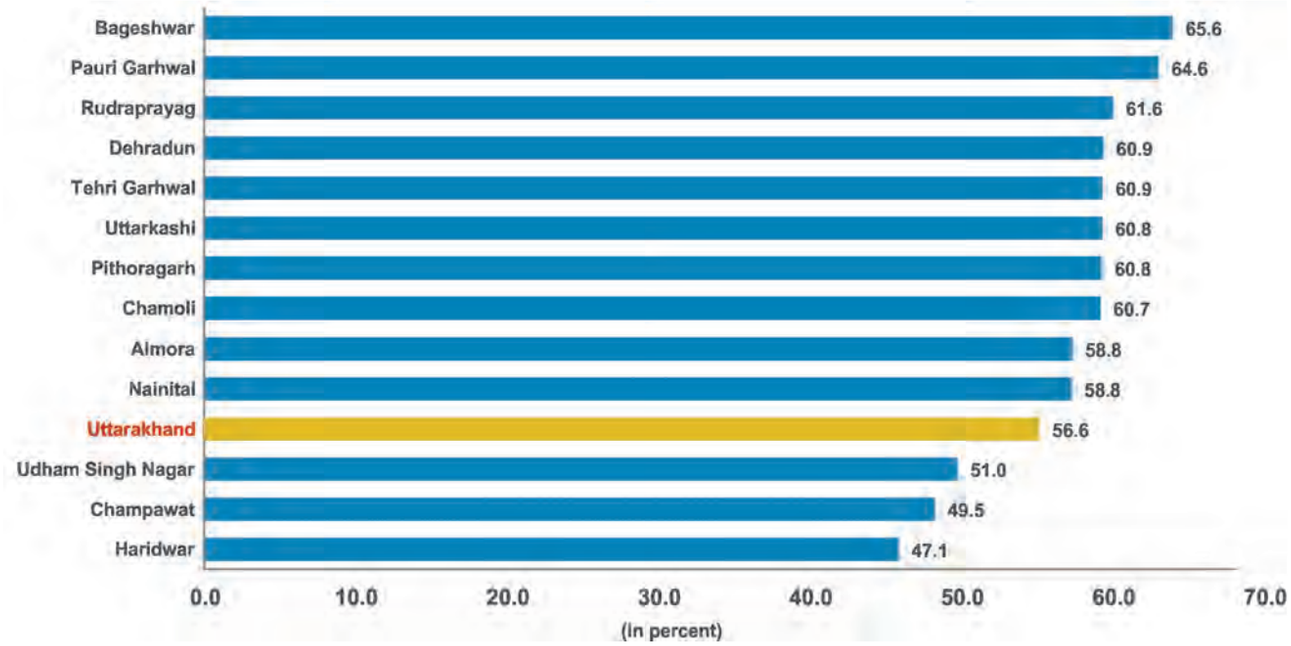
The state of Uttarakhand is considered to be an education hub, with a number of educational institutions located mainly in the plains, including some of the premier institutes of education in the country, such as Indian Institute of Technology (IIT) at Roorkee, and the Doon School.

The UKHDR Survey collected data on various education related indicators. The Survey finds that approximately 56.6 percent of the 15 years and above population in the state were educated till the secondary level and above[1] (Annexure 6.1). This contrasts with Census based estimates of 42.5 percent (15-59 of years) of the population having education till secondary level and above [2]. However, 43.3 percent of the populace, comprising illiterates (15.3 percent) and those who have completed primary or upper primary levels (28 percent) was still very poorly educated.

Based on the Survey findings, district wise variations exist in the levels of education of the adult population (Figure 6.1). In general, many hills districts have higher educational attainments as compared to the plains districts. A little over half the adult population in Uttarakhand (56 percent) was educated with secondary or above level of education while almost all the hills districts had a higher proportion (60 percent) of the adult population having completed secondary level or above education. Champawat was the only exception

1 Including diploma level, the share of which was very small at 1.5 percent of the total
2 Economic Survey 2017-18, Government of Uttarakhand

Figure 6.1 Adult Population (15+ years) with Secondary and Above Level of Education (%), 2017

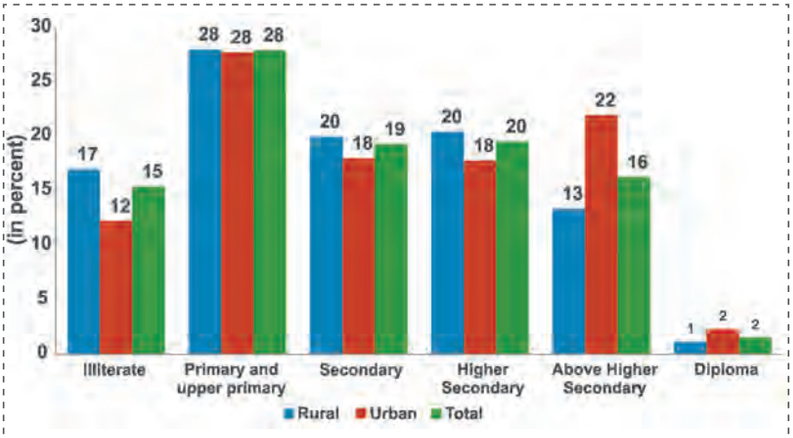



*Source:* UKHDR Survey, 2017
*Note:* Secondary and above level of education includes Secondary, Higher Secondary, Graduation, Post- Graduation and Professional education

(49.5 percent). In the plains, only Dehradun posted a high proportion of populace with secondary and above levels of education (61 percent). Haridwar and Udham Singh Nagar had corresponding figures of 47 percent and 51 percent respectively. Tehri Garhwal, a hills district, had the highest proportion of adults completing higher secondary education (27.2 percent) while the hills district of Uttarkashi had the highest proportion of adults completing higher education (21.6 percent). (Annexure 6.1)It is likely that youth in the plains opt out of education in favour of employment because job opportunities for the youth are available to a greater extent in the plains compared to the hills regions of the state.

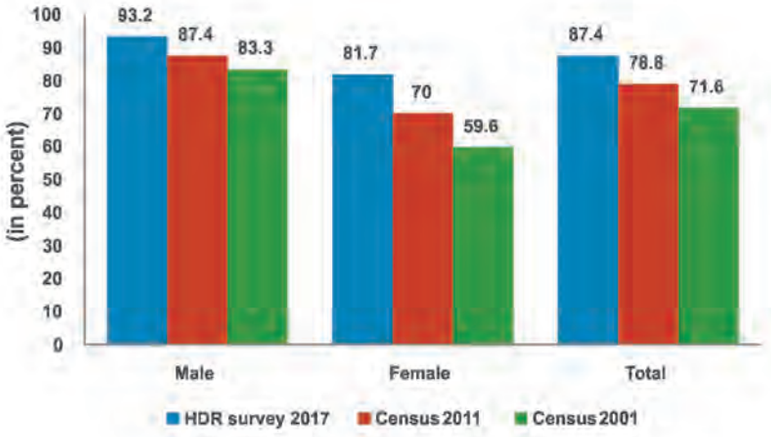
At the disaggregated level of rural and urban areas, the difference between the proportion of adult population that has completed primary and upper primary levels of education in Uttarakhand is very marginal (0.28 percentage points) (Figure 6.2). For the secondary level, the rural-urban gap is 1.99 percentage points and for the higher secondary level it is 2.65 percentage points. In the primary, upper primary, secondary and higher secondary levels, rural areas report better education levels for the adult populace as compared to urban areas. In higher education, there is an urban bias of 8.6 percentage points. The proportions of illiterates are higher in rural areas (17 percent) vis-à-vis the urban areas (12.2 percent).

Figure 6.2 Population (aged 15 years and above) Across Education Levels by Area (%), 2017




*Source:* UKHDR Survey, 2017

Figure 6.3: Literacy Rates (7+years) (%), 2017




*Source:* UKHDR Survey, 2017

## 6.2.2 The Literacy Rate

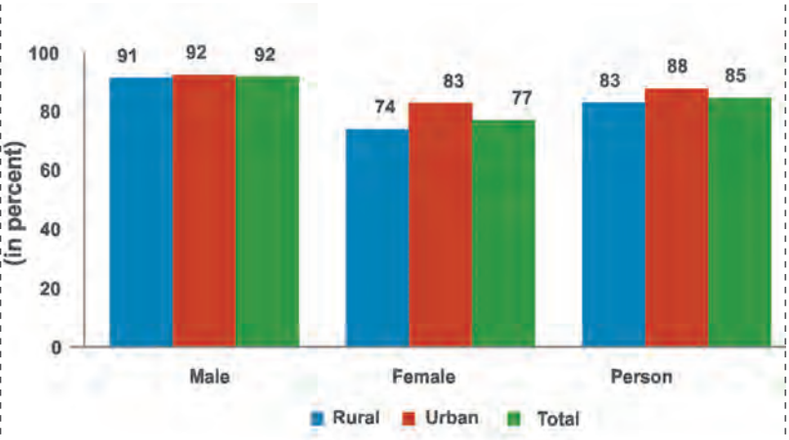
Literacy is essential for eradicating poverty, reducing child mortality, having a low fertility rate, achieving gender equity and ensuring sustainable development, peace and democracy. The literacy rate can be low in absolute terms because of the stock of existing illiterates. According to the Census 2011 estimates, the literacy rate (7 plus age group) in the state was 78.8 percent, 4.76 percentage points higher than the national average at 74.0 percent. The estimates of the UKHDR Survey also peg the literacy rate for the state at 87.4 percent (Figure 6.3), 93.2 percent for males and 81.7 percent for females, with a gender gap in literacy of 11.5 percentage points.

The adult literacy rate (15+ population) was 84.6 percent (91.8 percent for males and 77 percent for females) with a female disadvantage of 15 percentage points (Annexure 6.2). The gender gap in adult literacy in Uttarakhand was nearly double in rural areas (17.49 percentage points) compared to urban areas (9.59 percentage points). District level data for adult literacy rates reveal the hills districts of Pithoragarh, Pauri Garhwal and Bageshwar with the highest adult literacy rates in the state (above 87 percent). Dehradun had the highest adult literacy rate amongst the three plains districts at 86.4 percent.

The gender gap in adult literacy was the highest in Uttarkashi, Champawat and Tehri Garhwal. Thus, it is interesting to note that while three of the hills districts had the highest adult literacy rates in the state; three other hills districts also had the highest gender gap in the adult literacy rate.

The youth literacy rate (15 to 24 years) was close to hundred percent at (98.8 percent) with no significant gender gap (Figure 6.4, and Annexure 6.3). The UKHDR Survey does not show much district-wise variations in the youth literacy rate. Among the hills districts, Baleshwar (99.86), Pithoragarh (99.83) and Bageshwar (99.9) had the highest youth literacy rates in the state.

Figure 6.4: Adult Literacy Rates (%), 2017



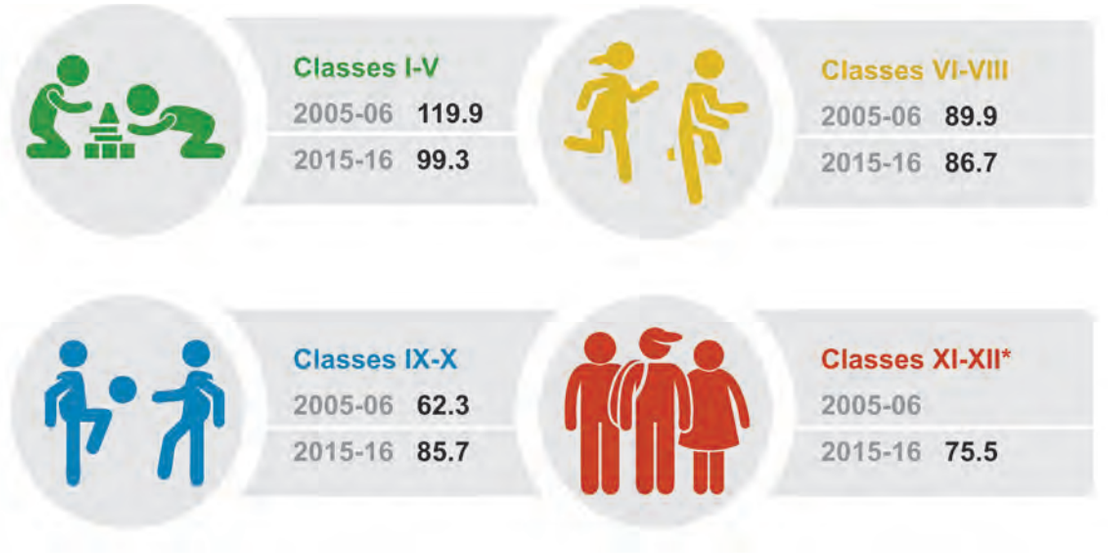

*Source:* UKHDR Survey, 2017

## 6.2.3. Enrolment

### *Gross Enrolment Ratio*

The Gross Enrolment Ratio (GER) is defined as the total enrolment in classes or grades at a specific level of education, regardless of age, expressed as a percentage of the school-age population corresponding to the same level of education in a given school year. By definition, the GER could be greater than 100 since overage children are also often enrolled. Secondary data show that the GER declines steadily as we move up the stages of school education in Uttarakhand (Figure 6.5). At the primary

Figure 6.5: Gross Enrollment Ratio at Selected Levels of Education (%), 2018




*Source:* DISE various rounds
* Figures for 2005-06 for school level XI-XII is not available

level, the GER for the state was close to 100 percent and at the upper primary level, it declined to 86.7 percent in 2015-16. At the secondary level, there was a slight drop in the GER to 85.7 percent, which dropped sharply to 75.5 percent at the higher secondary level.

Over time, the GER has become more age appropriate at the primary level, but it has declined at the upper primary level from 89.9 percent to 86.7 percent. This reflects the problem of lower enrolment as well as retention of children in school. The problem of children dropping out of school for various reasons is discussed in detail in section 6.2.4. Efforts to achieve 100 percent enrolments coupled with retention and educational achievements in the schooling system are an important human development imperative for Uttarakhand.

### *Age Specific Enrolment Rate*

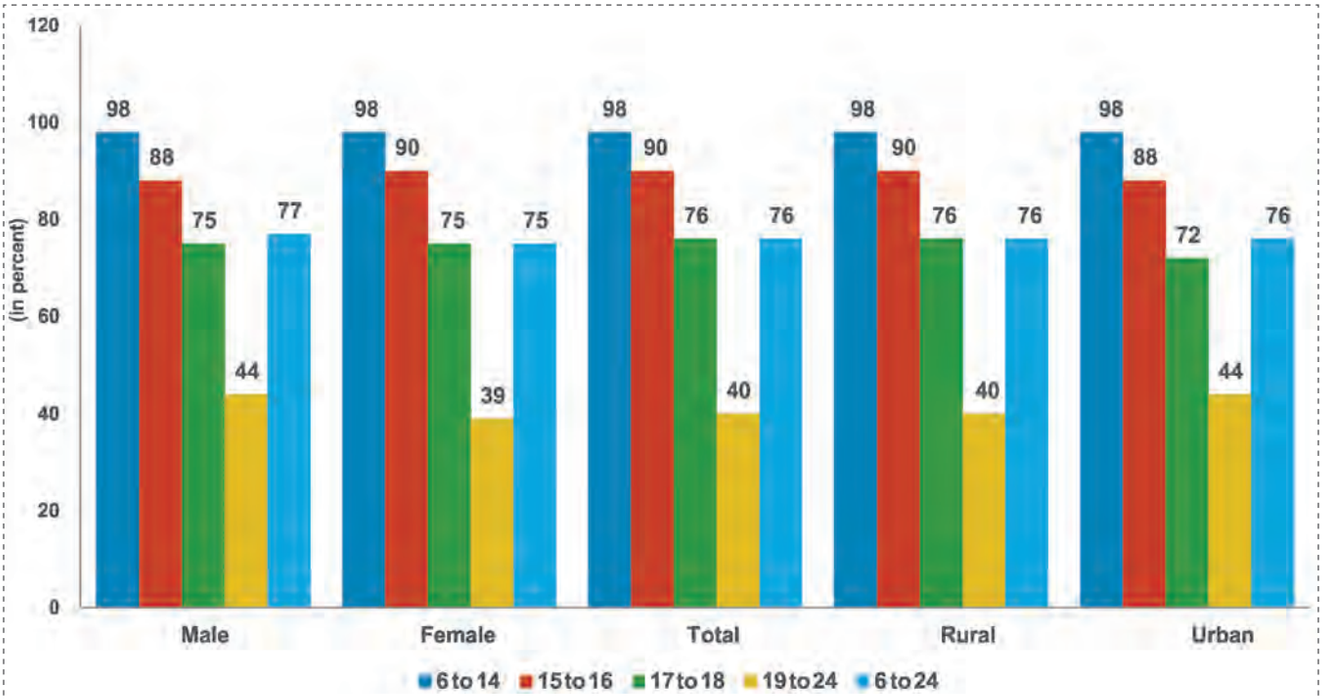
Age specific enrolment rates from the UKHDR Survey reveal them to be the highest for the 6-14 years age group (97.7 percent), there being no gender bias in this indicator of schooling (Figure 6.6). Thus, the goal of universal enrolment for this age group appears within reach, given the right policy impetus. The enrolment rates drop as we move to the higher age brackets: 89.3 percent for the 15-16 age group; 74.7 percent for the 17-18 age group and 41.5 percent for the 19-24 age group. Even though in the lower age groups, higher proportions of girls are enrolled in school, their enrolments decline with increasing age. It is also a serious concern that in the age groups 17-18 years and 19-24 years, only 75 per cent and 39 per cent of girls respectively were reported as pursuing some education.

District wise data on age specific enrolment rates indicate that in the 6-14 age group almost all districts had enrolment rates above 97 percent with the exceptions of the plains districts of Haridwar (95.5 percent) and Udham Singh Nagar (95.1 percent) and it is in these districts where enrolments in higher age groups was also lower than the state average as well as lower than for all the other districts (Annexure 6.4). Across all the districts, enrolments decline when we move from the lower to the higher age brackets, with the maximum drop seen in the 19-24 age group.

## 6.2.4 Out of School Children

Household level information on children not currently attending school provides insights on the proportion of out of school children. Of the total children in the 6 to 17 age group, 5.2 percent were found to be out of school (UKHDR Survey). Among those children, 17.2 percent had never enrolled in school; almost 79 percent of those who were enrolled had dropped out of school in

Figure 6.6: Age Specific Enrolment Rate (%), 2017



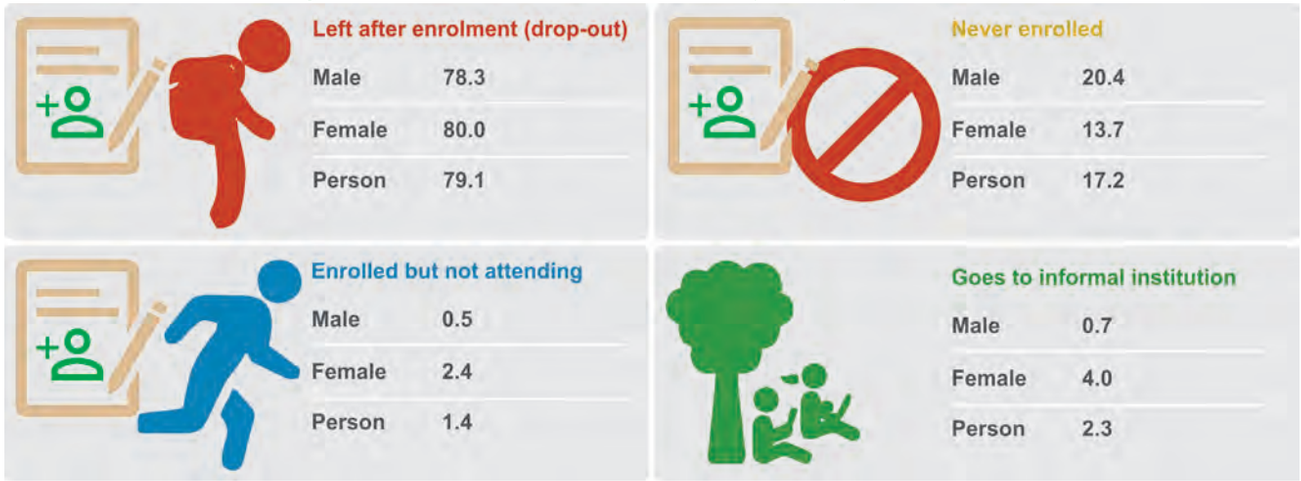

*Source:* UKHDR Survey, 2017

different classes and a smaller proportion of them, although still enrolled, did not attend school (Figure 6.7).

Close to a fifth of the out of school children (17.2 percent) had never enrolled in school, the proportion being much higher for boys (20.4 percent) vis-à-vis girls (13.7 percent). The largest share of out-of-school children was accounted for by those who had left school after enrolling, or had dropped out of school, the proportion being marginally higher for girls (79.9 percent) than for boys (78.31 percent). Out-of-school children enrolled but not attending school was a very small proportion (1.41 percent).

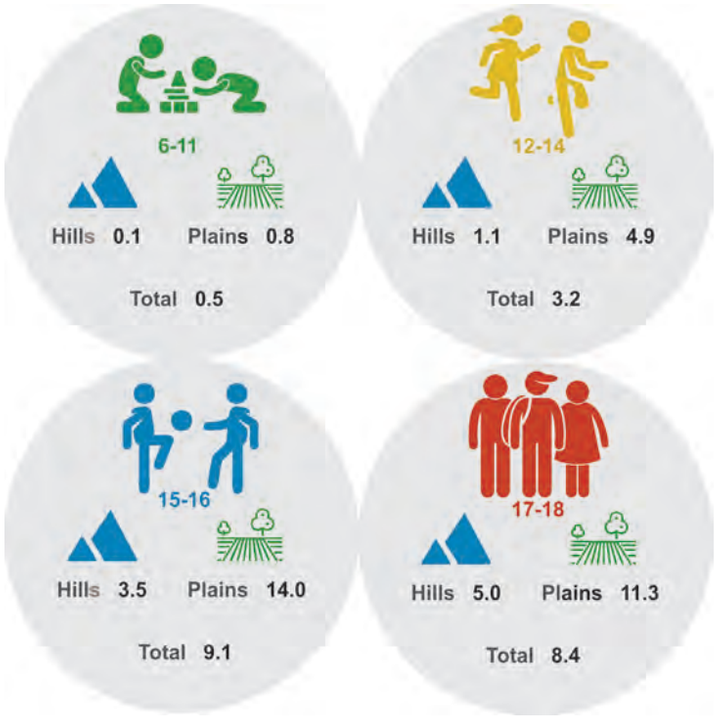
At the district level, the proportions of drop-outs amongst the out-of-school children was the highest in the hills district of Chamoli (90.9 percent) and in the plains district of Dehradun

Figure 6.7: Out of School Children (6-17 years) by Sex (%), 2017




*Source:* UKHDR Survey, 2017
*Note:* The estimates are based on household survey

Figure 6.8: Age-wise Drop-out Rate in Hills and Plains Areas, (%), 2017




*Source:* UKHDR Survey, 2017

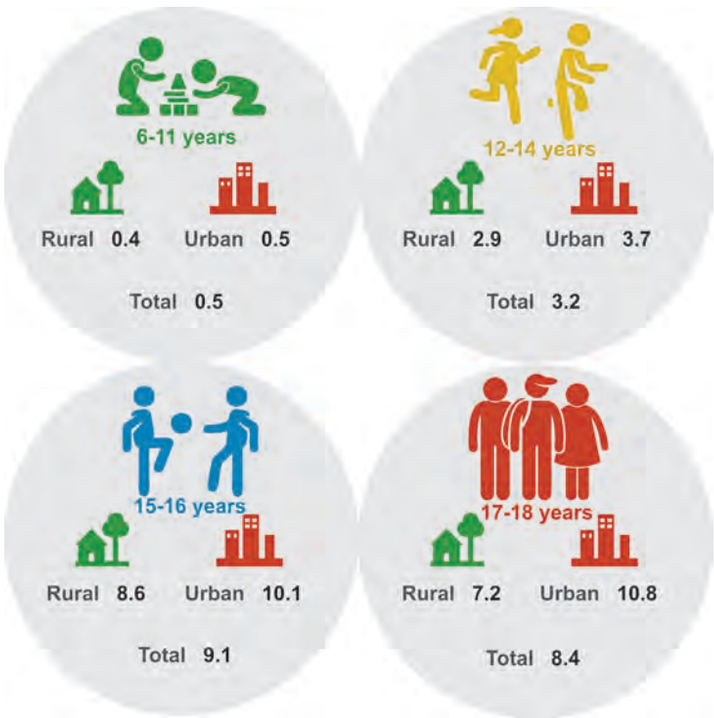
(89.9 percent) (Annexure 6.5). As mentioned earlier on, job opportunities available in the plains could be responsible for prompting some of the older children to drop out of school. What is more alarming is that the share of never enrolled among the out of school children was extremely high in the hills districts such as Rudraprayag, Tehri Garhwal, Uttarakshi, Almora and Pauri Garhwal, raising questions about government efforts to expand school access in the hills. The proportion of never enrolled children among the out of school children was the smallest in Bageshwar (2.3 percent) and Champawat (7.1 percent), indicating better education access.

The estimated proportion of dropouts (6-17 years) increases as we go from the primary (0.5 percent), to the upper primary (3.2 percent) levels and peaks at the secondary level (9.1 percent) and thereafter falling slightly at the higher secondary level (8.4 percent). Figures 6.8 and 6.9 show the contrasting situation between the hills and plains, and between rural and urban areas.

The plains have relatively high drop-out rates, the highest being for the secondary level (14 percent). Given that the plains districts are more urbanized, it is not surprising that drop-outs are more in the urban areas compared to rural areas. Such a pattern of drop-out is likely to be because of employed youth providing earning support to their families, more so in the plains than in the hills, as in the former employment opportunities are more.

The fact that children leave school without completing their education is a serious issue and any efforts at universalizing elementary and secondary education need to effectively understand the reasons for children being outside the realm of formal schooling. There are both supply and demand side factors which affect the decision to be in or out of school. The UKHDR Survey suggests that the main reasons for dropout in Class I to V include child disinterest in studies (28 percent) and the need to support family earnings (18.5 percent) (Figure 6.10A). However,

Figure 6.9: Average Dropouts Rate, Rural & Urban (%), 2017




*Source:* UKHDR Survey, 2017

Figure 6.10 A: Reasons for Dropping out (Class I to V) (%), 2017


*Source:* UKHDR Survey, 2017

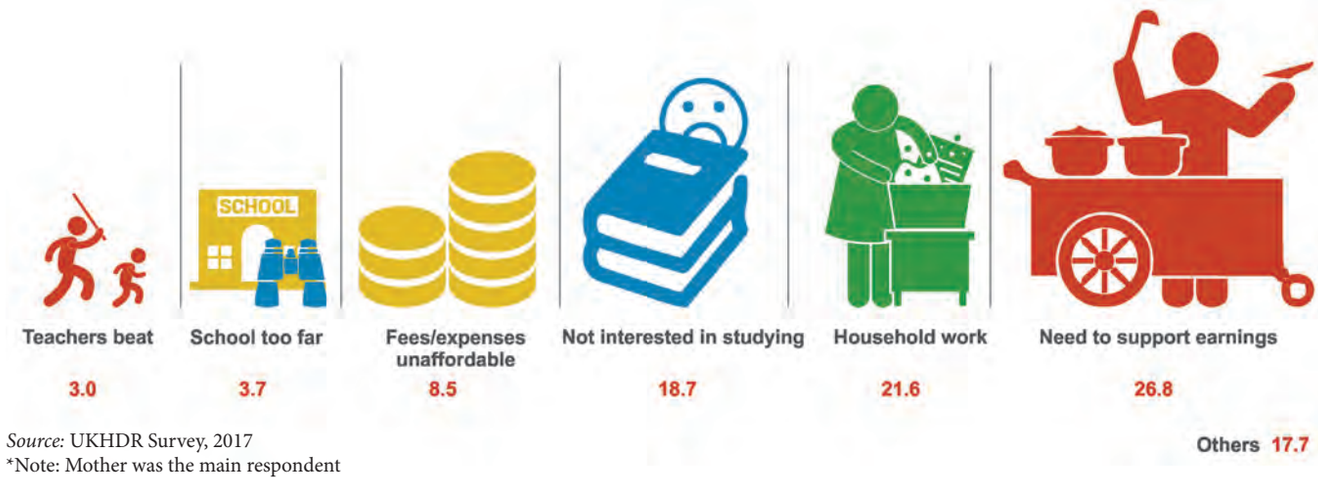
as we go to the higher classes, the major reason for dropping out is the need to suppliment family income (Class VI to VIII) (Figure 6.10B). Economic reasons are one of the main reason for dropping out in classes XI to XII (Annexure 6.6). However, in classes IX to X, 'not interested in studies' is the most important factor for dropping out (Annexure 6.7).

Disinterest in continuing education could be due to many factors: classroom teaching not engaging enough, teacher absenteeism leading to classes not being held regularly, child lacking support at home for studies and thus losing interest in studies, engaging in household chores etc., all of which affect student performance adversely. However, such nuances were not explored in the Survey.

## 6.3 Preparedness of Children for School

The early five to six years of a child's development are considered the most critical ones as these are the years on which the whole lifetime of the child hinges. Education in the three to six year age bracket prepares the child for schooling and is seen as an essential part of cognitive and social development. In the Indian context, anganwadis play a key role in preparing children for school. Along with play way methods of education, anganwadis also cater to the

Figure 6.10 B: Reasons for Dropping out (Class VI to VIII) (%), 2017




*Source:* UKHDR Survey, 2017
*Note: Mother was the main respondent

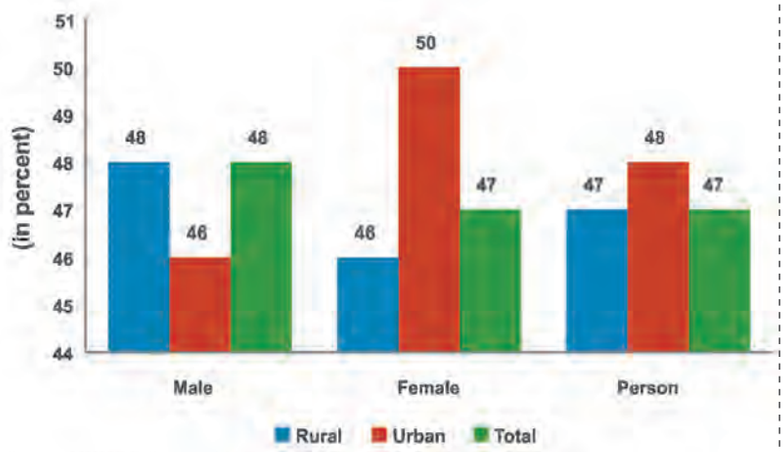
nutrition needs of children. Capabilities of anganwadis in terms of providing education and nutrition vary.

The incidence of pre-school enrolment (3-5 year olds) in the hills and plains stands at 98,911 and 1,00,183 respectively[3]. According to the UKHDR Survey, 47.3 percent of children in the 3-6 age group were enrolled in pre-primary schools. In rural areas there was a female disadvantage for this indicator while in urban areas, a female advantage was reported (Figure 6.11). District wise data shows that in the hills districts of Bageshwar, Champawat, Nainital and Pithoragarh, more than half the children in the 3-6 age group were in pre-primary schools. A female advantage in the same was seen in the hills districts of Chamoli, Rudraprayag, Tehri Garhwal and Uttarkashi and in the plains district of Haridwar. In all the other districts, boys attended pre-primary schools in higher proportions than girls (Annexure 6.8).

The hilly terrain of Uttarakhand, where remote regions make accessibility difficult, especially in the winter, are indeed a challenge to achieve the SDG Goal 4.2 which lays emphasis on childhood development, care and pre-primary education. An additional challenge is that an anganwadi must run for only eight children, on an average, in the hills districts and for around 14 students in the plains districts [4]. Thus, sometimes there may be supply side issues for opening up anganwadis in remote regions with limited enrolments, leading to problems of viability.

A public–private pre-primary school breakup from the UKHDR Survey shows that in Uttarakhand, approximately half (52.0 percent) the children were going to anganwadis (public) schools with relatively more girls attending the same than boys. Male children were enrolled in higher proportions in private schools (Figure 6.12). This is in keeping with the general trend of household preference for sending sons to the costlier option of private schools.

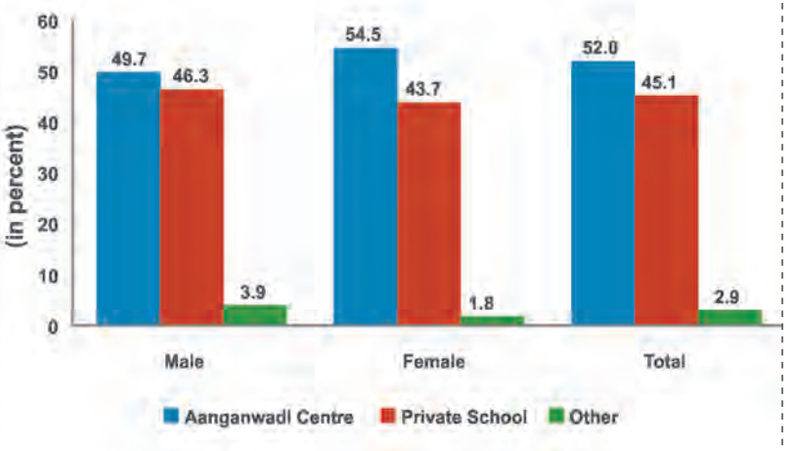
Figure 6.11: Children (3-6 years) Attending Pre-primary School by Gender and Area (%), 2017




*Source:* UKHDR Survey, 2017

At the district level, in the hills districts of Almora, Chamoli, Champawat, Pithoragarh, Rudraprayag, Tehri Garhwal and the plains district of Haridwar, anganwadi centres were the preferred pre-primary school option (Annexure 6.9). In the hills of Bageshwar, Pauri Garhwal, Nainital, Uttarkashi and the plains districts of Dehradun and Udham Singh Nagar, private pre-primary schools were the preferred option. In Dehradun, as high as three-fourths of the child population in the 3-6 age group attended private pre-primary schools.

Figure 6.12: Children Attending Anganwadi Centres and Private Centre by Gender (%), 2017




*Source:* UKHDR Survey, 2017

3 Vision 2030 Uttarakhand
4 Ibid

Table 6.1 Ratio of Number of Schools by Education Levels, 2018

| | Uttarakhand | All India |
|---|---|---|
| Primary/Upper primary | 2.2 | 2.0 |
| Upper Primary/Secondary | 2.3 | 2.5 |
| Secondary/Higher Secondary | 1.6 | 2.1 |

*Source:* District Information System for Education (DISE) 2015-16

## 6.4 Access to School

The accessibility of schools has an important role to play in enrolment, attendance and retention. In the hilly areas specially, school accessibility is a major impediment to children's education, more so for girls. The relatively higher share of never enrolled children in the hills districts supports the same as well. The UKHDR Survey finds that a little over half the sample households in the state had a school within one kilometre radius, although inter-district variations did exist in the same (Annexure 6.10).

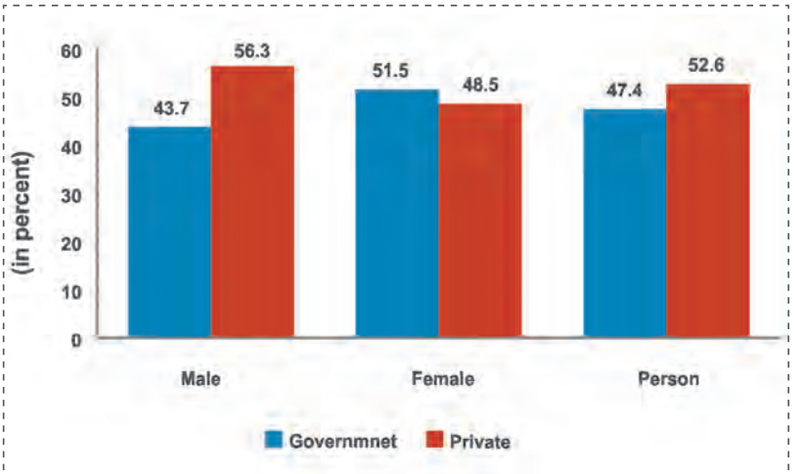
The hills district of Almora had the lowest proportion of households (approximately one third, 35.8 percent) that had access to a school within one kilometre while the plains districts of Udham Singh Nagar and Haridwar were at the other end of the spectrum (69.1 percent and 62.1 percent respectively). Also, over a third of households (37.2 percent) in Almora reported school access between 1 to 2 kilometres,(15.1 percent) with access within 2 to 4 kms while a tenth reported distance from school as more than five kilometres. This aptly illustrates the difficulty in access to schooling that households in the hilly regions of the state face and needs commensurate policy attention. The ratios of primary to upper primary schools (2.2), upper primary to secondary schools (2.3) and secondary to higher secondary schools (1.6) (Table 6.1) reveals the shortage of schools at various levels of education in the state.

## 6.5 Access to Primary School: The Public-Private Divide

The UKHDR Survey probed household preference between public and private schools at the elementary level (std I-VIII) and some very interesting findings emerged from the Survey findings. First, private schools were the preferred option with 52.6 children enrolled in school attending private schools vis-à-vis 47.4 percent in government schools (Annexure 6.11). Second, many of the hills districts showed a preference for government schools while in the plains districts, private schools were preferred. The hills of Chamoli and Champawat had 76.5 percent and 71.4 percent children enrolled in public schools whereas in the hills of Pauri Garhwal (51.5 percent) a little over half the children were enrolled in private schools. Third, in the plains districts there was a clear preference for private schools with 66.1 percent children in Dehradun, 63.4 percent in Udham Singh Nagar and 58.9 percent in Haridwar attending private schools. Fourth, higher proportions of girls attend government schools compared to boys. (Figure 6.13). Fifth, in urban areas there was a clear preference for private schools (69.8 per cent) vis-à-vis rural areas (44.5 per cent) (Figure 6.14).

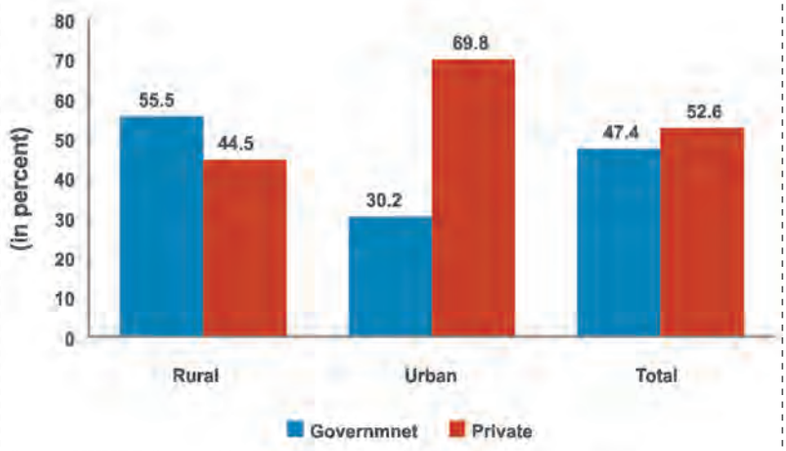
The reasons cited by parents for choosing

Figure 6.13 Distribution of Children by Type of Institutions Attended (Class I-VIII) by Gender, (%) 2017




*Source:* UKHDR Survey, 2017

Figure 6.14 Distribution of Children by Type of Institutions Attended (Class I-VIII) by Area (%), 2017




*Source:* UKHDR Survey, 2017

private schools over public schools include quality of teachers, English medium instruction, good infrastructure, regular classes, student care and extra activities. On an average, more than 60 percent of households cited teacher quality as the foremost reason for choosing to send their children to private schools, while for a third (36 percent) gave English as the medium of instruction was the reason for choosing private schools (Figure 6.15).

## 6.6 Costs of Schooling

The Right to Education Act[5] guarantees free education to children in the 6-14 age group. In India, basic education is usually seen as the domain for the government. However, private provisioning has made huge inroads in this sector for various reasons. But, such a mode of education provisioning comes with a cost. Even 'free' education provided till the elementary level often has associated costs such as transport, stationery and books. Such costs can prove to be an inhibiting factor for school participation for poorer households.

The UKHDR Survey data shows that education expenditure as a proportion of total household expenditure was around 10.7 percent. This share was higher for urban households (14 percent) vis-à-vis rural households (9.6 percent) (Annexure 6.12). Variations in the same exist across districts and also when disaggregated by rural-urban. The hills district of Almora had the highest proportion of household education expenditure to total expenditure (14.3 percent) followed by Rudraprayag (12.9 percent) while it was the lowest for Chamoli (5.7 percent). Across all the districts, with the exception of Nainital and Udham Singh Nagar, this proportion was higher for urban households vis-à-vis rural households.

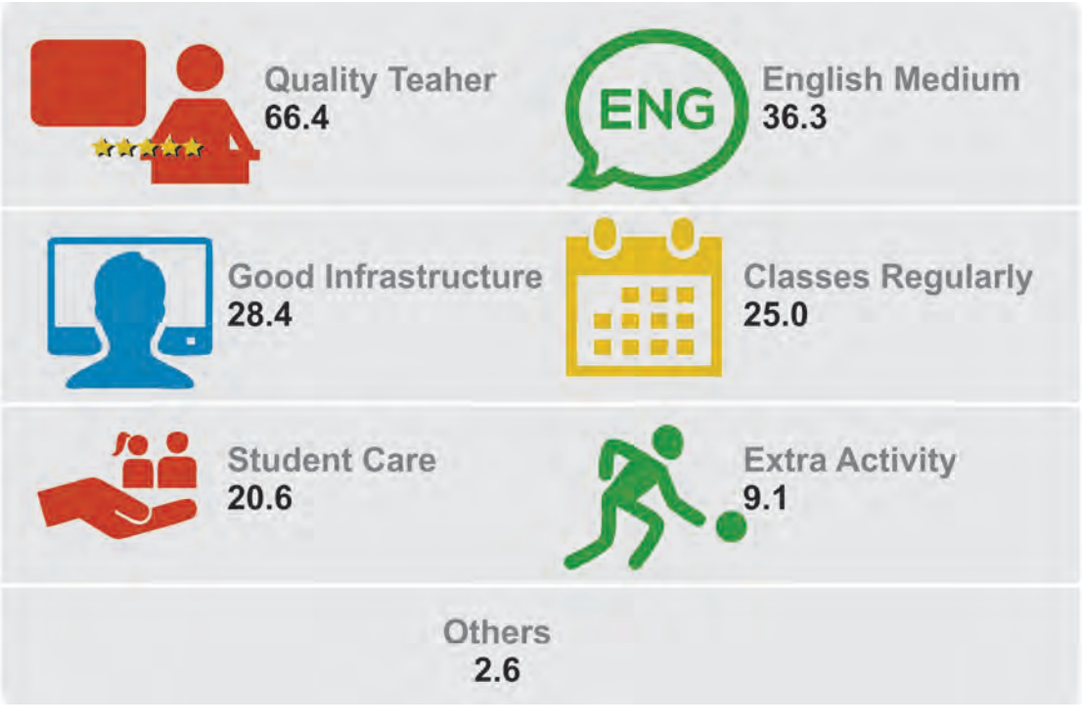
Further, average household expenditure on education was Rs 800.47 per month per student (Annexure 6.13). Expenditure on education was much higher in urban areas (Rs. 1238.51) vis-à-vis rural areas (Rs. 670.27). Households in six of the thirteen districts in the state spent more than the state average of Rs. 670.27 per month in rural areas and the rest reported higher than the state average household spending on education (Rs. 1238.51 per month) in the urban areas.

In terms of government assistance such as free books, school uniforms, mid-day meals, cycles, scholarships, etc., the UKHDR Survey found that 60 per cent of the children received books, 45.5 percent received school uniforms, 47.1 per cent received mid-day meals and 16 percent received scholarships.

At the disaggregated level, Chamoli (77.6 percent) had the highest and Pithoragarh the lowest proportions (55.1 percent) of students receiving free textbooks (Annexure 6.14). Chamoli also had the highest share of children receiving free uniforms (64.4 percent) while Haridwar had the lowest share for the same (35.4 percent). In terms of scholarships given to children attending government schools, Almora had the highest proportion of such children (37.3 percent) and Pauri Garhwal had the lowest (5.9 percent). Mid-day meals, an important school participation enhancer was being availed of in high proportions by school going children in Champawat

5 The Right of Children to Free and Compulsory Education Act, 2009.

Figure 6.15: Reasons for Choosing Private School (%), 2017




*Source:* UKHDR Survey, 2017

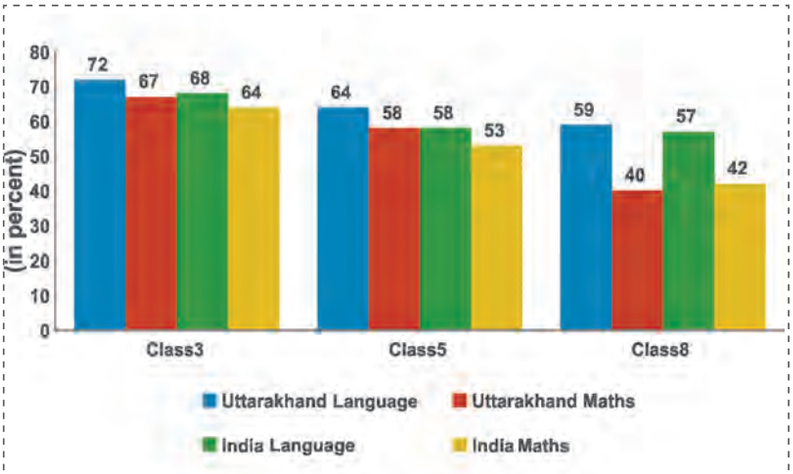
(72.6 percent) and in lowest proportions in Udham Singh Nagar (29.5 percent). The UKHDR Survey also probed household satisfaction levels with mid-day meals provided by schools in the state (Annexure 6.15). The Mid-day meals were rated as good for quality of food by 72.7 percent of households. They were also rated as good for taste (69.2 percent households), for regularity of food (69.5 percent households), for hygiene (67.7 percent households) and for quantity (66.3 percent households).

While the Government of Uttarakhand has taken initiatives for providing free education to the girl child till class XII, awareness about this scheme seems to be very poor as found by the UKHDR Survey. Only 26 percent of the respondents were aware of such schemes while 29.1 percent of the sample population had received such benefits (Annexure 6.16). Across the districts, only the hills districts of Bageshwar and Uttarkashi had approximately three-fourths and half of the households respectively availing of education benefits for the female child. In all the other districts, the proportions of households availing such a benefit was one-thirds or lower, which is an important policy pointer as female education can be enhanced with free education.

## 6.7 Quality of Learning

Poor learning quality learning is a major issue across India and Uttarakhand, too, faces this issue, although recent official statistics show that learning outcomes

Figure 6.16: Achievement Scores, Langauge and Maths (%), 2017




*Source:* National Achievement Survey (NAS), 2017

Table 6.2 Social Group-wise Performance in National Achievement Survey (%), 2017

| | Language | Mathematics | Science |
|---|---|---|---|
| **Class III** | | | |
| SC | 71 | 65 | |
| ST | 67 | 62 | |
| OBC | 72 | 69 | |
| General | 75 | 68 | |
| **Class V** | | | |
| SC | 63 | 57 | |
| ST | 61 | 52 | |
| OBC | 66 | 59 | |
| General | 66 | 60 | |
| **Class VIII** | | | |
| SC | 56 | 39 | 46 |
| ST | 56 | 34 | 42 |
| OBC | 59 | 40 | 46 |
| General | 62 | 41 | 49 |

*Source:* Uttarakhand State Learning Report, 2017

in the state for the elementary level are largely above the national average. The National Achievement Survey (NAS) conducted by NCERT in the state in 2017 shows that for Class III, both boys and girls, performed above the national average in terms of language and mathematics. At the all-India level, class III children in 34 states/UTs could answer 68 percent of language based questions and 64 percent of Mathematics questions correctly (Figure 6.16). In Uttarakhand, in language assessment, class III students answered 72 percent questions correctly and the corresponding percentage for mathematics was 67 percent. For students of Class V too, the state showed a performance higher than the national average.

However, the performance of class VIII students was well below the national average in mathematics, while it was above the national average in science and social science. More than 50 percent of the districts performed below average in the mathematics score for class VIII. There is no discernible gender-differential in performance scores.

The social-group wise performance for the same indicates that while the general caste students outperformed the others, the margin of difference was small. In Mathematics, in particular, OBC students showed good performance, sometimes above the general caste students (Table 6.2). For Class VIII, the performance in Mathematics and Science was poor, with only 40 percent and 47 percent children answering correctly [6].

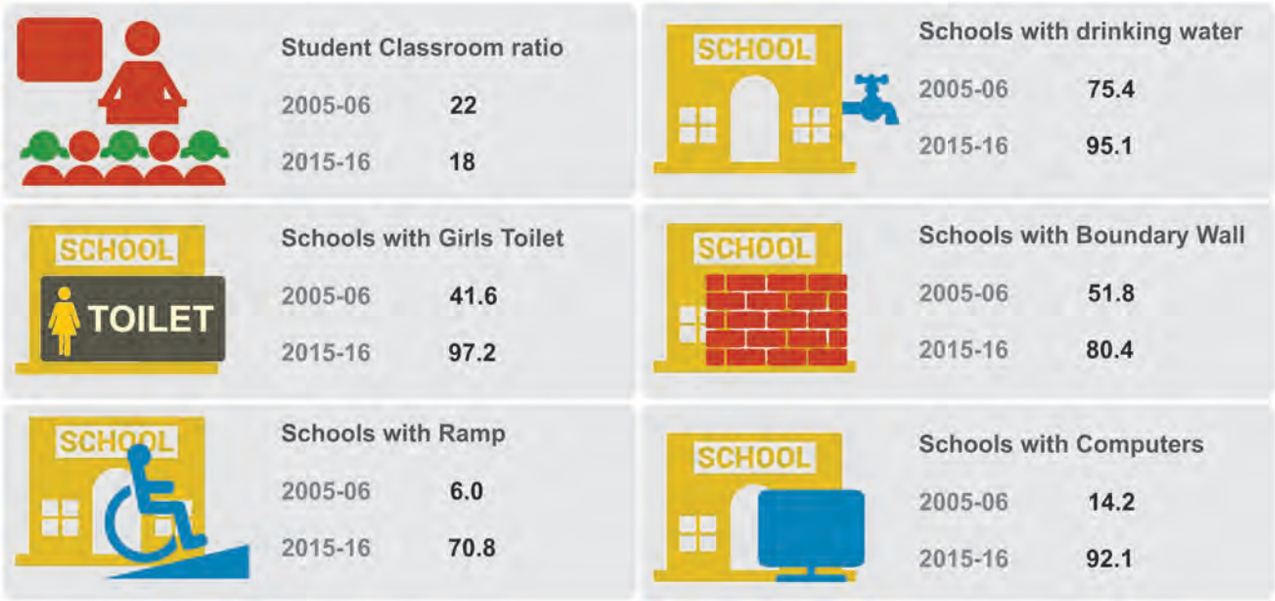
The ASER reports, which present findings based on rural household surveys, show that the quality deficit continues to plague primary school children as only 34.5 percent children in Standard III could read Standard II level text[7]. This indicator was almost double for private schools (43.3 percent) compared to government schools (24.7 percent). Even for students in Standard V, only 64.6 percent could read a text of Standard II level.

## 6.8 School Infrastructure

The All India Education Survey (2017) shows that just like at the all-India level, schooling infrastructure in Uttarakhand too has improved. There has been

6 Uttarakhand State Learning Report 2017. The participation of ST students was very low at 2 percent.
7 ASER 2018 report accessed at http://img.asercentre.org/docs/ASER%202018/Release%20Material/aserreport2018.pdf on 24th January 2019

Figure 6.17: Improvement in School Facilities (2005-2015)




*Source:* DISE 2005-06 & 2015-16

a marked improvement in school facilities owing to the SarvaShikshaAbhiyan (SSA). In terms of various indicators such as student-class room ratio, provisioning of drinking water, sanitation, boundary wall, etc., the situation has improved considerably (Figure 6.17). However still there is still scope for improvement for certain indicators like computer facilities, ramp facilities, boundary walls etc.

Notwithstanding the encouraging data presented above, the Uttarakhand State Learning Report 2017, by NCERT, indicates that 17 percent teachers reported shortages in adequate drinking water in the school. Lack of toilet facilities was also reported by 16 percent teachers and 14 percent reported lack of electricity in the school. Thus there are infrastructure gaps which need to be plugged for the smooth functioning of schools in the state.

## 6.9 Status of Higher Education

At present, in Uttarakhand, there are nine state universities, one central university, eleven private universities and three deemed universities. Further, there is one University of Agriculture and Technology and one Indian Institute of Technology. In 2016-17 there were 468 colleges and 39 colleges per lakh population, which was well above the all-India average of 26 for the same (AISHE 2016-17).

The Uttarakhand Skill Development Mission, 2013 (UKSDM) has taken initiatives to provide free skill development training to youth across the thirteen districts of the state. In the year 2016-17, the Mission imparted skills to 10,000 youth while at present, there are more than 12,000 youth undergoing skill training under the wings of this programme. The female participation rate in this programme is 56 per cent which is higher than the male share of 44 percent. However, the UKHDR Survey finds that household awareness about this programme is very poor with only 7 percent households reporting any information or awareness about the same. Of the eligible population, only a tenth have received the benefits of enrolling in the same. Only around half (5.8 percent) the population reported availing of formal vocational training with 50.86 having done certificate courses and the remaining 49.1 percent having availed of diploma courses (Annexures 6.17 and 6.18).

Private vocational training institutes have a higher share in providing vocational education and training to the youth in Uttarakhand (51.3 percent) with government institutes providing the same in a smaller proportion (41.2 percent).(Annexure 6.19). In terms of vocational training preferences, the

Information Technology/Information Technologies courses are most preferred amongst the youth (21.5 percent) (Annexure 6.20).

## 6.10 Summing up

The task of promoting education and capacity-building in human resources in Uttarakhand is quite daunting. The adult literacy rate is 84.6 percent with a gender gap of nearly 15 points. This clearly points towards the urgent need to promote female literacy and education in the state in order to reach the SDG Goal 4 and Target 4.6. Further, the drop in the Gross Enrolment Rate (GER) from the secondary to higher secondary levels points towards the problems of retention and the inability to transition to higher levels of education. Concerted policy efforts and interventions are needed in Uttarakhand to boost as well as sustain enrolments rates at the higher levels of education.

Pre-schooling plays an important role in the cognitive development of children and in Uttarakhand less than half the children 3-6 years of age attend a pre-school, the highest proportions being in Champawat and the lowest in Haridwar. While a marginal gender gap exists at this first step of education, Almora and Dehradun report the lowest proportions of female children enrolled in pre-schools. Anganwadicentres have a dominant role in the provisioning of pre-school facilities in the state with more than 50 percent of the pre-primary school going children enrolled in these centres. The current scenario in the state points towards the need of more pre-primary schooling centres including anganwadis. Shortages of schools in the higher levels of education (secondary and higher secondary) vis-à-vis the lower levels is also a policy pointer for the state.

School infrastructure has shown an improvement as reported by the UKHDR Survey. There has been an increase in the provisioning of boundary walls for schools, sanitation facilities, drinking water, availability of ramps and access to computer facilities. The UKHDR Survey data also finds that more than half the elementary school going age children in Uttarakhand are enrolled in private schools. The factors working in favour of private schools making them the preferred option include good infrastructure, good teachers, and regularity in conducting classes, student care, extra activities and English as a medium of instruction. English as the medium of instruction is been cited as the predominant reason for choosing private education by households in Uttarakhand. There is a hills-plains disparity with higher proportions of children in the hills availing of education from government schools. Households report 10.7 percent of their expenditures being allocated to education with households in Nainital reporting the highest expenditures on education and those in Chamoli the lowest. It is important for the state to increase educational infrastructure for higher education so as to attract the youth from the state. Vocational and skill training also needs to be enhanced.

A large number of children are out of school in Uttarakhand, accounting for 5.2 percent of the total elementary school age children in the state. Among the hills districts, the dropout rate is highest in the secondary level in Pithoragarh followed by Chamoli. In other districts, the dropout rate is high at the upper primary level. Bringing out-of-school children back into the schooling system is a human development imperative for the state of Uttarakhand.

The UKHDR Survey clearly indicates that although almost all children in the age group of 6-14 years of age are enrolled in school, in the age group 17-18 years and 19-24 years, less than half the populace is enrolled at the apt level of education. To attain the SDGs for education, Uttarakhand needs to effectively emphasize and encourage participation in secondary education and higher levels of education.

# 7

# Health

# 7 Health

## 7.1 Introduction

Access to and availability of health care facilities are important enabling factors and determinants of advances in human capabilities. Under the Sustainable Development Goals (SDGs), the importance of health is captured in Goal-3 which calls for ensuring good health and well-being of the populace. Safeguarding the health and well-being of individuals of all ages is the cornerstone of sustainable development. Morbidity and mortality have far reaching impacts on not just economic growth but also on human capabilities and development. In the case of Uttarakhand, with its regional and terrain related specificities, the status of the health of its populace and the impediments in their successful attainment become important when studying and analysing human development in the state. The topographical setup in Uttarakhand is such that people living in far-flung villages and habitats located in the hills, face difficulties in accessing basic health infrastructure facilities as much as ensuring the availability of services to them becomes a challenge. The rural-urban as well as hills versus plains disparities get captured in the health related human development indicators for the state.

In this chapter, a snapshot view of the prevailing health scenario in the state as well as its thirteen districts is presented. Data from the UKHDR Survey provides useful insights into important health indicators such as maternal health, child health, burden of disease, health expenditures by disease type, per capita health expenditures and the utilization of health facilities for short and long term illnesses. Data disaggregated by districts, hills-plains, rural-urban, gender and social groups for the various health related indicators makes for very useful analysis and policy insights.

## 7.2 Health Personnel

Health personnel play an important role in reaching medical aid to the populace. The availability of general physicians, doctors, surgeons and various health specialists, especially in the rural and far flung hill areas, is an important determinant of the health and longevity of the populace there.

The Uttarakhand Vision 2030 document lays emphasis on the need to strengthen the health system in order to successfully meet shifting health priorities associated with demographic and epidemiological transitions and changing public expectations in the state. It is well known that Primary Health Centres (PHCs) constitute the first and most important point of contact between the community they serve and are important in the rural and hilly areas of a state like Uttarakhand. The health personnel in these centres provide an integrated system of curative and preventive health care.

There is an acute shortage of various health care related personnel in the state run Primary Health Centres as shown by the UKHDR Survey data (Tables 7.1 and 7.2). In the hills and the plains, for instance, two PHCs per 100,000 population are operational, dismally lower than the norm of one PHC per 20,000 population in a hilly or tribal region. There is a serious shortage of medical personnel in the state as well. For instance, 90-94 percent of posts of physicians in CHCs, OBGs and of surgeons

Table 7.1: Availability of Health Personnel/Facility Per One Lakh Population and Coverage Under Health Insurance (in Lakhs)

| Health Personnellakh | 2016 |
|---|---|
| No. of doctors per lakh population (hills and plains) | 13.91 |
| No. of paramedicals per lakh population (hills and plains) | 38.57 |
| No. of hospitals beds per lakh population (hills and plains) | 1032 |
| No. of PHCs per lakh population (hills and plains) | 2.58 |
| No. of maternity and child care centres per lakh population (hills and plains) | 18.97 |
| No. of other health centres per lakh population (hills and plains) | 3.44 |
| Number of persons covered under health insurance(rural) | 24.28 |
| Number of persons covered under health insurance(urban) | 33.53 |
| Number of persons covered under health insurance (total) | 57.82 |

*Source:* Uttarakhand Government, Uttarakhand 2030 Vision Report, 2018

Table 7.2: Current Availability of Health Personnel in Uttarakhand, 2018

| Cadre | Sanctioned | In Position | Vacant | Vacant Posts as a Share of Sanctioned Posts (%) |
|---|---|---|---|---|
| Allopathic Doctors at PHC | 147 | 65 | 82 | 55.8 |
| Surgeon at CHC | 83 | 6 | 77 | 92.8 |
| OBG at CHC | 79 | 7 | 72 | 91.0 |
| Physician at CHC | 79 | 5 | 74 | 93.7 |
| Paediatrician at CHC | 80 | 14 | 66 | 82.5 |
| Total Specialists at CHC | 321 | 32 | 289 | 91.0 |

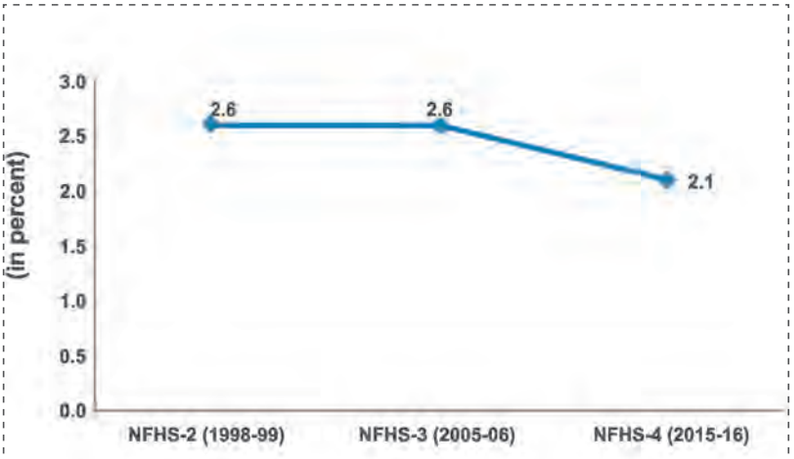
*Source:* Uttarakhand Government, Uttarakhand 2030 Vision Report, 2018

are lying vacant in the state. Low levels of public spending on health is one of the reasons for the shortage of medical staff. The average expenditure on health as a percentage of GSDP was only 0.92 per cent in 2015-16, though it increased from 0.8 percent in 2014-15 (Kumar et al, 2018). This is considerably lower than the 3 percent suggested by the Uttarakhand Vision 2030 (2018).

## 7.3 Fertility and Mortality

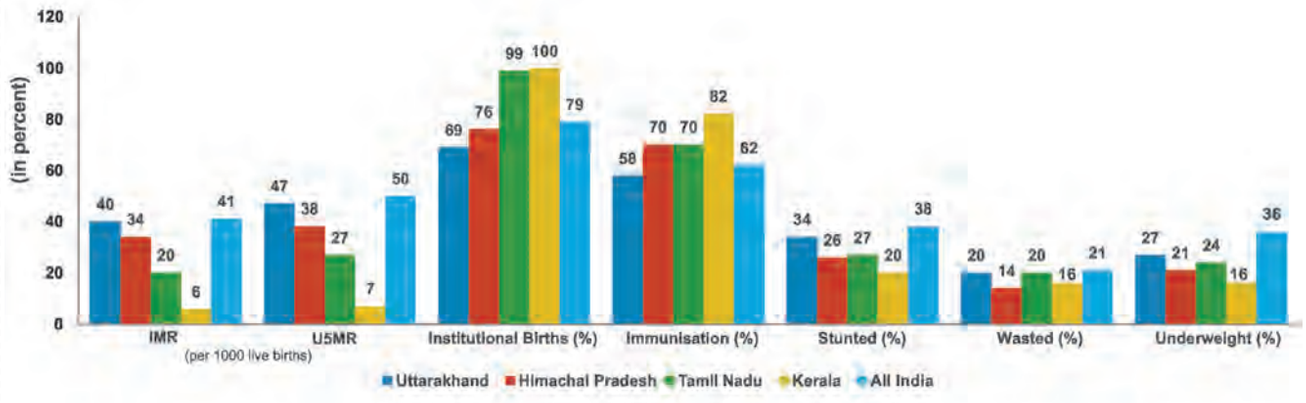
Demographic indicators like fertility and mortality have a direct bearing on maternal and child health outcomes. There has been a sharp decline in fertility in the state. According to NFHS data, the Total Fertility Rate (TFR) in Uttarakhand remained constant at 2.6 over the period 1998-99 (NFHS 2) to 2005-06 (NFHS 3) and then fell sharply to 2.1 in 2015-16 (NFHS 4) (Figure 7.1). With this, replacement fertility levels have been attained in the state. The urban fertility rate at 1.8 is well below replacement levels and in rural areas, it is 2.2, close

Figure 7.1: Fertility Trends (Total Fertility Rate) (%)




*Source:* NFHS Reports (1998-1999, 2005-2006, 2015-16)

Figure 7.2A: Major Health Indicators, 2015-16

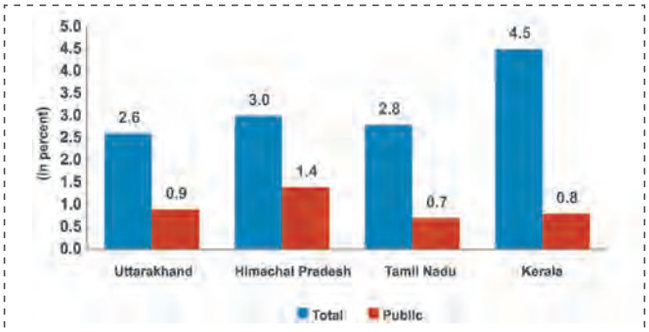



*Source:* NFHS-4 (2015-16)

to the replacement fertility rate. A decline in the TFR over two decades indicates a growing preference for small family size. Improved access to schooling for women has had a marked impact on fertility rates. It is found that women with no schooling have 3.1 children as compared to 1.7 for those with 12 or more years of schooling.

Uttarakhand has done better in several health indicators over time, yet it lags behind Himachal Pradesh with similar bio-physical characteristics as well as developed states like Kerala and Tamil Nadu (Figure-7.2A).The infant mortality rate (IMR) is reported highest in Uttarakhand (40 per 1000 live births) compared to Himachal Pradesh (34), Kerala (6) and Tamil Nadu (20). The IMR has been slightly lower than the All India figure (41). Similarly, the under-five mortality rate (U5MR) of 47 per thousand live births is highest compared to the above mentioned states, although it is better than the All India figure of 50. The U5MR for Himachal Pradesh, Kerala and Tamil Nadu has been 38, 7 and 27 per thousand live births respectively. Institutional births in Uttarakhand are much lower (69 per cent) compared to Himachal Pradesh (76 per cent), Kerala (cent per cent) and Tamil Nadu (99 per cent). It is lower than the All India rate of 79 percent as well. The child immunization rate for Uttarakhand is also lower (58 per cent) than these other states including All India. The immunization rates for the other states were: Himachal Pradesh (70 per cent), Kerala (82 per cent), Tamil Nadu (70 per cent) and All India (62 per cent). Likewise, the proportions of stunted, wasted and underweight children is higher in Uttarakhand compared to Himachal Pradesh, Kerala and Tamil Nadu.

Figure 7.2B: Health Expenditures (% of GSDP), 2018




*Source:* National Health Accounts, 2018

Total health expenditure is also low in Uttarakhand (2.6 per cent of GSDP) compared to Himachal Pradesh (3 per cent), Kerala (4.5 per cent) and Tamil Nadu (2.8 per cent). Public health expenditure as a percentage of GSDP for the state is 0.9 per cent which is lower than that for Himachal Pradesh (1.4 per cent) while it is almost similar to the other states being compared with Uttarakhand (Figure 7.2 B).

Child survival, on the other hand, has not improved over the past decade in the state. According to SRS data, Uttarakhand reported an infant mortality rate of 38 per 1,000 live births in 2017, the same as it was in 2010. In 2017, urban areas reported a much lower IMR of 29, than rural areas (46 per 1000 live births). While male children had a mortality rate a little higher than female children for the neonatal period (first month of life), between the

age 1 to 5 years, the mortality rate for female children was higher than that for male children. Muslims had higher IMRs as compared to Hindus, higher IMRs were reported for other backward classes as compared to the other social groups, and for children whose mothers had no schooling (69 per 1,000 live births) as compared to those whose mothers had completed 10 or more years of schooling (24 per 1,000 live births).

The decline in the under-five mortality rate (U5MR) from 56 to 47 over the same decade is better than the All India figure. At the All India level, the IMR and U5MR are higher for rural (46 and 56 respectively) vis-à-vis urban areas (29 and 34 respectively), while in Uttarakhand, the reverse is true with the urban IMR and U5MR figures (44 and 49 respectively) higher than their rural counterparts (39 and 46 respectively) (Annexure 7.1). This indicates poor child health conditions in urban areas as compared to the rural areas of the state.

## 7.4 Maternal and Child Health

Improving the health and well-being of mothers and their children is a development imperative for any state/nation striving for human development. A healthy mother is a guarantee for a healthy child as a mother is the primary care giver for her children. Maternal and child health parameters are governed by the access, availability and utilization of health care services, especially during pregnancy and at the time of a child's birth. In Uttarakhand, a little over two-thirds of births take place in government facilities, while a third of deliveries take place at home. During the NFHS-3 to NFHS-4 decade, the proportion of births in health facilities doubled (from 33 percent to 69 percent). Institutional births are higher in proportion in urban areas, for women having received antenatal checks, women with 12 years or more of schooling, women having first births.

The UKHDR Survey collected data on maternal health indicators such as the proportion of institutional and home deliveries, immunization rates for children and the proportion of children enrolled in anganwadis. Based on the Survey findings it can be inferred that in Uttarakhand, 84.2 percent of deliveries take place in institutions in urban areas and close to three-fourths (72.5 percent) of deliveries in institutions in rural areas, showcasing a clear rural disadvantage for this health care indicator (Annexure 7.2).

Institutional deliveries are the preferred option for households in the hills as well as in the plains of Uttarakhand (73 percent and 79.6 percent respectively), with households residing in the hills facing a disadvantage of approximately 6 percentage points. Institutional deliveries are also the preferred choice across all income groups, even among the poorest classes, with their limited resources. This could be a reflection of the fact that benefits from programmes like the Janani Suraksha Yojana are reaching women from all income groups and facilitating institutional deliveries. Over three-fourths of households belonging to backward social groups (SCs, STs and OBCs) prefer institutional deliveries. Close to a quarter of rural households and a third of households belonging to the poorest income category have deliveries at home. Maternal health care facilities such as institutional care need to be reached to such segments of the population of Uttarakhand.

At the district level, Chamoli has the highest proportion of home deliveries in the state with one in every two babies born at home (52.1 percent). Close to a quarter of the deliveries in the hills districts of Chamoli (25.7 percent) and Champawat (27.7 percent) takes place at home, in the absence of any skilled personnel (Annexure 7.8 and Figure 7.3). In Pithoragarh and Chamoli, approximately a fifth of deliveries at home are under the supervision of trained birth attendants. With the exceptions of Chamoli (47.9 percent), Champawat (62 percent) and Pithoragarh (66.2 percent), in all the other districts of the state, more than three-fourths of deliveries are institutional. Government hospitals are the preferred choice for institutional deliveries across all the districts. The shortfalls in Chamoli district could be due either to lack of access or the underutilization of existing institutional facilities for deliveries. Maternal and child health are integral

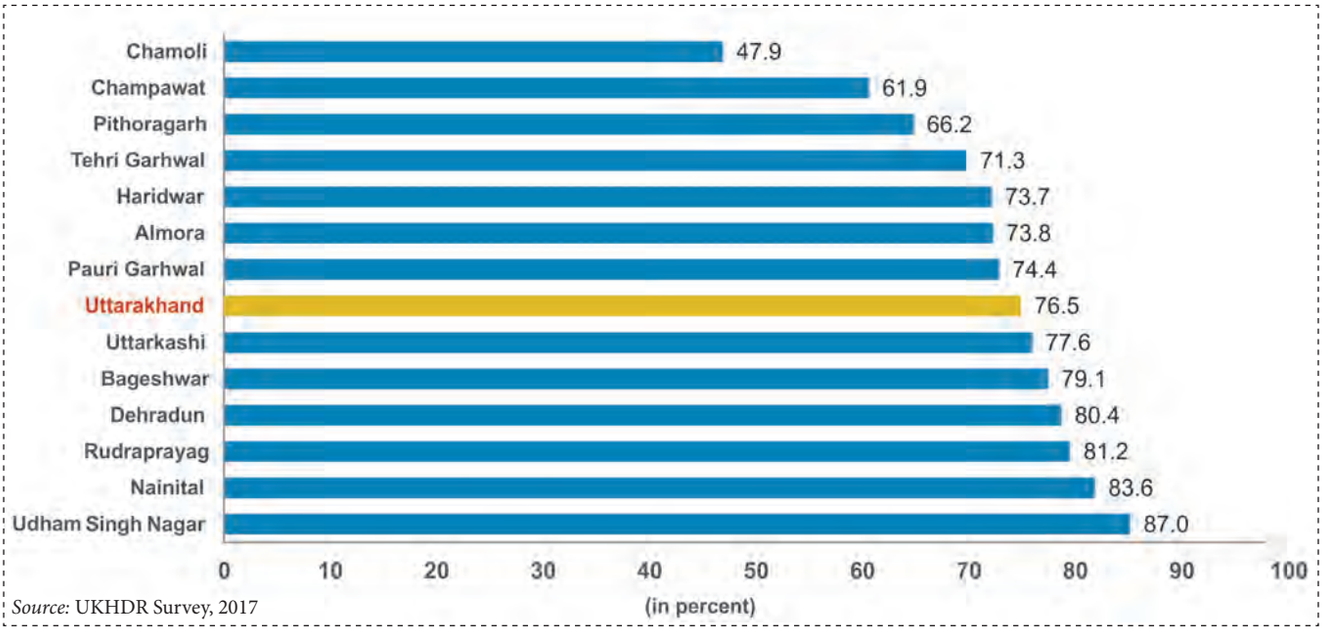
to human development and the place of birth as well as the access to and availability of institutional care and trained attendants at the time of delivery have important bearings on maternal and child survival.

According to NFHS-4 data, in Uttarakhand, over half the children in the 12-23 months age group received all the basic vaccinations against the six main childhood illnesses (tuberculosis, diphtheria, pertussis, tetanus, polio, and measles). Almost all children were at least partially vaccinated and only 5 percent have not received any vaccinations at all. Over the NFHS-3 to NFHS-4 decade, vaccination coverage increased for the three DPT doses (67 percent to 80 percent), measles (72 percent to 81 percent), and BCG (84 percent to 93 percent). Coverage for three doses of the polio vaccine declined (80 percent to 68 percent). Overall, the coverage of all basic vaccinations has seen a decline by 2 percentage points (60 percent to 58 percent). No discernible difference is there in rural-urban or male-female vaccination coverage. Vaccination coverage is high for Hindus (61 percent), children with mothers having more than 12 years of schooling (66 percent) and for first births (61 percent).

The findings from the UKHDR Survey more or less conform to the NFHS findings on child immunization coverage in Uttarakhand. A rural disadvantage of 12 percentage points coupled with an plains bias of 6 percentage points in the immunization rate come up as areas for policy concern (Annexure 7.3). Scheduled tribes have the lowest child immunization rates at 8.2 percent, calling for appropriate policy interventions. Approximately three-fourths of the child population in the 0-5 age group is in the process of receiving the various doses of vaccinations, an interesting finding being that the hills are doing better than the plains by approximately 8 percentage points on this indicator. Bageshwar (3.5 percent) and Uttarkashi (5.3 percent) report the highest proportions of children (0-5 age) who have taken none of the vaccines, flagging regions for policy interventions (Annexure 7.3).

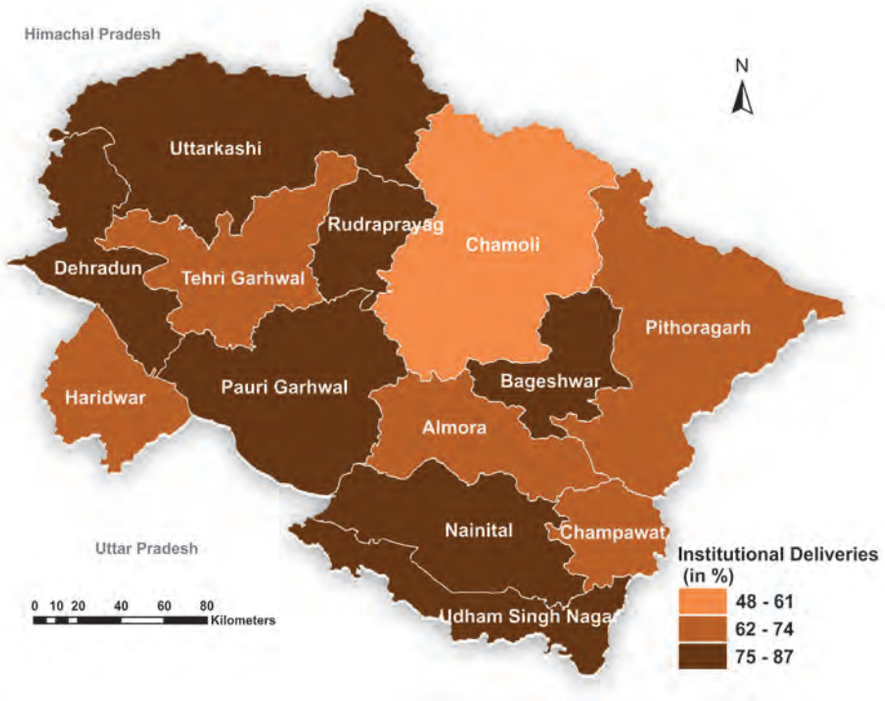
Anganwadi centres are an integral part of child (3-6 age group) survival interventions in India as they effectively address the twin issues of child hunger and nutrition. The Integrated Child Development Services (ICDS) provide health and nutrition related services including supplementary nutrition, pre-school education, health services, immunization, health check-ups and referral services besides other health related information for children under six years of age, through community based anganwadi centres. In Uttarakhand, close to 56 percent of children under 6 years of age avail of some kind of services from anganwadi centres

Figure 7.3: District-wise Institutional Deliveries (%), 2017




*Source:* UKHDR Survey, 2017

Map 7.1 District-wise Institutional Deliveries (%), 2017



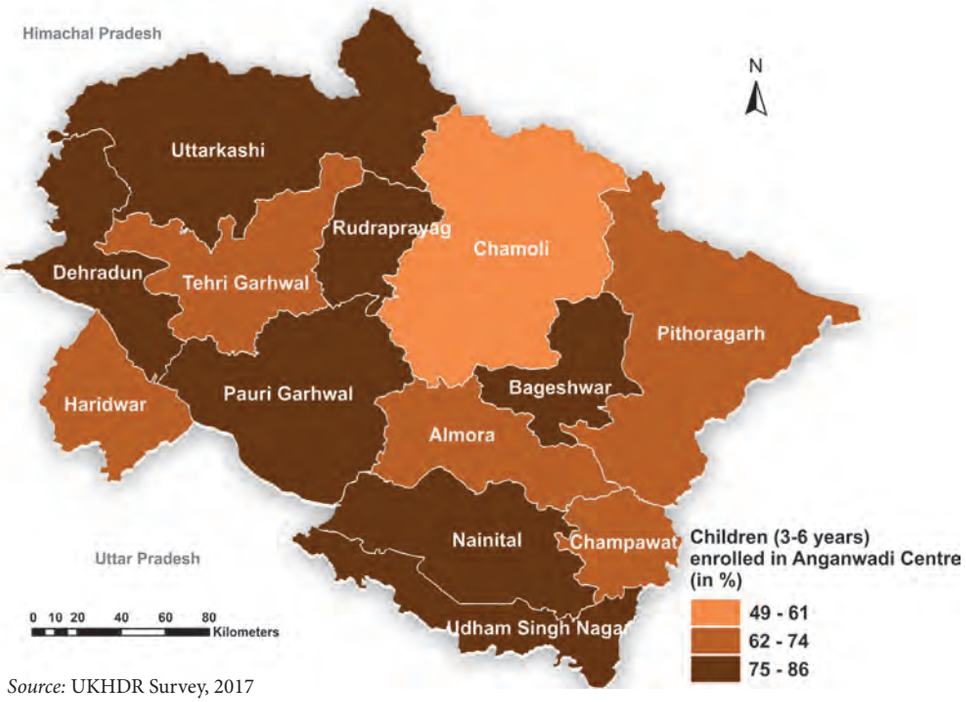

*Source:* UKHDR Survey, 2017

including supplementary food (54 percent), growth monitoring (47 percent), health check-ups (33 percent), and immunizations (26 percent) (NFHS -4). A little over half (51 percent) of mothers of children under 6 years of age received some benefits from an anganwadi centre during pregnancy and during the breastfeeding phase of motherhood, while 24 percent of breastfeeding mothers received health and nutrition education from the same.

The UKHDR Survey finds that close to two-thirds (61.4 percent) of children are enrolled in anganwadis centres in Uttarakhand (Annexure 7.4). The hills districts of Almora (86.2 percent), Bageshwar (81.5 percent) and Chamoli (75.5 percent) have the highest anganwadi enrolment rates, higher than that for the plains districts of Dehradun (64.1 percent), Udham Singh Nagar (63.4 percent) and Haridwar (51.3 percent). Tehri Garhwal (58.3 percent), Pauri Garhwal (55.3 percent) and Haridwar (51.3 percent) report the lowest enrolments in anganwadi centres flagging a policy concern (Map 7.2). Enrolments in anganwadis have a rural and hills bias (2 and 6 percentage points respectively). SCs have lower enrolments in anganwadis (58.5 percent) as compared to the STs (66.1 percent) and the others (58.5 percent) (Annexure 7.5).

In Uttarakhand, satisfaction levels with ICDS facilities vary between good (65.3 percent rural and 59.8 percent urban households) to average (over a quarter households in rural and urban areas). Households in the hills reported satisfaction in higher proportions with these services vis-à-vis the plains (69 and 58.2 percent households respectively) rating them as good. Amongst the various social groups, 67.3 percent Scheduled Caste households, 61.6 percent Scheduled Tribe households and 58.6 percent Other Backward Classes households rated the ICDS services as good (Annexure 7.6). Predominantly, households were satisfied with the services provided by the state run ICDS services. More than two-thirds of households received information from the anganwadis about what to give their children to eat, the practices to follow while cooking/feeding their children and how to identify warning signs for disease and under nutrition. ICDS services were rated better in the hills districts where

Map 7.2 District-wise Enrolment of Children (3-6 years) in Anganwadi Centres (%), 2017




*Source:* UKHDR Survey, 2017

their information dissemination is also found to be better as compared to the plains districts, probably because the plains are largely urban areas with more health service options available (Annexure 7.7). Such feedback from the populace points towards a reasonably well functioning ICDS system in the state.

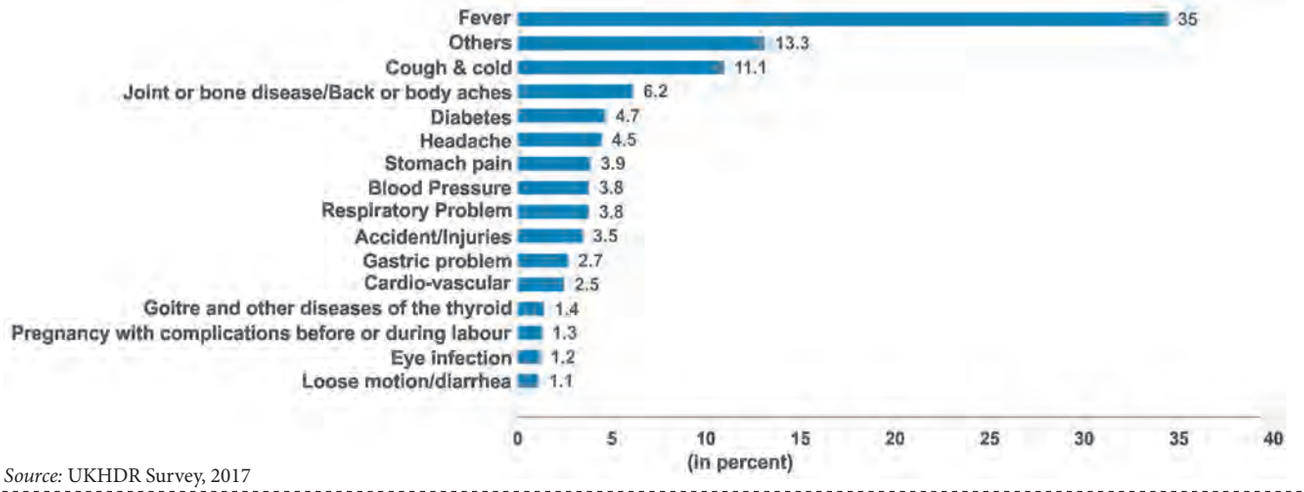
## 7.5 Disease Burden and Utilization of Health Facilities[1]

Morbidity data reveals high prevalence of diseases like fever (35 percent), colds and cough (11.1 percent) and joint and bone diseases (6.2 percent) (Figure 7.4). The gender distribution of illnesses doesn't show any varying pattern between the sexes with both males and females reporting high incidence of fever, coughs and colds. Males report relatively higher incidence of diabetes, cardio-vascular problems and accidents and injuries vis-à-vis women.

Households in Uttarakhand rely more on private health care facilities for both short term and long term illnesses (77.6 and 76.6 percent respectively) as compared to government health care facilities (22.1 percent for short term and 22.4 percent for long term illnesses) (Figure 7.5). There is a stark preference for private health care in the state, more so in the rural areas (78.4 percent for short term and 77.9 percent for long term illnesses) vis-à-vis urban areas (75.9 percent for short term and 74.0 percent for long term illnesses). Such a preference pattern, especially in the rural areas, indicates either lack of availability of functional public health facilities or difficulties in accessing public health facilities if they are available. The demand for private health care facilities is again more in the plains (83.4 percent for short term and 80.4 percent for long term illnesses) as compared to the hills (71.1 percent for short term and 70.5 percent for long term illnesses). Across the various social groups as well as different income quintiles, private

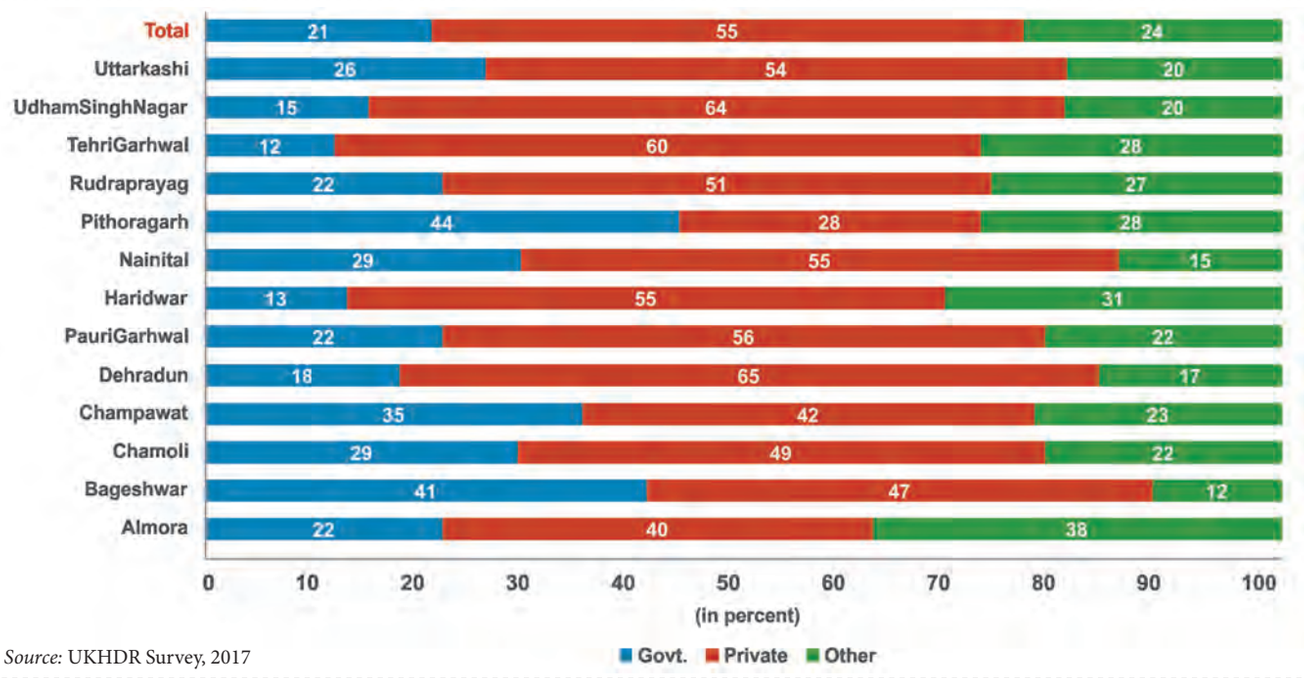
1 Information on morbidity patterns including short term and long term illnesses was collected by the UKHDR Survey at the individual level to cover the last 365 days period (Figure 7.4). While short term illnesses were identified as those that had a span of less than a month, long term illnesses were classified as those spanning more than a month.

Figure 7.4: Distribution of Illnesses by Types (%), 2017




*Source:* UKHDR Survey, 2017

Figure 7.5: District wise Utilisation of Health Care Facilities for Short Term Illnesses (%), 2017




*Source:* UKHDR Survey, 2017

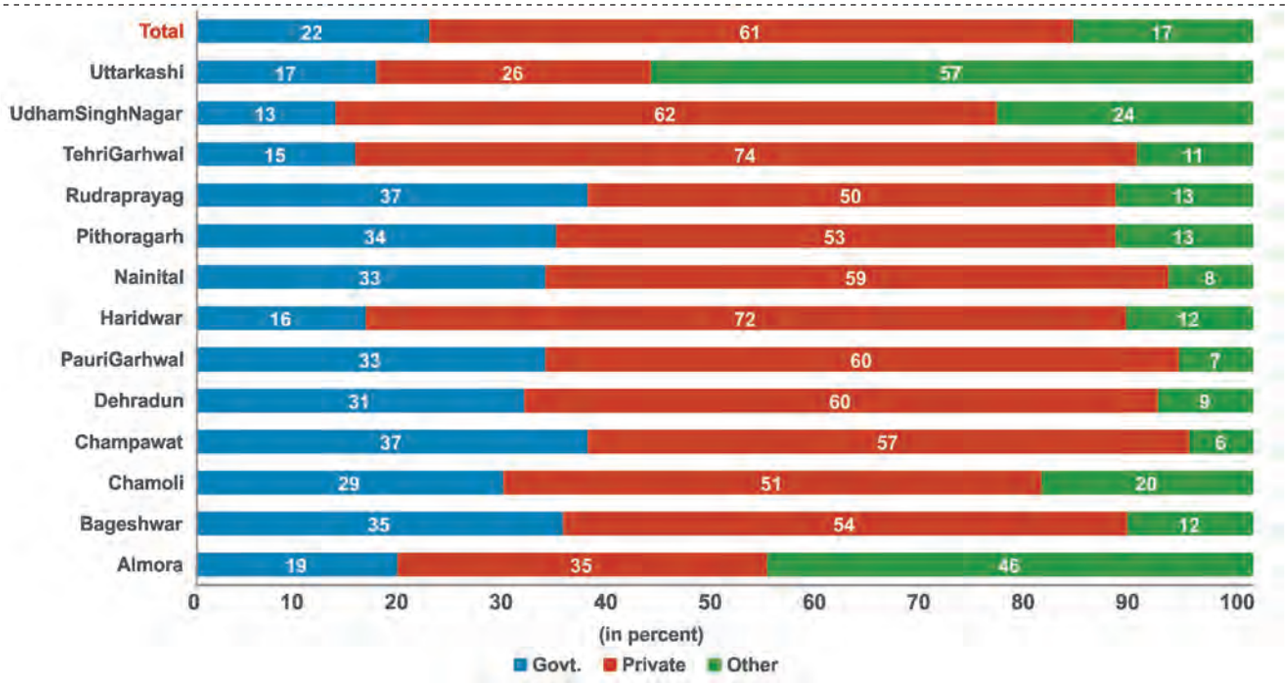
health care is the preferred option in the state for both short term and long term illnesses.

At the district level, with the exception of two districts, households in the remaining eleven districts show preference for private health care facilities in rural as well as urban areas. In the rural and urban areas of Pithoragarh and the urban areas of Champawat, the preference for public health facilities is high, possibly showcasing the effective provisioning and access to such facilities in these areas (Figure 7.6). For long term illnesses, households across all the districts (rural and urban) prefer private health with the exception of urban parts of Almora where public health care facilities are preferred (Figure 7.7). Ayurveda and other alternative sources of medicines are preferred more in Almora and Uttarkashi.

## 7.6 Per Capita Expenditure on Health Care

Healthcare expenditures incurred by households include out of pocket expenditures and pre-payments

Figure 7.6: Utilisation of Health Facilities for Long Term Illnesses (%), 2017




*Source:* UKHDR Survey, 2017

for various medical services such as out-patient care, hospitalization, surgeries and medicines, all of which are not covered by any health protection finance schemes. Out of pocket expenses (OOPE) for health care purposes have a debilitating effect on the economic wellbeing of the poor. This is because sometimes the medical expenses that they face are higher than their incomes, which forces them to cut down on essentials like food, clothing, education etc.

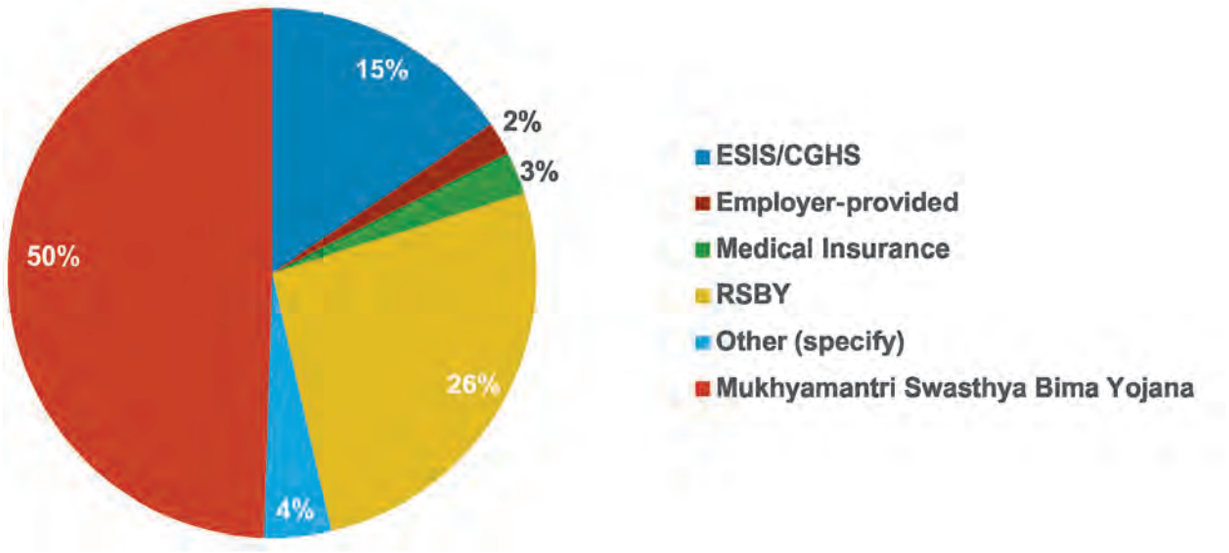
Households spend on an average Rs. 3,741 per capita per annum on healthcare (9.4 percent of total household expenditure) (Annexure 7.8). In urban areas, households spend more on health care per annum compared to their rural counterparts (Rs. 4,203 and Rs. 3,518 respectively) and those in the plains spend much more on health care annually as compared to those residing in the hills (Rs. 4,369 and Rs. 2,932 respectively). The two bottom most income classes comprising the poor spend more on health care than the other income quintiles.

Rural households in Udham Singh Nagar and urban households in Pithoragarh spend the maximum amounts per capita on healthcare (Rs. 4,377 and Rs. 5,508 respectively). Households in the rural areas of the hills districts of Uttarkashi (Rs. 3,221) and Bageshwar (Rs. 2,600) and the rural parts of the plains districts of Udham Singh Nagar (Rs. 4,377) and Haridwar (Rs. 3,472) have the highest expenditures on medical and health care in the state (Annexure 7.9). Annual per capita expenditures on health care are lowest in rural and urban households of the hills districts of Champawat and Rudraprayag, which could be largely because of the poor health infrastructure in these regions.

## Medical Expenses on Long Term and Short Term Morbidity

Medical expenses for short term morbidity are higher for the inaccessible rural hilly regions such as Uttarkashi and Chamoli followed by the plains regions such as Dehradun and Udham Singh Nagar. Male and female disparities in medical expenditures also prevail (Annexure 7.10). Almora, Bageshwar, Chamoli and Champawat stand out as regions with a prominent male bias in household expenditures on health. The rural and hilly inaccessible regions of Almora, Pithoragarh, Garhwal, Bageshwar and Chamoli along with urban parts of Pithoragarh, Tehri Garhwal and Dehradun report higher medical expenses (Annexure 7.11). Higher medical expenditures in the hills regions could be a reflection of non-accessibility, lack of infrastructural facilities and high male out-migration to the surrounding regions.

Figure 7.7: Distribution of Beneficiaries by Type of Health Schemes (%), 2017




*Source:* UKHDR Survey, 2017

Table 7.3: Geographical Differentials in Health Care by Type of Scheme, (%), 2017

| Uttarakhand | Does any family member have any health insurance (%) | If covered, type of scheme (%) | | | | | |
|---|---|---|---|---|---|---|---|
| | Yes | ESIS/CGHS | Employer-provided | Medical Insurance | RSBY | Other (specify) | MSBY |
| Rural | 31.8 | 12 | 1.7 | 2.2 | 28.1 | 3.7 | 52.4 |
| Urban | 27.2 | 23.4 | 2.9 | 3.5 | 22.2 | 5.1 | 43 |
| Hills | 37.9 | 13.2 | 1.6 | 1.7 | 28.1 | 4 | 51.4 |
| Plains | 23.2 | 18.9 | 2.7 | 3.9 | 23.5 | 4.3 | 46.6 |

*Source:* UKHDR Survey, 2017

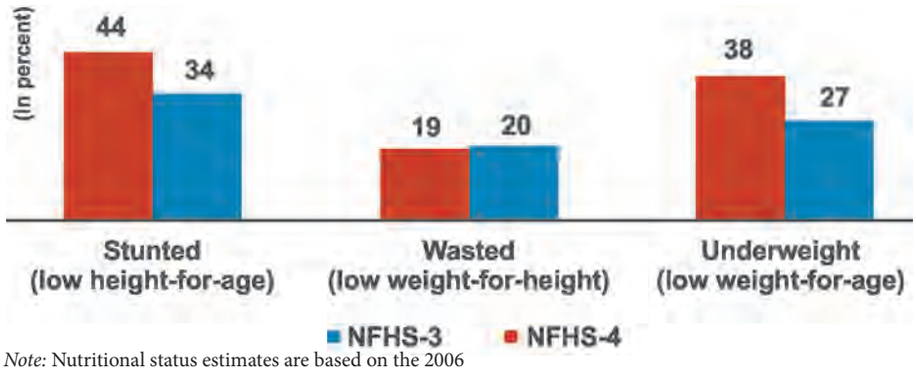
## 7.7 Availability and Accessibility of Health Schemes in Uttarakhand

The UKHDR Survey probed whether households availed of any medical insurance schemes to cover medical expenses. Close to a third of the households in the state do have some form of medical insurance coverage. Approximately half are covered under the Mukhyamantri Swasthya Bima Yojana (MSBY) (49.5 percent), 26.3 percent by the Rashtriya Swasthya Bima Yojana (RSBY) and 15.5 percent by the ESIS/CGHS (Figure 7.7). Also, higher proportions of households in rural areas (31.8 percent) have medical insurance coverage vis-à-vis urban areas (27.2 percent) (Table 7.3).

In rural and urban areas of the state, the MSBY (52.4 percent and 43 percent households respectively) is the predominant medical health programme. In the rural areas, the RSBY (28.1 percent) and the ESIS/ECHS (12 percent) are the other government schemes being availed of by the respondents. In urban areas, prominent health cover schemes include the ESIS/CGHS (23.4 percent) and the RSBY (22.2 percent). In the hills and the plains, the RSBY is predominant as the medical insurance coverage provider to the households (28.1 and 23.5 percent respectively).

Disaggregated by social groups, the MSBY is the main source of medical insurance with over half the Scheduled Caste households (55.4 percent),

Figure 7.8: Trends in Nutritional Status of Children under Five Years (%)




*Note:* Nutritional status estimates are based on the 2006 WHO International Reference Population

over a third of the Scheduled Tribe households (37.4 percent) and over half the population of Other Backward Community households (57.4 percent) availing of this facility (Annexure 7.12). Close to a third of Scheduled Caste households (31.9 percent) also avail of the RSBY programme. At the district level too, a large proportion of households avail of these two health insurance programmes (Annexure 7.13) across the districts.

## 7.8 Breastfeeding, Anaemia, and Nutrition

Breastfeeding is nearly universal in Uttarakhand with close to 94 per cent of children under five having been breastfed in 2015-16. Indicators on the initiation of breastfeeding show an improvement since 2005-06. However, as against the WHO recommendation of exclusive breastfeeding, in 2015-16, only half the children (51 per cent) under 6 months of age were exclusively breastfed. Similarly, much needed complementary foods to supplement breast milk at age 6-8 months were given to less than half (46 per cent) of children in Uttarakhand.

Micronutrient deficiency, a major contributor to childhood morbidity and mortality, is also common. In Uttarakhand, over a third (37 per cent) of children age 9-59 months received a vitamin A supplement during six months preceding the NFHS-4 in 2015-16.

Forty-two per cent of women in Uttarakhand have anaemia as against the national average of 53 per cent. The prevalence of anaemia among children aged 6 and 59 months decreased from 61 per cent in 2005-06 to 55 per cent in 2015-16 - as against the national average of 59 per cent. Girls were slightly more likely than boys to have anaemia. Almost half of children (49%) are anaemic even if their mother has 12 or more years of schooling.

Stunting in Uttarakhand dropped sharply from 44 per cent in 2005-06 to 34 per cent in 2015-16. Over the same ten-year period, the proportion of underweight children decreased from 38 per cent to 27 per cent. However, wasting increased marginally from 19 to 20 per cent. Despite the gains in stunting and underweight, child malnutrition is still a major problem in Uttarakhand (Figure 7.9).

## 7.9 Summing Up

This chapter brings forth some of the pressing issues in the health sector in Uttarakhand. It highlights spatial, geographical and other differentials using various health indicators such as health infrastructure, morbidity and mortality patterns, health expenditures as well as maternal and child health at the state as well as district levels.

Health infrastructure in Uttarakhand suffers from an acute shortage of Primary Health Care Centres which are the first point of contact for those seeking health care. The scarcity of health personnel, with a large proportion of unfilled vacancies in the existing health centres and insufficient numbers of trained health personnel, act as impediments for the successful provisioning of health care, especially to

the poor and adversely affected. To have a desirable impact on health outcomes including mortality and morbidity, improvements in the availability and accessibility of efficiently functioning health care facilities and services along with mechanisms that address the shortfalls in health infrastructure and health personnel are the need of the hour.

Uttarakhand has attained replacement levels of fertility (TFR of 2.1) yet there are shortfalls in maternal health outcomes. These can be addressed by increasing the availability of institutional care for deliveries, more so in rural areas, coupled with increased trained personnel and equipment. Increasing and strengthening the number of delivery facility points that could work round the clock, especially in rural areas, would go a long way in reducing maternal and child mortality rates in the state. The high prevalence of long term illnesses related especially to joints needs concerted attention. The preference for private health care for short and long term illnesses and large out of pocket expenses on health care, especially for households residing in the hills and for vulnerable households, calls out clearly for improved, easily accessible and affordable public health care facilities in the state.

Despite considerable improvements in stunting and underweight, child malnutrition remains a problem in the state. By promoting the enrolment of children in anganwadi centres from the current rate of approximately 60 percent in a majority of the districts, improvements in child nutrition and thereby survival can be garnered. Wider dissemination of information to mothers at the anganwadi centres about identifying danger signs in child health could help in the timely identification and prevention of diseases. Generating greater community awareness about the importance of child immunization and the need to complete the whole vaccination course required for children is imperative. Active involvement of the government in the effective implementation, monitoring and evaluation of health care programmes, along with ensuring accountability of the stakeholders would surely ensure that healthcare benefits reach all the beneficiaries, especially the most deprived, poor and vulnerable.

# 8

# Environment and Natural Resource Management

# 8 Environment and Natural Resource Management

## 8.1 Introduction

Mountain habitats share certain similar bio-climatic features and concerns across the world. These relate primarily to the changing mountain environment as a result of the degradation of resources, owing to their excessive use (Awasthi et al., 2014). The dominant scenario characterizing most of the mountain regions in developing countries, particularly in the Hindu Kush Himalayan region, is the widening gap between development efforts, such as investments and public interventions and corresponding achievements in terms of measurable economic gains and qualitative changes (health and production potential of the natural resource base and environmental consequences.) Over the last half-century, several clearing visible and alarming trends and have emerged in this region. These include persistent negative changes in crop yields, availability of mountain products, the economic wellbeing of mountain people, overall condition of the environment and natural resources (Reiger 1981). These changes are considered to be indicators of unsustainability. The almost parallel emergence of unsustainability indicators, along with the acceleration in development efforts in mountain areas, is a matter of serious concern and calls for a fresh look at conventional approaches to mountain development (Jodha, 2014).

The Himalayan region in India covers Jammu & Kashmir (J&K), Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Darjeeling district of West Bengal, and the Karbi Anglong and North Cachar districts of Assam.

The Himalayas are the world's youngest mountain range and are susceptible to erosion, landslides, seismic activity, rainstorms, and cloudbursts, since they consist mostly of sedimentary and metamorphic rocks and are also tectonically very active. The vulnerability of the region to heavy rainfall and environmental disasters has increased as a result of unplanned development including construction of roads and dams, excessive footfall of tourists, traffic that exceeds the carrying capacity of the region, degraded forest cover, road widening, increase in the amount of non-biodegradable waste, illegal building activity and so on, without giving due regard to environmental safety concerns. The biggest flash flood in the region that occurred in mid-June 2013, resulted in colossal devastation of lives and property[1]. Other environmental threats that persist in the state include: forest fires, air and water pollution, land degradation, wildlife poaching, loss of bio-diversity, etc.[2]

While the human development approach does not directly take into account environmental degradation and the impact of climate change, Uttarakhand is a state where people have to contend with these kinds of impacts almost on a daily basis. As the state is prone to natural disasters due to its fragile mountain economy, the people have to not only cope

1 India Uttarakhand Disaster June 2013: Joint Rapid Damage and Needs Assessment accessed at https://openknowledge.worldbank.org/handle/10986/16759?-show=full on 15th November 2018

2 Nair and Singh 2014 accessed at https://www.researchgate.net/publication/273630282_Understanding_the_Causes_of_Uttarakhand_Disaster_of_June_2013_A_Scientific_Review,NIDM (2015) accessed at http://nidm.gov.in/pdf/pubs/ukd-p1.pdf, media report accessed at https://www.downtoearth.org.in/news/natural-disasters/man-made-reasons-for-uttarakhand-disaster-41407

with loss of lives and cattle, post-disaster impacts, etc., but also face environment related changes involving deforestation, soil erosion, water, air pollution etc. Such changes clearly affect production capabilities and health and also lead to endangering the rich resource base of water, forests, etc.

Secondary data on the impacts of climate change in Uttarakhand report receding glaciers, upwardly moving snowlines, depleting natural resources, erratic rainfall, irregular winter rains, advancing cropping seasons, etc., in the state [3]. Climate change has been manifested in simultaneous water shortages due to the uncertainty in precipitation patterns leading to severe drought conditions as well as excess monsoonal precipitations causing severe floods. This also impacts the bio-diversity adversely.

In this chapter, we begin with a discussion on the main natural resources of the state. This is followed by a discussion on the various environmental concerns for Uttarakhand, including climate change, that impact the human development status via loss of life, livelihoods, environmental degradation and so on. Here we supplement secondary information with data obtained from the UKHDR Survey. Finally, we focus on the imperative and pressing need for natural resource management, protecting the mountain eco-system including the human populace and highlight the major initiatives by the government for the protection and conservation of the environment.

## 8.2 Natural Resources in Uttarakhand

Owing to its largely mountainous regions, Uttarakhand is endowed with unique ecosystems. The northern region of the state is part of the great Himalayan range, covered with snow and glaciers. Two of the Indian subcontinent's major rivers – the Ganga and the Yamuna – also originate from the glaciers of Uttarakhand. Other parts of Uttarakhand are covered with dense forests that make up the bulk of the natural resources base.

The state lies in the Himalayan range and has a highly diversified topography. The climate and vegetation vary greatly with elevation, from glaciers at the highest elevations to subtropical forests at the lower elevations. The highest elevations are covered with ice and bare rocks. Three districts which lie mainly in the plains are Dehradun, Udham Singh Nagar and Haridwar. The rest of the thirteen districts lie primarily in the hilly regions.

About 63 percent of the reported area for land utilization in Uttarakhand is covered with forests (45.4 percent of the geographical area).

### 8.2.1 Forests

Forests are crucial to the survival and prosperity of humans and other species as they not only provide food security and shelter, but are also instrumental in fighting climate change, protecting the bio-diversity as well as the homes of the indigenous populations. It has been observed that human actions are fundamentally, and to a great extent irreversibly, changing the diversity of life on earth. Most of these changes represent a loss of biodiversity[4].

Forests of the Himalayas are rich in biodiversity with 10,000 species of vascular plants, 13,000 species of fungi and 1,100 species of lichens. Forest ecosystems support not only watershed protection, water conservation, purification of air, climate stabilization, production of food and fibre, but also a variety of non-market goods and services that are socio-culturally valuable (Negi et al 2017).

Uttarakhand is very rich in forest cover. In terms of geographic area, the forest cover ascertained with the help of satellite data for 2017, was found to be 45.4 percent, compared to the corresponding all-India figure of 21.5 percent.[5] The dense forest cover including both very dense forests and moderately dense forests is 73.5 percent of the total forest cover, the share of very dense forests in the total being 20.4 percent. The state accounts for 3.1 percent of India's forest and tree cover.

3 See Vision 2030 Uttarakhand for details
4 http://www.un.org/sustainabledevelopment/biodiversity/ and https://www.hcvnetwork.org/resources/folder.2006-09-29.6584228415/CommonVisionRefDoc.080910.pdf accessed on 22nd May, 2018.
5 India State of Forest Report (2017)

Figure 8.1 Forest Cover (%), 2017


*Source:* Forest Survey of India, Dehradun, 2017

However, nearly 70 percent of the forest cover in the state is concentrated in Pauri Garhwal, Nainital, Uttarkashi, Pithoragarh and Tehri Garhwal. There are 165 forest settlements in the forestlands. Out of these 165 forest settlements, 70 villages are located in Almora (24), Nainital (26), and Dehradun (20)[6] respectively. Around 60 percent of the population in such villages lives in Nainital and another 28 percent in Udham Singh Nagar and Haridwar. Thus, forests in areas such as Nainital, Udham Singh Nagar and Haridwar are highly stressed and face the threat of degradation.

With a high share of forest area, there is limited scope for expanding the area under forest cover in Uttarakhand. The percentage change in forest cover at present is negative. The quality of forest cover is also important. The baseline for the total land area covered by dense forests as a share of the total forest cover is 34 percent. The baseline for afforestation (including all types of plantations) is 18,251 hectares.

### *Status of Forests*

In Uttarakhand, 9 percent of the geographical area is under Very Dense Forests (VDF), 24 percent of total forest cover under Moderate Dense Forests (MDF), 12 percent under Open Forests (OF), around 1 percent under scrub forest and 53 percent under Non Forest areas[7].

In terms of forest canopy density classes, the state has 4969 sq km under very dense forests, 12,884 sq km under moderately dense forests and 6442 sq km under open forests. The reserved, protected, and unclassed forests are 69.9 percent, 26 percent, and 4.1 percent respectively as a proportion of the recorded forest area.

It is important to improve the quality of forest cover, that is, to turn some part of the moderately dense forest (accounting for 24 percent of the total forest cover) into dense forests, and some part of the open forests (accounting for 12 percent of the total forest cover) into moderately dense forests. The forest cover within the Recorded Forest Area and outside the Recorded Forest Area for 2017 are 16,780 sq km and 7515 sq km respectively, making the total forest cover 24,295 sq. km. Adding tree cover of 767 sq km, the total forest and tree cover in the state is 25,062 sq. km. District wise forest cover in the state is given below (Table 8.1).

There has been a net positive change in forest cover of 23 sq km in 2017, compared to 2015 which can be attributed to the expansion of tree cover outside of forests. However, forest cover within the Recorded Forest Areas, has shown a net decrease of 49 sq km which can be attributed to rotational felling and developmental activities[8].

6 Other districts that have such unreported villages include Uttarkashi (17), Udham Singh Nagar (16), Pauri Garhwal (14), Pithoragarh (13), Chamoli (12), and Tehri Garhwal (11), Haridwar and Champawat (5 each), and Bageshwar (2).
7 India State of Forest Report (2017) accessed at http://fsi.nic.in/isfr2017/uttarakhand-isfr-2017.pdf on 20th November.
8 India State of Forest Report 2017

Table 8.1 District-wise Forest Cover in Uttarakhand (Area in sq km), 2017

| District | Geographical area | Assessment | | | | % of GA | Change* | Scrub |
|---|---|---|---|---|---|---|---|---|
| | | Very Dense Forest | Moderate Dense Forest | Open Forest | Total | | | |
| Almora | 3,144 | 199 | 837 | 682 | 1,718 | 54.6 | 17 | 6 |
| Bageshwar | 2,241 | 162 | 762 | 337 | 1,261 | 56.3 | -10 | 1 |
| Chamoli | 8,030 | 443 | 1580 | 686 | 2,709 | 33.7 | -15 | 1 |
| Champawat | 1,766 | 367 | 593 | 264 | 1,224 | 69.3 | -11 | 7 |
| Dehradun | 3,088 | 636 | 626 | 343 | 1,605 | 52.0 | 5 | 87 |
| Pauri Garhwal | 5,329 | 552 | 1925 | 917 | 3,394 | 63.7 | 76 | 96 |
| Haridwar | 2,360 | 75 | 277 | 236 | 588 | 24.9 | 0.3 | 6 |
| Nainital | 4,251 | 765 | 1,742 | 541 | 3,048 | 71.7 | -35 | 10 |
| Pithoragarh | 7,090 | 505 | 965 | 608 | 2,078 | 29.3 | -5 | 39 |
| Rudraprayag | 1,984 | 252 | 580 | 309 | 1,141 | 57.5 | 37 | 9 |
| Tehri Garhwal | 3,642 | 272 | 1,085 | 708 | 2,065 | 56.7 | 7 | 97 |
| Udham Singh Nagar | 2,542 | 150 | 193 | 93 | 436 | 17.1 | -14 | 3 |
| Uttarkashi | 8,016 | 591 | 1,719 | 718 | 3,028 | 37.8 | -26 | 21 |
| **Grand Total** | **53,483** | **4,969** | **12,884** | **6,442** | **24,295** | **45.4** | **23** | **383** |

*Change compared to updated 2015 assessment
*Source:* India State of Forest Report, 2017

### *Major Resources for the Forest Sector*

The major resources relating to forest areas are briefly listed below.

- Timber resources: Plantations are raised on plains for commercial use. These include varieties like teak, sal, eucalyptus, poplar etc. Coniferous trees like Deodar, grown on the hills also provide timber. In 2016-17, the state had a production of 184149 cu. m round of timber, and 54578 cu. m. stack of firewood [9].
- Non Timber Forest Produce (NTFP): These include resin from the commercially useful Chir Pine, bamboos, fuel and fodder for use by local people, etc. Jatropha curcas is also being grown chiefly as a potential alternative for petroleum. In 2016-17, the state had a production of 171894 quintal of resin.
- Minerals, stones, and sand: They are extracted from riverbeds when the rivers reach the plains. Such extraction also enables river training (keeping the river bed deeper, to prevent floods).
- Tourism resources: Forests have rich aesthetic value which enriches the ecotourism prospects for the state.

Forests remove carbon dioxide from the atmosphere, and when they store more carbon than they lose in a given year, they serve as a net carbon sink and offset a portion of the greenhouse gas emissions, leading to warming of the environment. The total carbon stock of forests in Uttarakhand stands at 284.664 million tonnes (1043.768 million tonnes of carbon dioxide equivalent) which was 4 percent of the total forest carbon of the country. Thus, the forests in Uttarakhand contribute towards containing the harmful impacts of climate change.

### *Non Timber Forest Products*

Forests are also a source of income for those dwelling in and around them. Although traditionally timber is seen to have maximum commercial value and is a good source of livelihood, there are many valuable

9 Uttarakhand at a Glance 2016-17

Table 8.2 Selected potential NTFPs for Bio-prospecting, 2014

| Local name of plant | Part used/Mode of application | Medicinal and other uses |
|---|---|---|
| Bel | Fruits used for juice and squash | Used in curing of peptic ulcer, constipation, scurvy and dysentery |
| Guiral | Flowers used for pickle and as vegetable | Flower buds are eaten and pickled. Bark used as medicine for wounds |
| Kingore | Fruits used for juice and squash | Wood is used for making agricultural implements and fuel. Bark is used medicinally as an astringent |
| Awnla | Fruits used for juice and squash | Fruit juice is used to cure dyspepsia, cough, anaemia, peptic ulcers, piles and diabetes |
| Kimu | Fruits used for jam and squash | Mulberry leaves used for rearing silkworms and are good source of fodder for cattle |
| Ghingaru | Fruits used for juice, squash and sauce | Wood is used for walking sticks and axe-handles. Infusion of bark is given to cure urinary disorder and powder of dried fruit is used to cure bloody dysentery |
| Ber | Fruits used for juice, squash and pickle | The leaves are good fodder for cattle and goats. The juice of fruit is used to cure sore throats. |

*Source:* India State of Forest Report, 2017

non-timber forest products (NTFP), such as resins, nuts (walnuts, pine nuts), medicinal herbs, and plants, bamboo shoots, and high-value mushrooms. The significance of NTFPs in livelihood generation is being increasingly realized, not least due to the emerging trend of market preference for natural products and the focus on the efficient and sustainable use of natural resources.

> *'NTFPs provide a green social security to a vast percentage of people in the form of food supplements, traditional medicines, fuel and fodder, low-cost building materials and source of employment and income generation"*[10].

Based on their origin, NTFPs may be arranged broadly in four classes viz., plant fruits, seeds, plant exudes-latex, resin, and nectar, plant parts such as stem, leaf, root, bark, apical buds, flowers, mushrooms, orchids, and non-plant products such as lac and silk[11]. Alternatively, NTFPs can be classified into different categories, such as food, fuel, medicine, house hold utensils and farm implements, based on the purpose of use; the part of plants harvested (leaf, fruit, stem and roots) and level of use (self-supporting and commercial).

### *Medicinal Plants and Herbs*

Uttarakhand is a storehouse for a diverse range of flora and fauna and rare species of plants including a rich variety of herbs, medicinal and aromatic plants. This enables the state to offer immense opportunities for the development of export-oriented units based on such products. The state is home to more than 175 species of rare medicinal, aromatic & herbal plants with 625 Ha area under their cultivation (Forest Department, Uttarakhand). Recognizing the potential of this sector, the state government has already declared it as a 'herbal state'. These plants play a vital role in primary health care systems, ethno-medicine, as well as the traditional Indian system of medicines, viz., ayurveda, unani,

10 Source: http://www.frienvis.nic.in/Database/Components-For-Forest-Based-Livelihood_2426.aspx accessed on 25th January 2019
11 Maikhuri et al 2014

siddha, naturopathy and even in homeopathy and allopathy (Table 8.2). A number of these species are vulnerable and under threat of extinction.

According to scientific studies carried out by the Botanical Survey of India[12], Uttarakhand is a floristically super-diverse state, with around 4,700 species of flowering plants, representing nearly 25 percent of the reported Indian angiosperm flora. This vast diversity is found in various vegetation types, ranging from the sub-tropical forests in the upper Gangetic plains and the Shivalik zone in the south to the arctic-alpine vegetation of the trans-Himalayan cold desert in the north. As per the state budget 2016-17, the state government has decided to select 20 villages for planting medicinal herbs.

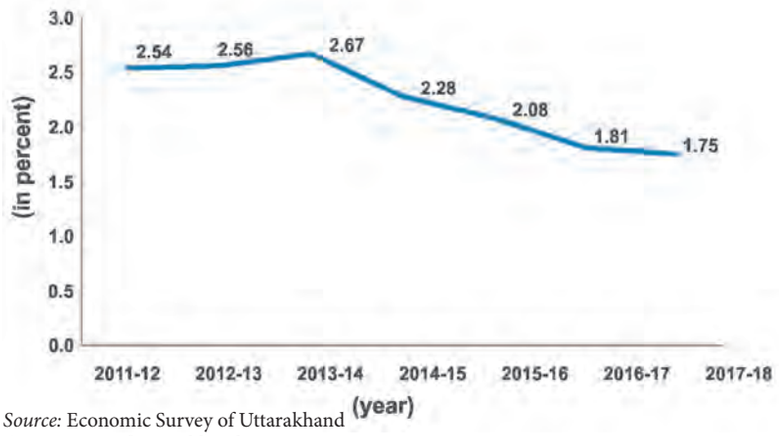
The Department of Ayurveda, Yoga, and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) engages in tapping the potential of several aromatic and medicinal plants found in the mountains of Uttarakhand. Out of the total herbal output in the state, around 60-70 percent herbs are being used at present. There is much scope for employment generation if processing centers for herbs are set up. Uttarakhand has the potential of promoting medical tourism using medicinal herbs, along the lines of other states such as Kerala, with the promotion of processes such as 'Panchakarma'. This type of tourism efforts, along with yoga and wellness centers, under the stewardship of AYUSH, could generate employment in the hills[13].

### *Forests as a Source of Employment and Livelihood Generation*

The state's forest revenues increased at a Compound Annual Growth Rate (CAGR) of 9.5 percent between 2004-05 and 2013-14 and reached US$ 64.67 million in 2014-15. Forest products have excellent potential for development due to the easy availability of raw materials. The state has ample scope to develop industries based on forest and agro-wastes such as lantana, pine-needles, plant and vegetative fibers. Uttarakhand has 6 national parks and 7 wildlife sanctuaries. The area covered by national parks and sanctuaries is 4,915 square km and 2,690 square km respectively. The state's Gross State Value Added (GSVA) from forestry and logging grew at a CAGR of 3.9 percent between 2011-12 and 2017-18. However, the percentage share of forestry and logging to the GSVA of the state from 2011-12 to 2017-18 has remained below 3 percent and has been decreasing consistently since 2014-15 (Figure 8.2).

The Department of Agriculture & Cooperation, Ministry of Agriculture, is implementing the National Bamboo Mission under the Mission for Integrated Development of Horticulture, with the objective of utilizing the potential of bamboo and increase of the area under cultivation. In 2014-15, US$ 0.16 million was allocated for the implementation of the scheme in Uttarakhand (Forest Department, Uttarakhand, State Budget 2015-16).

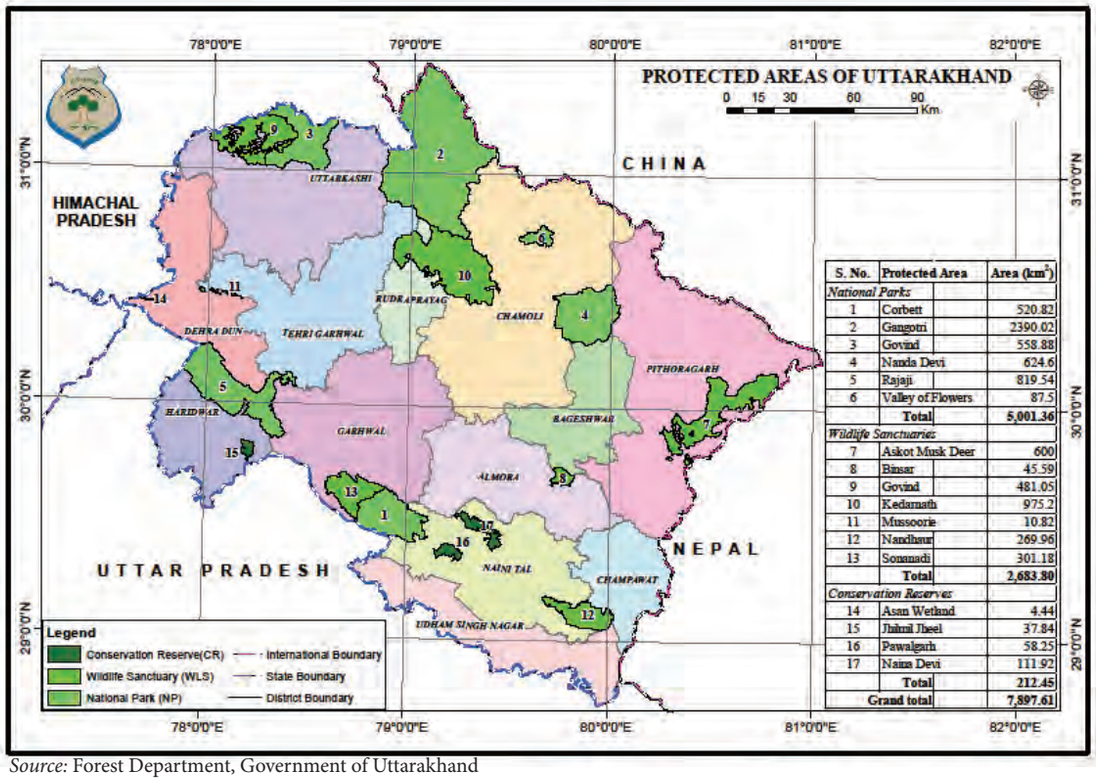
Figure 8.2 Share of Forestry Logging to Gross Value Added at Current Prices (%), 2017-18




*Source:* Economic Survey of Uttarakhand Government of Uttarakhand, 2017-18

12 http://www.indiaenvironmentportal.org.in/files/file/uttarakhand%20state%20action%20plan%20on%20climate%20change%202012_0.pdf last accessed on 2018-05-23.
13 See Vision 2030 Uttarakhand.

Map 8.1 Protected Areas of Uttarakhand, 2017




| S. No. | Protected Area | Area (km²) |
|---|---|---|
| *National Parks* | | |
| 1 | Corbett | 520.82 |
| 2 | Gangotri | 2390.02 |
| 3 | Govind | 558.88 |
| 4 | Nanda Devi | 624.6 |
| 5 | Rajaji | 819.54 |
| 6 | Valley of Flowers | 87.5 |
| | **Total** | **5,001.36** |
| *Wildlife Sanctuaries* | | |
| 7 | Askot Musk Deer | 600 |
| 8 | Binsar | 45.59 |
| 9 | Govind | 481.05 |
| 10 | Kedarnath | 975.2 |
| 11 | Mussoorie | 10.82 |
| 12 | Nandhaur | 269.96 |
| 13 | Sonanadi | 301.18 |
| | **Total** | **2,683.80** |
| *Conservation Reserves* | | |
| 14 | Asan Wetland | 4.44 |
| 15 | Jhilmil Jheel | 37.84 |
| 16 | Pawalgarh | 58.25 |
| 17 | Naina Devi | 111.92 |
| | **Total** | **212.45** |
| | **Grand total** | **7,897.61** |

*Source:* Forest Department, Government of Uttarakhand

Uttarakhand can take pride in the fact that 14.8 percent of its area is under protected areas, almost three times the national average (Map 8.1). The state has 6 National Parks, 7 Wildlife Sanctuaries and 4 Conservation Reserves and has various ecosystems covered in these protected areas right from the Tarai grasslands to the Alpine meadows, showcasing the high diversity of ecosystems in a small area. Two areas have also been notified as tiger reserves viz. Corbett and Rajaji. In addition, the Nandadevi National Park and the Valley of Flowers National Park have been globally recognized as world heritage sites.

Given the varied landscapes in the state, starting from snow-capped and temperate forest-covered mountains in the north, to tropical forest-covered Himalayan foothills and the Shiwalik range with numerous perennial rivers and streams, the state is home to a variety of fascinating wildlife like the he tiger (Panthera tigris), elephant (Elephas maximus), snow leopard (Panthera uncia), leopard (Panthera pardus), black bear (Ursus thibetanus), golden mahseer (Tor putitora), king cobra (Ophiophagus hanna), Himalayan monal (Lophophorus impejanus), and great hornbill (Buceros bicornis).

The Himalayan tahr (Hemitragus jemlahicus), bharal (Pseudois nayaur), Himalayan musk deer (Moschus chrysogaster) and goral (Nemorhaedus goral) deserve special mention as most of these species of animals are endangered. As per the latest scientific estimation of tigers held in 2014, the state has a healthy population of 340 tigers which is only second to the large state of Karnataka. The Corbett Tiger Reserve in Uttarkhand has the highest numbers and density of tigers anywhere in the world. The state also has a healthy population of Asiatic elephants which stood at 1839 in 2017. A total of 710 species of birds have been recorded which is more than half the diversity of birds in the country.

### 8.2.2 Water Resources

The Yamuna and the Ganga—the two major rivers in the western Himalayan region— directly impact the lives of a large population living in the northern part of India, more so in Uttarakhand. In many higher arid and semi-arid areas, people are dependent on the amount of ice melt and the timing of water flow. The melt season is often the warmest and driest time of the year, providing a large volume of runoff for irrigation.

However, the rate of snowfall in these areas has been gradually decreasing with increasing summer and winter temperatures are causing glaciers to retreat. Basic information on the major glaciers of Uttarakhand is provided below (Table 8.3).

The glacier-fed rivers of Uttarakhand are an important resource for the Ganga basin, with many rivers contributing to the irrigation potential of some of India's most densely populated states such as Uttar Pradesh, Bihar, Delhi, and Haryana. Uttarakhand is the source of water for most of northern India. Despite the immense availability of water in the state, water is scarce for the local people, for drinking purposes, domestic use and irrigation. The conservation of water bodies is an area of importance for the state with 11 rivers/riverlets already covered under the Namami Gange Project, accounting for the afforestation of 1000 hectares of river/riverlets[14]. The area covered under pits and ponds (*chal-khal*) is 215 hectares (2016-17). The state has already identified watersheds at the macro, meso and micro levels and many are being treated / managed. The state has identified 8 catchments, 26 watersheds, 110 sub-watersheds and 1,110 micro watersheds. Out of the 1,110 micro-watersheds, 584 are under treatment and 302 cannot be treated as they are located in snowy and highly precipitous areas. The inclusion of rooftop rainwater harvesting in building byelaws has been made compulsory in the state[15].

The UKHDR Survey reveals people's perceptions regarding water supply. While tap/piped water has reached a majority of urban residents, the Survey found that in rural areas, around 65 percent of the respondent households had access to tap water, while 21 percent had access to water from tubewells/ handpumps (Figure 8.3), indicating that a sizeable share of people still do not have access to tap water. Around 16.8 percent respondents felt that the water supply was insufficient while 18 percent of total respondents were dissatisfied with the quality of water. Dirty and muddy water supply were cited as the major problems, indicating water contamination.

Thus, despite the presence of glaciers and perennial rivers in the state, in addition to plenty of rainfall, the availability of water is not up to expectations, particularly because water runs off in the hilly terrains instead of getting accumulated. This compels women to walk long distances in the mountainous regions to merely access water. Therefore, ensuring the sustainability of water sources, water management and water recycling are crucial issues for the state that elicit policy consideration.

Table 8.3 Major Glaciers in the Ganga Basin in Uttarakhand, 2014

| Ganga Basin | No. of Glaciers | Glacier-covered Area (km2 ) | Ice Volume (km2 ) |
|---|---|---|---|
| Yamuna | 52 | 144 | 12.2 |
| Bhagirathi | 238 | 755 | 67.02 |
| Alaknanda | 407 | 1229 | 86.38 |
| **Total** | **697** | **2128** | **165.6** |

*Source:* Raina, 2009[14]

While the state government is introducing modern techniques to solve the problem of drinking water, it needs to also rejuvenate traditional methods of water harvesting to provide drinking water to the people. The geographic hardships of the state have given rise to various traditional methods of water conservation, prime examples of which are the nauley, dharey, chal and khal, which are now being restored to solve the water crisis

## 8.3 Environmental Challenges and Vulnerability to Climate Change

As mentioned at the outset, the people of Uttarakhand are extremely vulnerable to natural calamities such as

14 Ministry of Water Resources, 2017
15 UAPCC 2014

Figure 8.3 Major Sources of Drinking Water in Rural Households (%), 2017


*Source:* UKHDR Survey, 2017

floods, landslides, etc. The vulnerability to climate-related events is reflected in the loss of human lives, injuries, damage to property and the loss of animals due to natural disasters. According to official statistics, the loss of lives due to natural disasters was 126 in 2016-17, while in 2013, after the disaster, it touched 225, with the number of missing recorded at a massive 4021. As of 2016-17, the number of fully damaged houses was 806, and the number of partially damaged houses was 2440, while there was a loss of 1464 animals, including both small and big.[16]

There are additional environmental challenges such as increased air and water pollution, land degradation, etc., which the inhabitants of the state have to face. In urban areas, for instance, the rapidly increasing population, along with unplanned growth and high tourist inflows, has resulted in air, water and noise pollution. As with the rivers, the lakes and water bodies are also being polluted with uncontrolled disposal of solid wastes. Bustling cities such as Dehradun face growing air, noise and water pollution at levels that are 125 to 200 per cent higher than the norms specified by the Central Pollution Control Board (CPCB).[17]

We discuss below the impact of natural disasters and the major environment related challenges in the state as perceived by the people of the state, with the help of findings from the UKHDR Survey [18]. Estimates of vulnerability to climate change obtained from secondary data are also discussed.

### 8.3.1 Natural Disasters

The state of Uttarakhand, owing to the fragility of its mountain economy, is vulnerable to natural disasters. While secondary data are collected by the government and other agencies to assess disasters and to set preventive mechanisms in motion, it is also important to hear the people's voice as well. The UKHDR Survey attempted to get a picture of how people perceived the incidence and impact of natural disasters in their lives.

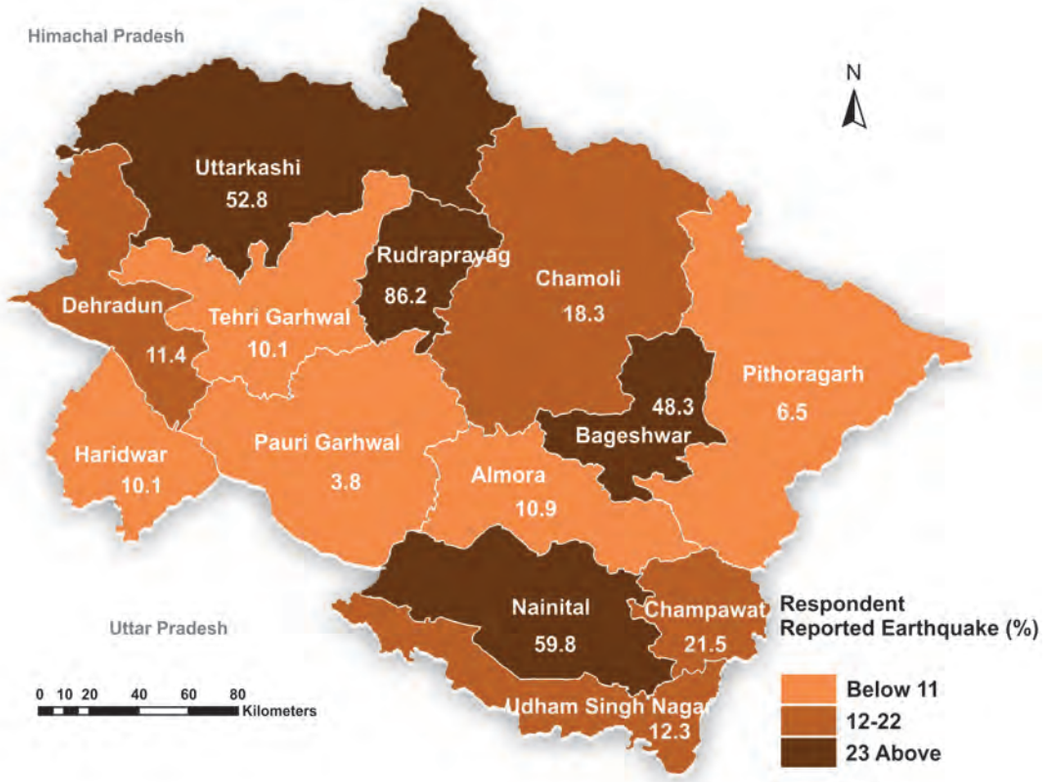
The Survey findings indicate that a relatively higher proportion of respondents in the hills districts of Uttarkashi, Bageshwar and Rudraprayag, which are also remote, report being badly affected by natural disasters, followed by Nainital and Champawat. Hardly any coping mechanism was reported to be in place in these districts. Respondents were asked to report the incidence of natural disasters by type during the last five years and on an average, the highest response was for earthquakes (19.7 percent), followed by wildfire/forest fires (8.7 percent) and floods (8.6 percent), while the least reporting was for the incidence of landslides (4.9 percent) and cloudbursts (4.1 percent). Out of these, floods and forest fires were found to be much more of a rural phenomenon.

#### *Earthquakes*

The state falls in Zone IV and Zone V as per the seismic zones and has experienced many earthquakes, small and big, in the past, having their epicentres in the Himalayan region (National Institute of Disaster Management, 2015). The UKHDR Survey found that the districts of Rudraprayag, Nainital, Uttarakashi, and Bageshwar had highest reporting of earthquakes during the last five years (Map 8.2). Some incidence of regular alerts were reported from Uttarkashi, Rudraprayag and Dehradun, but mostly no coping mechanism was found to be in place.

16 See Vision 2030 Uttarakhand.
17 Ibid
18 The perception of incidence of disasters may not exactly overlap with available secondary information, since it is as perceived by the sample households.

Map 8.2 Respondents who Reported Earthquakes (%), 2017




*Source:* UKHDR Survey, 2017

### *Wildfire/Forest Fire*

Early in 2018, as the temperature increased in the state, more than 2000 hectares of land was affected by forest fires[19]. Uttarakhand experiences repeated incidence of forest fires and these cause great losses to the forest ecosystem, diversity of flora and fauna and economic wealth. The longer term environmental impacts of such forest fires can be severe. For example, black carbon deposits in the glaciers from the smoke and ash of forest fires can lead to the faster melting of ice. High temperatures without adequate atmospheric moisture, comprise one of the important reasons for forest fires in Uttarakhand. Map 8.3 shows the situation regarding forest fires across the state.

According to the perception of sample respondents, the maximum proportion reporting forest fires were in the districts of Rudraprayag, Uttarkashi, Champawat and Bageshwar. In Champawat and Rudraprayag, around one-third people said that the rescue team was always ready to fight fires, but mostly there was no coping mechanism available.

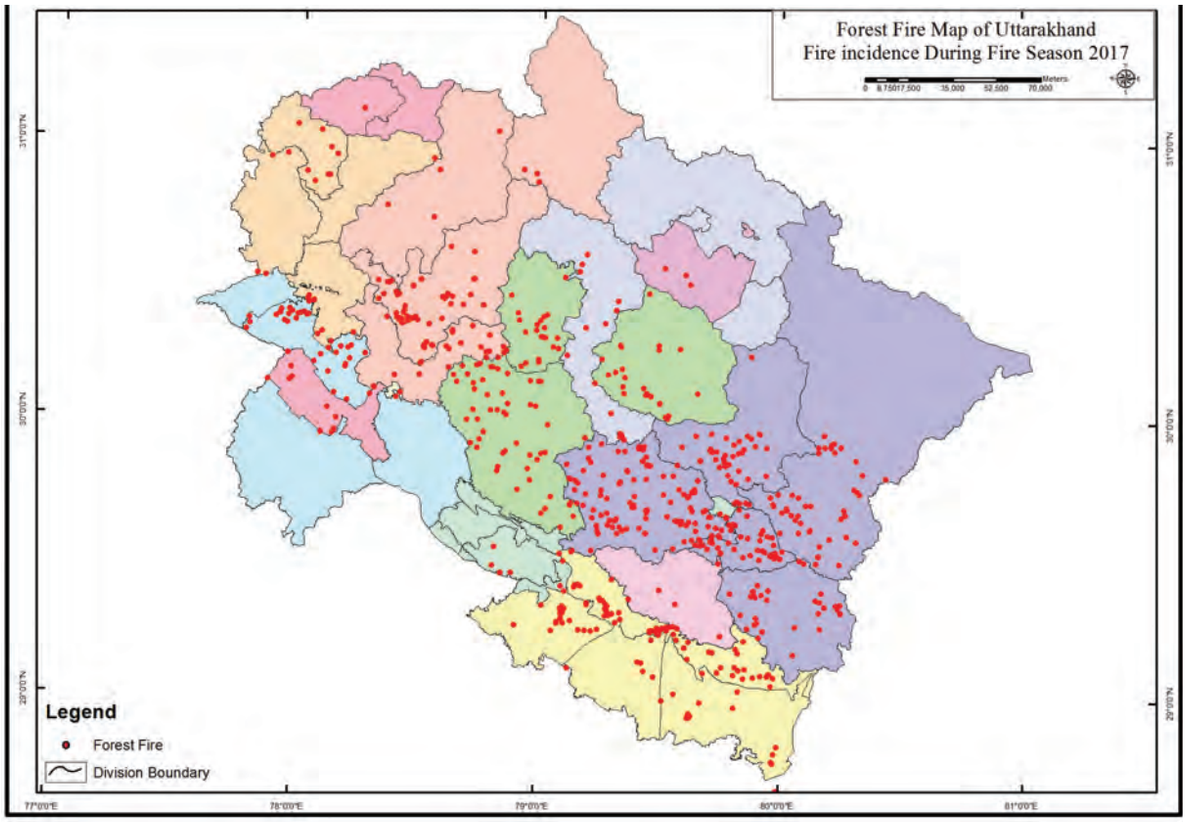
### *Floods*

The flash floods and landslides in 2013 and the collateral damage they caused in terms of loss of lives, property, and livelihood is still fresh in public memory. The districts of Bageshwar, Chamoli, Pithoragarh, Rudraprayag and Uttarkashi were the worst affected. Over and above the loss of lives, more than four thousand people went missing, bridges and roads collapsed, houses crumpled in many villages, and huge swathes of agricultural land got completely washed away. It also had an adverse impact on local livelihoods, especially on tourism.

Asked about the incidence of floods during the last five years, the respondents in Uttarkashi, Bageshwar, Rudraprayag and Pauri Garhwal districts

19 https://indianexpress.com/article/india/uttarakhand-forest-fires-burn-more-than-2000-hectares-of-land-in-2018-cm-trivendra-rawat-reprimands-officials-5188649/ accessed on 23rd November 2018

Map 8.3 Fire Incidents in Uttarakhand during Fire Season, 2017




*Source:* Forest, Government of Uttarakhand

reported the same in highest proportions (Map 8.4). In all the districts affected by floods, the 60-96 percent response was of absence of coping mechanisms. The loss of life/property/assets/livelihoods, etc., from floods was reported as far greater compared to earthquakes.

### *Landslides*

During rainfall, landslides, slope failures or land subsidence are often seen in hilly regions (NIDM, 2015). These often lead to loss in lives (both human and animal) damage to infrastructure such as roads, buildings and the destruction of agriculture and other ecosystems. The UKHDR Survey finds that in Rudraprayag, Uttarkashi, Nainital and Tehri Garhwal, a higher proportion of respondents reported landslides as the natural disasters that they had to face. Very few reported that there was some coping mechanism for landslides.

### *Cloudbursts*

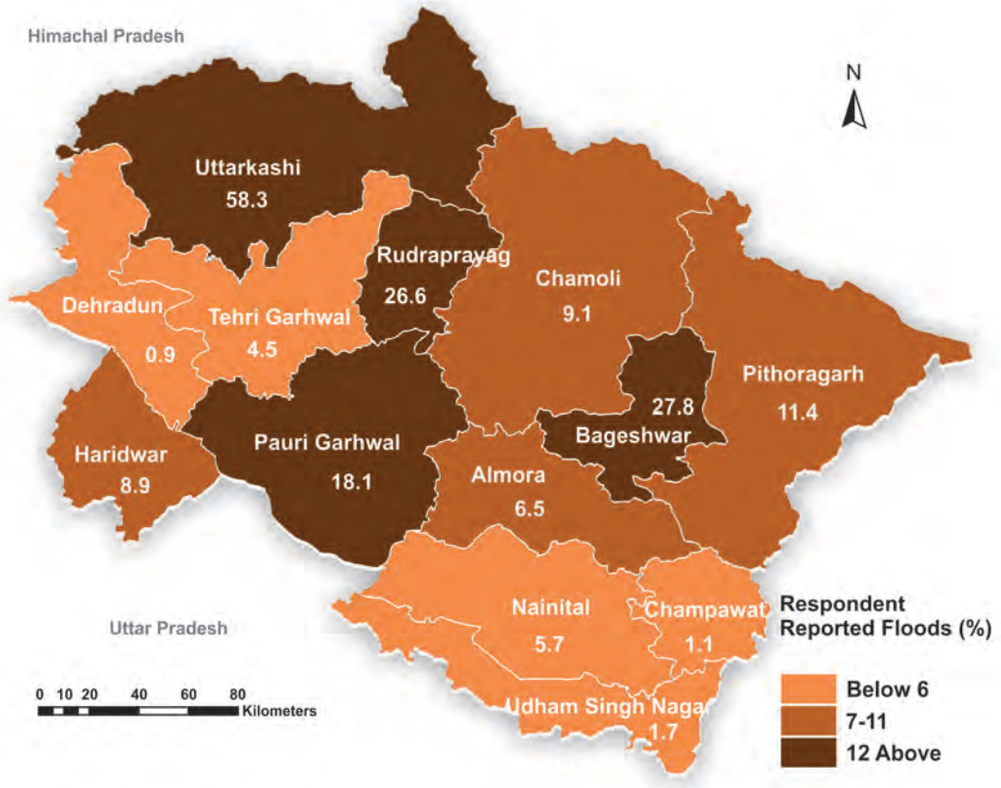
Cloudbursts are an extreme amount of precipitation, which last for only a few minutes, but can cause flash floods. In Uttarakhand, cloudbursts are known to have caused flash floods and to have breached river banks, totally inundating villages. During June 2013, cloudbursts and heavy to very heavy rainfall hit several parts of the higher reaches within Uttarakhand and eventually resulted in massive devastation. Nearly half of the respondents in Rudraprayag reported cloudbursts as the natural disaster that they had to face while cloudbursts were reported in much smaller proportions by respondents in Nainital (12.4 percent), Uttarkashi (11.1 percent) and Pauri Garhwal (10.1 percent).

### *Post-disaster Impacts/Effects*

The UKHDR Survey probed the after effects of natural disasters on the economic status of the respondents and what all they had to cope with. Some of the findings from the survey are listed below:

- *Increase in Food/Commodity prices:* In both rural and urban areas, the maximum impact of natural disasters was reported in terms of increases in food/commodity prices (Map 8.5).

Map 8.4 Respondents who Reported Floods (%), 2017




*Source:* UKHDR Survey, 2017

The highest share of respondents (in rural and urban areas) reported an increase in disaster were from Chamoli, Rudraprayag, Uttarkashi, Nainital, Bageshwar and Champawat, as well as Pithoragarh to some extent. In urban areas, the reporting was much less compared to rural areas.

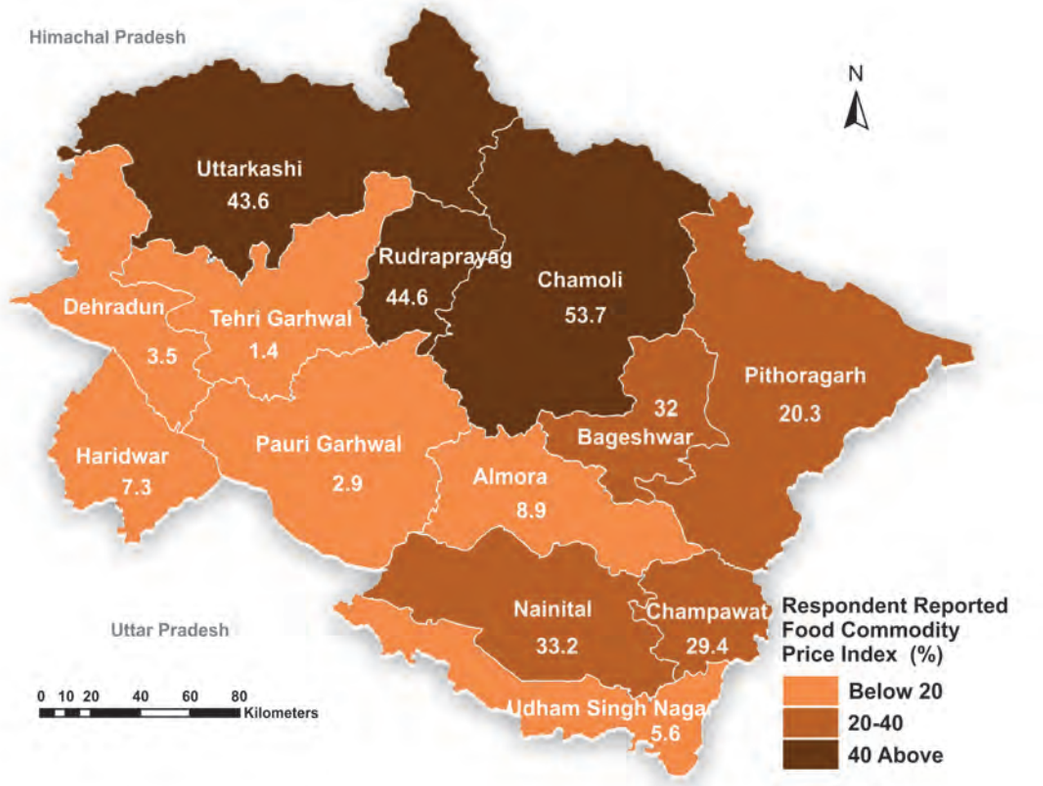
- *Decrease in the price of produce:* Overall, a decrease in the price of produce was reported by a lower share of respondents. A relatively higher proportion of people in the rural areas of Uttarakashi, Bageshwar and Champawat reported a post-disaster decrease in the price of produce.
- *Death/injury or illness:* In rural areas, post disaster deaths, injuries or illnesses were reported in higher proportions in Rudraprayag, Uttarkashi, and Nainital (Map 8.6). In urban areas, nearly half the respondents in Pauri Garhwal, approximately 34 percent in Chamoli and 22 percent in Nainital reported such an impact.

### 8.3.2 Perception of a Negative Change in the Environment

During the household survey, respondents were asked about their perceptions regarding the changes in the environment over the previous three years. On an average, around one-third of the respondents in the state perceived a negative change in the environment. Deforestation, reported by 60.5 percent of the respondents was the highest perceived environment related change followed by environmental pollution (54.5 percent) (Figure 8.4). Landslides, floods, soil erosion and other changes were reported by fewer respondents, although district-wise variations in the perceived changes in the environment were large (Map 8.7). For instance, 27 percent respondents in Rudraprayag reported soil erosion and 42 percent respondents in Almora reported floods[20] as the important perceived environmental changes.

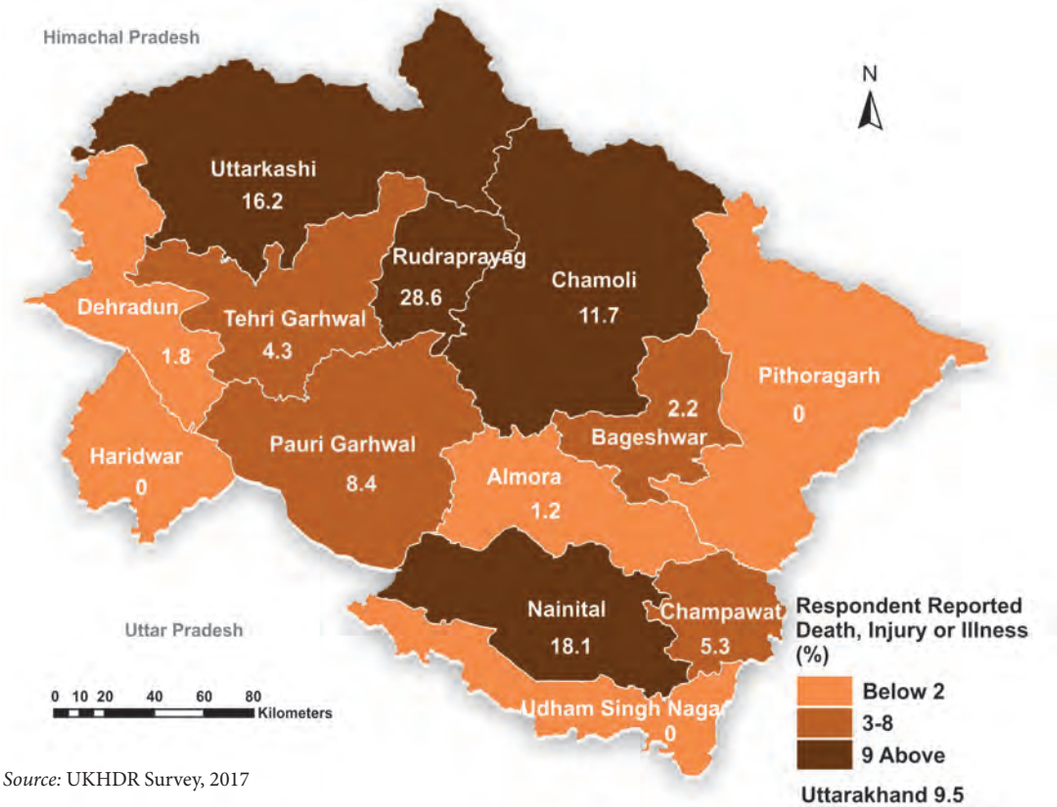
20 Data is not shown here

Map 8.5: Respondents who Reported Post-disaster Increases in Prices of Food/Commodities (%), 2017




*Source:* UKHDR Survey, 2017

Map 8.6 Respondents who Reported Post-disaster Deaths/Injuries or Illnesses (%), 2017

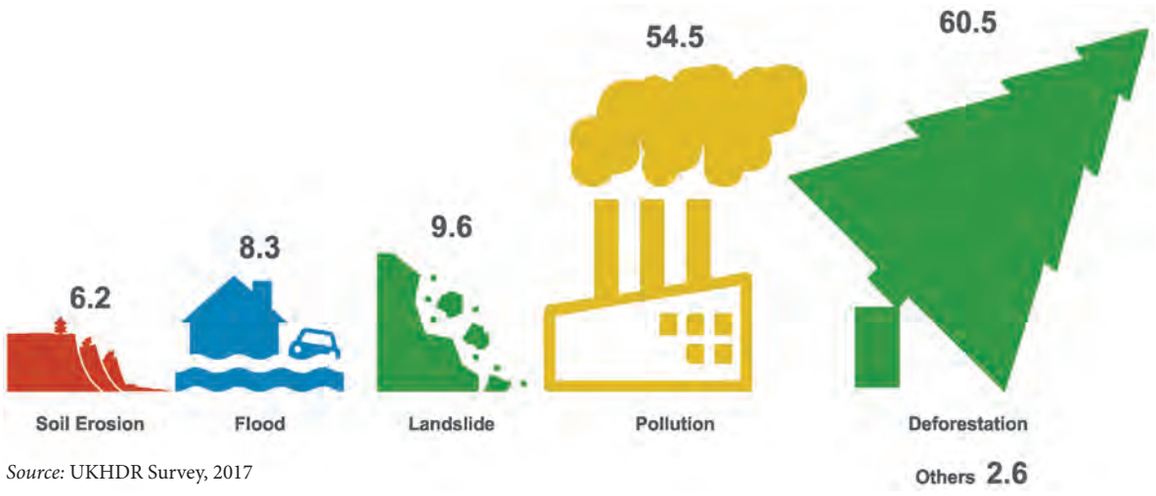



*Source:* UKHDR Survey, 2017

### *Deforestation and Land Degradation*

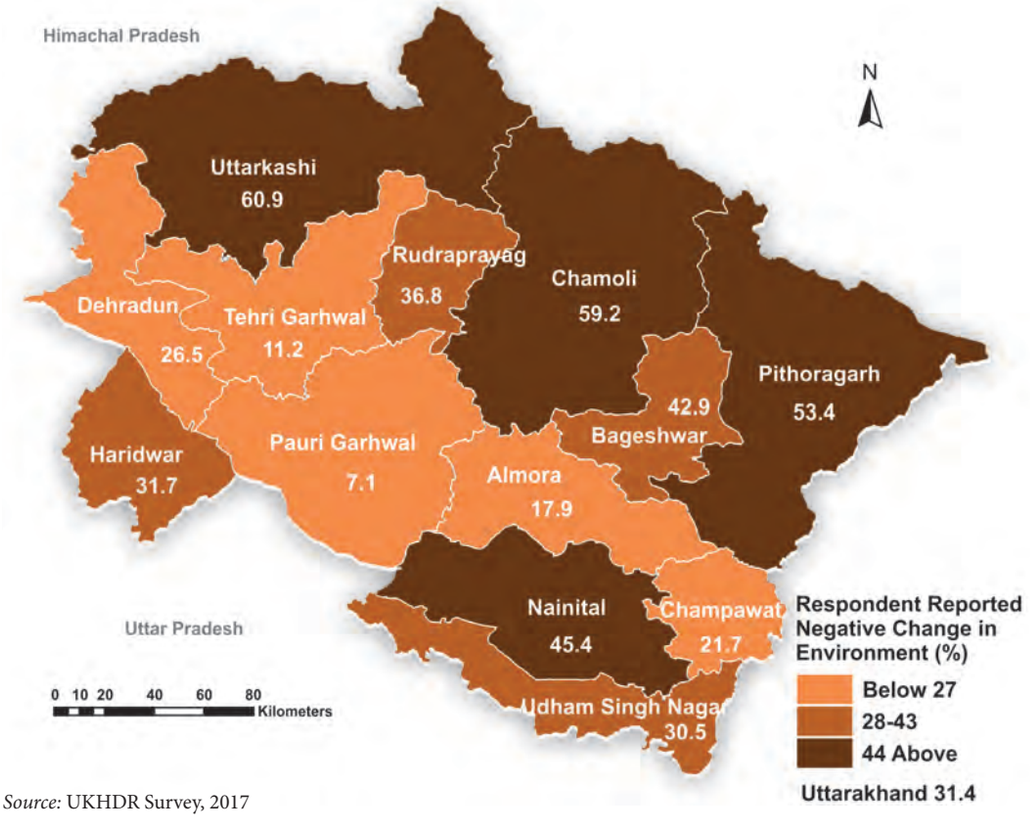
Uttarakhand has a high share of its area under forests. As per a 2017 survey by the Forest Survey of India (FSI), forest cover was 45.4 percent of the geographical area and the overall forest cover increased by an insignificant 23 sq km since an earlier assessment in 2015. However, within the Recorded Forest Area, there was a decline in the forest cover by 49 sq km, attributable to rotational felling and diversion of forest land for developmental activities. The association between deforestation and slope instability has been a subject of considerable research, while the fall-out of deforestation in the form of soil erosion and soil movement is generally accepted. It also has a detrimental effect on the livelihoods of people (Box 8.1).

Figure 8.4 Respondents Reporting Negative Changes in Environment over the previous 3 years (%), 2017




*Source:* UKHDR Survey, 2017

Map 8.7 Respondents Reporting Negative Change in Environment during last 3 years (%)




*Source:* UKHDR Survey, 2017

Land degradation results in the loss of terrestrial carbon stores from soil and vegetation, and has likely effects of reducing moisture absorption and retention. Such degradation is exacerbated by climate change. The UKHDR Survey finds the highest proportions of respondents reporting deforestation from Champawat (95.8 percent), Rudraprayag (85.9 percent), Chamoli (84.1 percent) and Pithoragarh (83.4 percent).

### *Soil Erosion and Loss of Bio-diversity*

Soil is one of the most important natural resources and the biodiversity of a region strongly depends upon the soil and climatic elements. This natural resource has been depleting gradually as soil erosion in the state has been increasing with increases in deforestation and degradation. Soil resources in Uttarakhand vary from the deep, alluvial and fertile soils of the Tarai tract to the recently laid down alluvium of the Doon valley; the thin fragile soil of the Shivalik hills; the black soils of the temperate zone; and the arid, bare soil of the inner dry valleys.

Landslides, mine-spoils and torrents are the main causes of massive erosion. Ecological degradation in the mountain region is a threat of huge proportions, affecting agricultural lands as well as rural habitations. In the UKHDR Survey, relatively high shares of respondents reported soil erosion from the districts of Rudraprayag (27.3 per cent), Almora (17.1 per cent), Uttarkashi (16.7 per cent) and Tehri Garhwal (15.9 per cent) (Map 8.8).

A major threat to biodiversity comes from habitat loss due to human changes in land use, including the conversion of forests into agricultural land or of agricultural land into urban land. Changed weather conditions brought about by climate change and global warming also affect biodiversity, as many species are sensitive to warming temperatures.

### *Pollution*

On an average, 54.5 percent of respondents reported pollution as a negative change observed in the previous three years (UKDHR Survey). However, when specific queries were posed separately, regarding the experience of air and water pollution, a lower share of respondents, around 24 percent and 19 percent respectively, replied in the affirmative for air pollution and water pollution. If we consider the rural and urban share of respondents for air (rural 15.1 percent, urban 27.2 percent) and water pollution (rural 18.6 percent, urban 33.6 percent), it is evident that air and water pollution are no longer confined to being an urban problem, even in a mountainous state such as Uttarakhand.

*Air pollution:* Air pollution has very adverse effects on public health and can cause a number of respiratory and other diseases. Secondary data indicates that air pollution in Dehradun, the capital city of Uttarakhand, has indeed reached alarming levels, despite its location in a mountainous state in comparison to most cities across the country (Table 8.4).

Public perception as assessed by the UKHDR Survey, indicates that Dehradun, Uttarakashi, Nainital, Haridwar and Udham Singh Nagar were districts where higher proportions of respondents reported air pollution (Map 8.9).

**Box 8.1 Impact of Deforestation on Livelihoods**

Once forests are cut down in the mountain areas, there is an increase in surface runoff and soil erosion. Fodder and year-round water availability decrease. As fodder becomes hard to get, mountain families tend to reduce their livestock, leading to a reduction in farmyard manure, loss of soil fertility and reduced agricultural production. When a family's food grain production falls below sustenance levels, a typical response is the migration of an able-bodied male family member. The reduced availability of labour in the family increases the burden on women. They react by further reducing the number of cattle, sending the family's agricultural production into a downward tailspin.

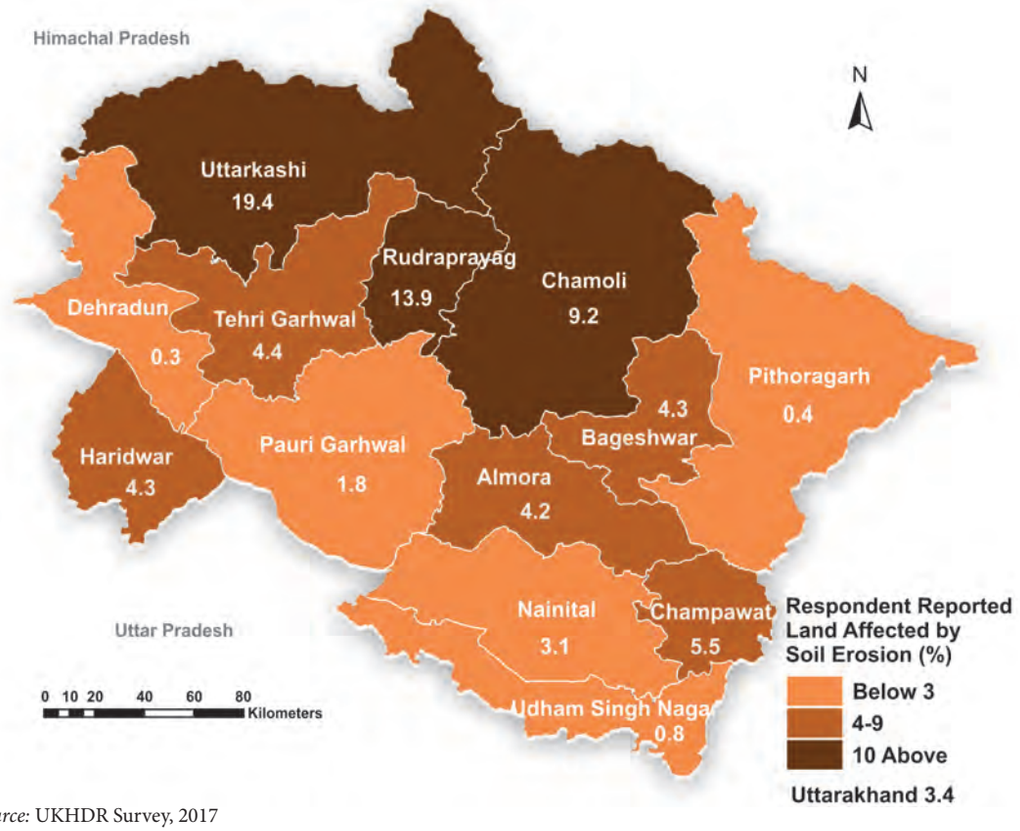
*Source:* Chopra, R. (2014), Uttarakhand: Development and Ecological Sustainability

Table 8.4 Ambient Air Quality Level of PM10 (µg/m3), 2017

| City | Pre-Deepawali Day | Deepawali Day |
|---|---|---|
| Dehradun | 140 | 236 |
| Shimla | 69 | 79 |
| Kolkata (Tollygunge) | 107 | 58 |
| Chennai | 59 | 566 |
| Bengaluru (R.T. Nagar) | 35 | 213 |
| Delhi (ITO) | 208 | 438 |

*Source:* Ambient Air Quality and Noise Levels: Deepawali Festival Monitoring Report, 2017, Central Pollution Control Board, Ministry of Environment, Forest and Climate Change.

Map 8.8 Respondents Reporting Land Affected by Soil Erosion over the previous 3 years (%), 2017

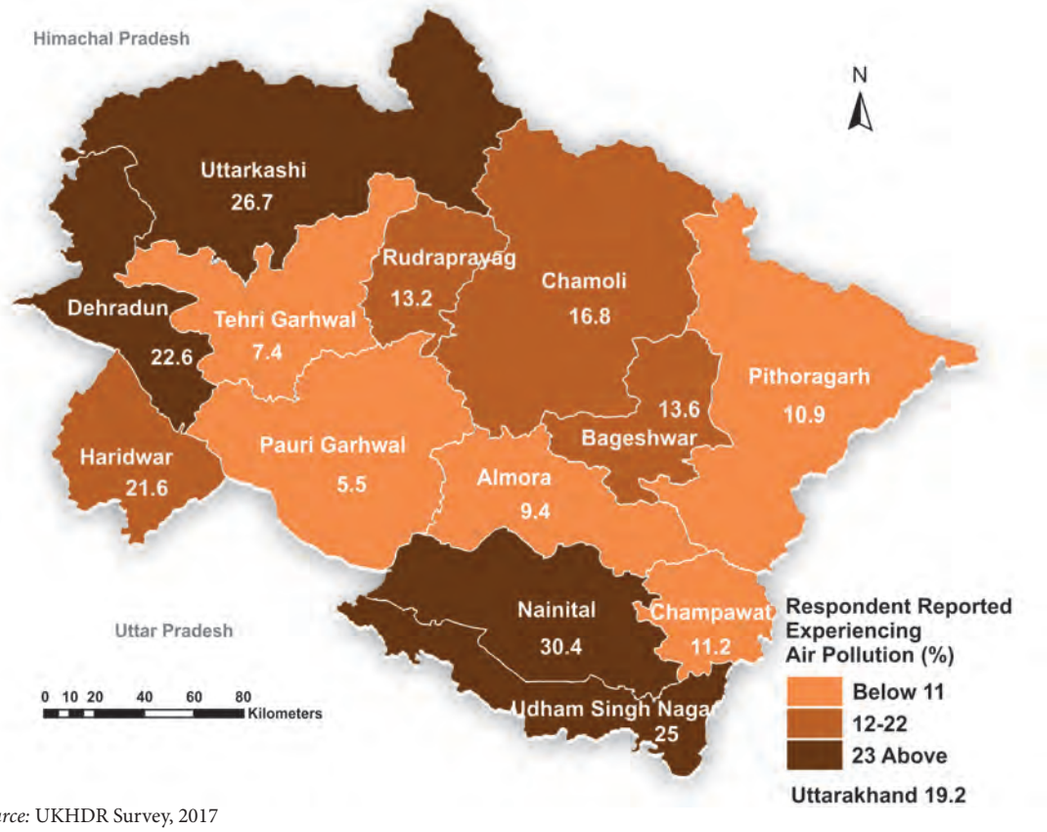



*Source:* UKHDR Survey, 2017

*Water Pollution:* Unregulated disposal of waste into water bodies, and rivers, can lead to water pollution and can adversely affect water quality. A recent survey by the Central Pollution Control Board (CPCB) found that industries were largely responsible for polluting the river Ganga with their effluents and several such industries are located in Uttarakhand, among other states along the course of the river [21]. The highest proportion of respondents reported water pollution from

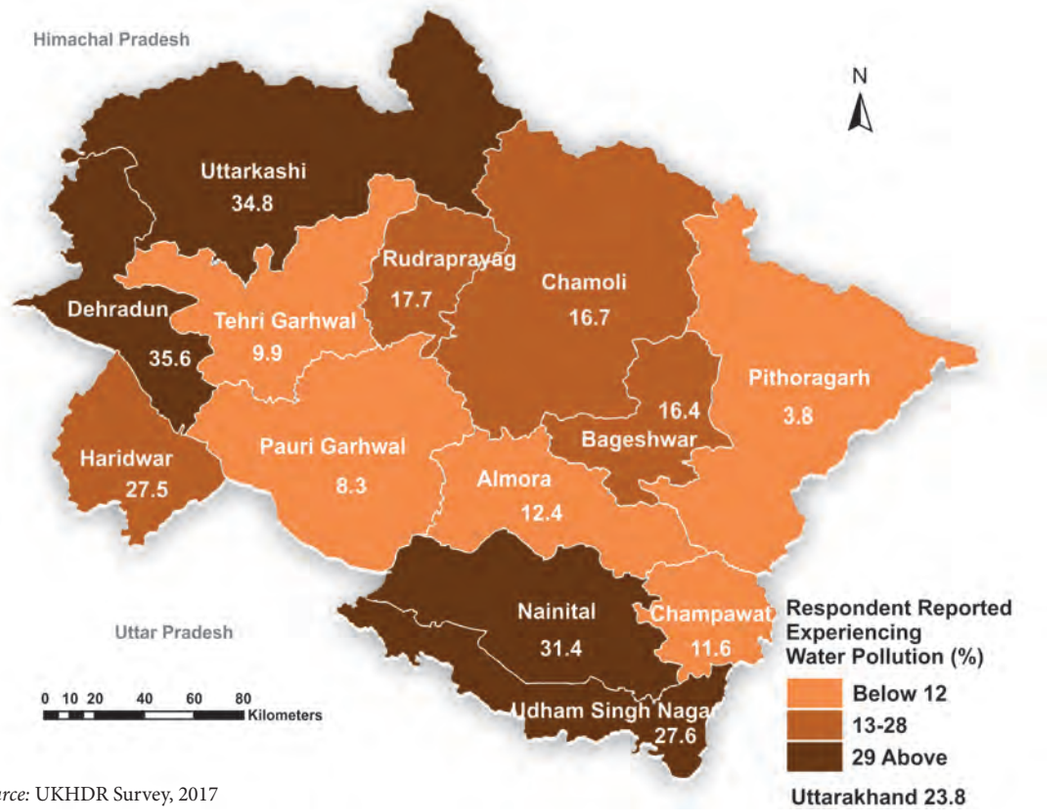
21 See Vision 2030 Uttarakhand

Map 8.9 Change in the Level of Air Pollution over the previous 3 years (%), 2017




*Source:* UKHDR Survey, 2017

Map 8.10 Change in the Level of Water Pollution during the last 3 years (%), 2017




*Source:* UKHDR Survey, 2017

Table 8.5 Noise Level in Leq dB (A) in different cities in India, 2017

| City | Pre-Deepawali Day | Deepawali Day |
|---|---|---|
| Dehradun (Clock Tower) | 71 | 71 |
| Shimla | 47 | 68 |
| Kolkata (North Kolkata) | 62 | 64 |
| Chennai (Besant Nagar) | 62 | 73 |
| Bengaluru (R.T. Nagar) | 65 | 72 |
| Delhi (Lajpat Nagar) | 62 | 74 |

*Source:* Ambient Air Quality and Noise Levels: Deepawali Festival Monitoring Report 2017 by Central Pollution Control Board, Ministry of Environment, Forest and Climate Change.

Nainital, Uttarkashi, Udham Singh Nagar, and Dehradun (Map 8.10).

*Noise Pollution:* The incidence of noise pollution, has been significant in a bustling city like Dehradun, as assessed by the CPCB. The comparative situation of noise pollution in Dehradun and some other cities for 2017 is presented in Table 8.5.

### 8.3.3 Climate Change

As discussed above, the people of Uttarakhand have to cope with natural disasters on a daily basis. With climate change, many of these challenges are getting exacerbated. The phenomenon of climate change is defined as '*a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer*' (Intergovernmental Panel on Climate Change, 2007, cited in Integrated Natural Resources Management, et al., 2016). It can be caused by natural variability or due to human activity such as the use of fossil fuels, cutting of trees, etc., which can alter the global environment[22]. The Uttarakhand Action Plan for Climate Change (UAPCC) Report (2014) underscores the likelihood of human influence being a dominant cause for the observed warming of the environment since the mid-20th century.

Some of the changes reported by the UAPCC, (which have been induced by the climate change phenomenon) include receding glaciers and upwardly moving snowlines, depleting natural resources, erratic rainfall (leading to flash floods like the June 2013 disaster), irregular winter rains, advancing cropping seasons, fluctuations in the flowering behaviour of plants, shifting oin the cultivation zones of apple (the zone has moved by 1000 m to 2000 m), a reduction in snowfall in winter, rise in temperatures, increasing intensity and frequency of flash floods, drying up of perennial streams, etc.

Climate change related manifestations in Uttarakhand show water shortages due to uncertainty in precipitation patterns leading to severe drought conditions as well as excessive monsoonal precipitations leading to severe floods. Changes in climatic parameters have been affecting the state's biodiversity with some species showing stress and invasive species establishing themselves.

The UKHDR Survey probed people's perceptions regarding the experience of climate change over the last five years. Nearly 40 percent of the respondents felt that there had been changes in the climatic patterns in terms of rainfall, snowfall, etc. (Table 8.6 and Figure 8.14).

The highest such response was recorded from Chamoli district where 65 percent people reported experiencing climate change followed by Uttarkashi (62.7 percent) and Nainital (59.7 percent). Regarding possible causes that could be leading to climate change, deforestation (55 percent) was cited by more than half the respondents, followed by industrialization, urbanization, wildfires, illegal mining, and others.

22 Ibid.

Table 8.6 Experience of Climate Change in last 5 Years and Reasons for Change (%), 2017

| District | Respondents (%) who have Experienced Climate Change in the last 5 years | Reasons for the change in climate in last five years (%) | | | | | |
|---|---|---|---|---|---|---|---|
| | Yes % | Industrialization | Deforesta-tion | Urbanization | Wildfire | Illegal mining | Any Other |
| Almora | 28.4 | 12.5 | 69.3 | 24.2 | 53.4 | 29 | 9.8 |
| Bageshwar | 52.2 | 4.8 | 72.2 | 24 | 35.2 | 10 | 4.7 |
| Chamoli | 64.7 | 22.3 | 86.8 | 22.2 | 39.9 | 7.7 | 0.5 |
| Champawat | 47.5 | 1.3 | 76.1 | 21.5 | 28.1 | 3.2 | 0 |
| Dehradun | 29.7 | 52.8 | 57.4 | 67.2 | 21.1 | 15.9 | 0.6 |
| Pauri Garhwal | 12.9 | 30.8 | 28.9 | 54.5 | 14.1 | 21.7 | 3.4 |
| Haridwar | 43.1 | 53.3 | 50.3 | 24.5 | 8.1 | 5 | 1.8 |
| Nainital | 59.7 | 20.1 | 65.8 | 41.3 | 12.6 | 4.6 | 1.8 |
| Pithoragarh | 39.5 | 11.5 | 78.7 | 26.5 | 9.9 | 5 | 0.4 |
| Rudraprayag | 53.3 | 19.8 | 78.4 | 56.3 | 48.9 | 2 | 2.2 |
| Tehri Garhwal | 19.2 | 44.2 | 32.8 | 18.8 | 24.5 | 6.1 | 3.8 |
| Udham Singh Nagar | 37.9 | 66.7 | 36.4 | 36.2 | 14.2 | 9.8 | 6.1 |
| Uttarkashi | 62.7 | 18.5 | 57.8 | 28.7 | 29.5 | 2.4 | 9.8 |
| **Total** | **38.9** | **37.6** | **57.9** | **36.4** | **20.3** | **8.7** | **3** |

*Source:* UKHDR Survey, 2017

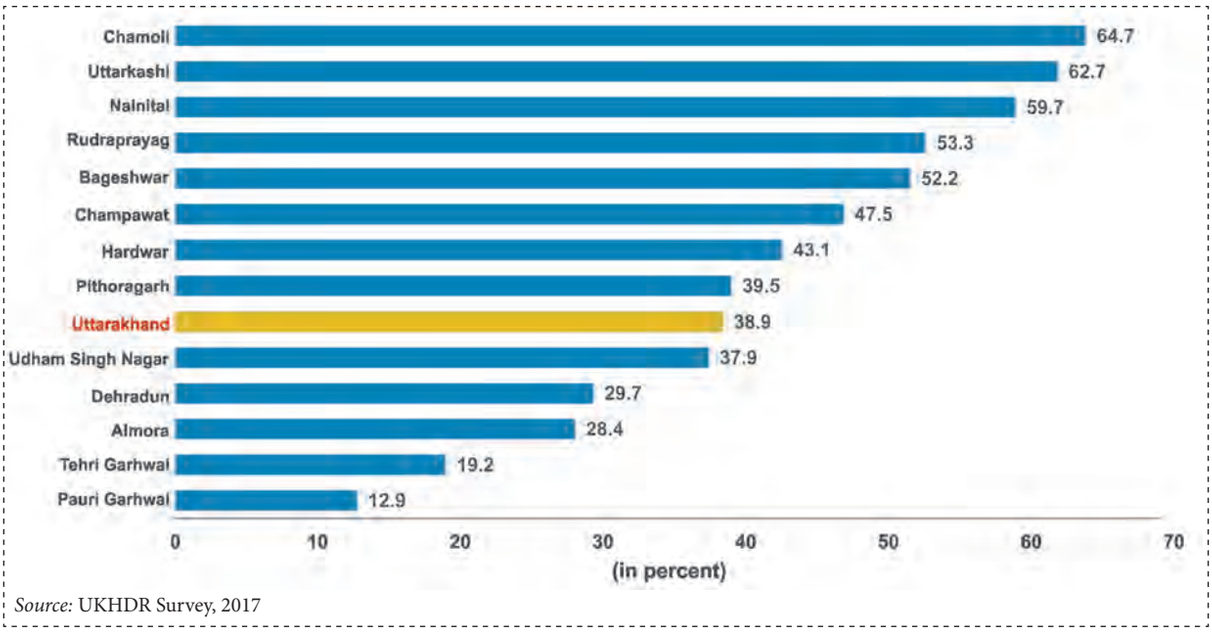
### *Vulnerability to Climate Change*

We have seen that certain districts such as Chamoli, Uttarakashi, and Nainital have high proportions of people reporting climate change. Yet, if the vulnerability to climate change is assessed, these districts may not rank as the most vulnerable to climate change. This is because the vulnerability to climate change is assessed not just on the basis of exposure to climatic variations, but also on the basis of sensitivity and the adaptive capacity to climate change.

*'According to the IPCC (2007) [23] definition, vulnerability in the context of climate change is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.'*—'Climate Change Risks and Opportunities in Uttarakhand, India: Technical Report on District (Block) Level;

23 IPCC, 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Annex I., M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 976pp.

Figure 8.5: Respondents who have Experienced Climate Change in the last 5 Years (%), 2017




*Source:* UKHDR Survey, 2017

Vulnerability for Select Sectors' August 2016, prepared by INRM Consultants Pvt. Ltd.[24]

The two main elements to consider in terms of exposure are: (i) Things that can be affected by climate change (populations, resources, property, etc.) and (ii) Changes in the climate itself (rise in sea level, precipitation and temperature changes etc.). Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. Adaptive capacity is the ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Sensitivity to climate change can be assessed by indicators such as the share of degraded land, area prone to floods, etc. Adaptive capacity is usually measured by indicators such as the share of vulnerable population, rural poverty, and so on.The study by INRM (2016) assesses Champawat and Tehri Garhwal as districts which are highly vulnerable to climate change and finds Dehradun and Nainital to be districts with very low vulnerability (Table 8.7).

Table 8.8 shows that the composite vulnerability index depends on assessments of environmental vulnerability and economic vulnerability. A total of 50 indicators were used to assess the former and 28 indicators were used to assess the latter. Champawat, located in the south east and Tehri Garhwal, located in the North West regions of Uttarakhand, fall under the very high vulnerable category due to their relatively low adaptive capacity, higher sensitivity and exposure with respect to the other districts. Tehri Garhwal has marginally higher adaptive capacity than Champawat, but exhibits relatively higher sensitivity (contributing indicators: increase in night time temperature, floods and landslides) leading to very high overall composite vulnerability. Champawat suffers from relatively high socio economic vulnerability (contributing indicators: higher age dependency ratio, gender gap in literacy rate, lower access to transport and health infrastructure) rather than environmental vulnerability.

The three districts of Haridwar, Almora and Bageshwar fall under the high vulnerability category. Their composite vulnerability is lower

24 Climate Change Risks and Opportunities in Uttarakhand, India Technical Report on District (Block) Level Vulnerability for Select Sectors, Prepared by: INRM Consultants Pvt. Ltd. in association with IISc, Bangalore and Geo Climate Risk Solutions Private Limited, August 2016.

Table 8.7 Ranking of Districts in Uttarakhand by Vulnerability to Climate Change, 2016

| Vulnerability | Districts |
|---|---|
| Very high vulnerability | Champawat, Tehri Garhwal |
| High vulnerability | Hardiwar, Almora, Bageshwar |
| Moderate vulnerability | Uttarkashi, Pauri Garhwal, Rudraprayag, Udham Singh Nagar |
| Low vulnerability | Chamoli, Pithoragarh |
| Very low vulnerability | Dehradun, Nainital |

*Source:* Integrated Natural Resources Management Consultants, 2016

Table 8.8 District-wise Ranks and Vulnerability Category for Current Vulnerability, 2016

| Districts (Increasing order of Vulnerability) | Composite Vulnerability | | Composite Socio-Economic Vulnerability | | Composite Environmental Vulnerability | |
|---|---|---|---|---|---|---|
| | Rank | Category | Rank | Category | Rank | Category |
| Nainital | 1 | VL | 2 | VL | 5 | L |
| Dehradun | 2 | VL | 1 | VL | 8 | M |
| Pithoragarh | 3 | L | 4 | M | 1 | VL |
| Chamoli | 4 | L | 5 | M | 3 | L |
| Udham S Nagar | 5 | M | 9 | H | 4 | L |
| Rudraprayag | 6 | M | 6 | M | 7 | L |
| Pauri Garhwal | 7 | M | 3 | L | 12 | VH |
| Uttarkashi | 8 | M | 11 | H | 6 | L |
| Bagheshwar | 9 | H | 12 | H | 2 | VL |
| Almora | 10 | H | 7 | M | 9 | H |
| Haridwar | 11 | H | 10 | H | 9 | H |
| Tehri Garhwal | 12 | VH | 8 | M | 13 | VH |
| Champawat | 13 | VH | 13 | VH | 11 | VH |

*Source:* Integrated Natural Resources Management Consultants, 2016
*Note:* VH: Very High; H: High; M: Moderate; L: Low VL: Very Low

compared to Champawat and Tehri Garhwal due to the relatively lower exposure and sensitivity components (contributing indicators: lower flood magnitude, warm spell durations, frequency of drought and malaria transmission window). Almora and Haridwar have higher environmental vulnerability as compared to Bageshwar, while Bageshwar shows relatively higher socioeconomic vulnerability.

### 8.3.4 Impacts of Climate Change on Major Sectors[25]

#### *Agriculture*

The Vulnerability and Risk Assessment Study by INRM indicates three areas of future impact of climate change on the agricultural sector [26]:

(i) *Increase in water stress and implications for irrigation:* The major implications for agriculture

25 This section is based on the Agenda for Climate Action, State Climate Change Centre, Government of Uttarakhand, accessed at http://www.sccc-uk.org/site/report/1 on 1st February, 2019.
26 Agenda for Climate Action Agriculture, State Climate Change Centre, Uttarakhand Forest Department , Government of Uttarakhand

are that first, it could limit growth, leading to lower yields and making plants more susceptible to diseases and pests. Second, there could be additional requirements for surface or groundwater irrigation for crops during their critical growth period. Future drought conditions are likely to be exacerbated in the hilly regions, while they may improve in the mid and lower transects of the state.

(ii) *Increase in the risk of flooding:* This may result in soil erosion and crop loss as well as disruption in transport routes and access to markets.

(iii) *Potential increase in some crop yields:* Overall, an increase in wheat and rice yields could be expected. But in some already warm areas, there may be lower crop productivity.

### *Water*

The vulnerability and risk assessment (VRA) indicates four areas of future impact of climate change in the water sector:

(i) *Seasonal changes in water availability:* There is likely to be increased precipitation during the monsoon season, most likely in the form of isolated heavy rainfall events, which, in combination with other circumstances, may lead to flooding. There is also likely to be decreased precipitation in the post monsoon season. In combination with increased temperature extremes, this could lead to additional pressures on surface and groundwater requirements for a variety of uses, including irrigation and drinking water. Future drought conditions could likely to be exacerbated in the hilly regions, while they may improve in mid and lower transects of the state.

(ii) *Increased risk of flooding:* Overall, the implication is that flooding is likely to increase, with widespread consequences for all parts of the society and economy. It is important to note that the VRA results do not take into account flooding due to events such as cloudbursts, which could further increase the risk of disasters.

(iii) *Increased stress on dam infrastructure:* The VRA results indicate flooding in the Tehri and Kalagargh dam locations based on an analysis of return periods or the likelihood of a high magnitude flood event occurring within a specific duration. Existing design standards, construction methods and materials, and operating procedures need to be reviewed to ensure that they are able to cope with the changing conditions.

(iv) *Potential improved stream flow:* Dependable stream flows are likely to increase, which has important implications for the design of structures on rivers and streams, particularly run-of-the-river hydropower projects, which must have a minimum flow in order to generate power. With a minimum level of water likely to be available in streams almost all year round, there are positive implications for energy generation, availability of water for human consumption, industrial use, irrigation projects, and for wider ecosystem benefits.

### *Forests*

The VRA indicates two areas of future impact of climate change on the forest sector:

(i) *Changes in forest type and their range:* Many plant species could likely migrate to the upper reaches of the state with increased warming. In the next 35 years, anywhere between 7 to 17 percent of the forest grids are projected to see shifts in forest type or become unsuitable for existing vegetation. In 65 years, 37 to 62 percent of the forest grids may witness shifts in forest types. Projected forest grid changes can particularly exacerbate the vulnerability of fragmented and disturbed forests. In addition, beyond a certain altitude, alpine vegetation is unable to shift upwards to the colder desert regions. Even if temperatures increase, as a result of climate variability, the precipitation, terrain, and soil conditions may not be suitable for vegetation growth.

(ii) *Changes in Net Primary Productivity (NPP) impacting the amount of biomass produced: The* production of biomass is seen as a key indicator of the health of forest vegetation. Increases in biomass productivity could result in increased supply of forest products such as timber, fuel wood and other NTFPs. But the overall impact of climate change on forest biomass productivity is uncertain due to

increased concentrations of carbon-dioxide in the atmosphere as a result of climate change, as well as climate variability in the form of projected increases in humidity. Scientists suggest that biomass productivity increases would be more likely in short-rotation tree species such as eucalyptus, pine, poplar, willows etc., with the potential to improve income and livelihoods of forest communities and women through agro forestry initiatives. But in the long run, the impact of carbon-dioxide could be more detrimental to forests.

*Health*

The VRA indicates three areas of future impact of climate change on the health sector:

(i) *Increase in heat stress:* Heat stress can lead to increased rates of mortality and morbidity owing to worsening cardiovascular and respiratory diseases as well as the greater incidence of dehydration and diarrhoea.

(ii) *Increase in malaria and other vector borne diseases:* Increase in temperature and humidity provides favourable conditions for mosquito breeding leading to an increase in incidence of vector borne diseases such as malaria, dengue and Japanese encephalitis.

(iii) *Increased mortality and morbidity due to floods and landslides:* It is expected that all districts will become more vulnerable to natural disasters towards the mid and end of the century as compared to the present scenario. Natural disasters resulting in floods and landslides are projected to spread from a few districts at present, to over 60 percent of the state by the mid and end of the century. This would have widespread implications for loss of life and livelihood, damage to infrastructure, availability of food and safe drinking water, spread of diseases, etc.

*Roads*

The VRA indicates the following areas of future impact of climate change on roads:

(i) *Increased risk of flood and landslides:* The frequency and spread of landslides is projected to increase towards the mid and end of the century, due to an increase in the intensity of rainfall. This increase in the intensity of rainfall is also likely lead to increased run-offs leading to floods. Increased risk of flooding is projected in areas of dense infrastructure in not just the plains of Haridwar but also in the rapidly developing northern district of Uttarkashi.

(ii) *Impact on communities:* In some villages, water sources have been adversely affected because of road construction, resulting in the accumulation of debris leading to blocked drainage. In some villages, roads have been getting heavily damaged every year due to heavy rains and erosion.

(iii) *Climate impacts are not aligned with roads and disaster policies:* A multiplicity of organizations and institutions working in this sector and lack of co-ordination amongst them these has resulted in the absence of dove-tailing climate impacts with road and disaster policies.

### 8.3.5 Factors Compounding Disasters and Environmental Challenges

Uttarakhand has been growing at the fairly high rate (of Gross State Domestic Product) of 7 percent or above in the last six years, with the exception of 2014-15, following the disaster of 2013. The concomitant developmental efforts in the state have also inadvertently resulted in accentuating and exacerbating the impact of disasters and environmental changes. The large hydroelectric projects (HEP) in the state with dams built across rivers are a case in point. While it is natural for a state endowed with abundant water resources to try and harness the same for electricity generation to help in its development activities, the environmental fall-out of the same has been unprecedented, highlighting the need to weigh the trade-off carefully. Overall, a typical HEP has a host of life-cycle environmental and social impacts which are presented in brief in Box 8.2.

In October 2013, following the disaster in June the same year, an Expert Body was set up under the Ministry of Environment and Forest to assess how 24 on-going/under construction HEPs in Uttarakhand could be contributing to environmental degradation. The findings of the report clearly state that in terms of the environmental impact, first, minimal river

**Box 8.2 Environmental Impacts of Hydro Power Projects in Uttarakhand**

| Activity | Impact |
|---|---|
| Pre-project Construction | |
| Construction of approach road | -Land acquisition leading to displacement, loss of home, livelihoods<br>-Deforestation<br>-Disposal of debris and earth |
| Construction of housing for staff and labour | -Deforestation<br>-Pollution due to release of sewage |
| Quarrying | Noise pollution, slope destabilization, disruption of underground seepage, damage to houses |
| Project Construction | |
| Tunnelling | Air and noise pollution, slope destabilization, damage to houses, disturbing wildlife, drying of springs, disposal of muck into rivers, psychological trauma to people and animals due to repeated blasts |
| Project Operation | |
| Dam Construction | Disruption of river flow |
| Testing of tunnels | Slope destabilization often leading to loss of tree cover, land, livelihoods, etc. |
| Water shortage and release | Sedimentation, disruption of river flow |
| Laying of power lines | Deforestation (loss of wildlife habitat), soil erosion |

*Source:* Environmental Impacts of Hydro Power Projects in Uttarakhand: Governance and Audit Issues; presentation by Ravi Chopra, accessed at http://iced.cag.gov.in/wp-content/uploads/C-25/iCED%20Presentation%20-%20Mr.%20Ravi%20Chopra.pdf on 26th November, 2018.

flows released downstream of the HEPs have led to loss of river integrity, disruption of fish migration, loss of aquatic biota and diversity. Second, river water quality has been severely impacted due to unscientific and unlawful muck dumping from roads and tunnel construction. The self-cleansing ability of rivers has also seen a decline. Third, there has been a loss of ecosystems including biodiversity along the rim of the Tehri reservoir. And fourth, slope stability has been a persistent issue. Even after dams have been built, landslides have been occurring repeatedly due to repeated raising and lowering of water levels in the Tehri reservoir. Land subsidence and fissures too have been observed. The social impact of these has been the drying up of springs and damage to housing due to blasting. The aggravation of disasters in the Himalayan region has been due to river water carrying huge amounts of sediments while dams have not been built to handle large sediments. This also has an impact on the glaciers.

## 8.4 Natural Resource Management and Government Initiatives

The natural resources of the region provide life supporting, provisioning, regulating and cultural 'eco-system' services to millions of locals as well as people living downstream. Livelihoods are almost totally based on natural resources (water, forest, agriculture, etc). About three-fourths of the state's population is rural and virtually dependent on agriculture. With over 15 important rivers and over a dozen major glaciers, Uttarakhand is a valuable freshwater reserve.

### 8.4.1 Forest Management and Biodiversity Conservation

Uttarakhand has a high proportion of land under forest cover which means that the scope for expanding the area under forest cover is limited. However, the state has a strong tradition of community forest management, run by the Van Panchayats, whose primary concern has been the conservation of forests.

Watershed management programmes in villages that are being implemented upstream of hydro-electricity generation plants could be utilized to reduce land degradation. These generation plants depend upon good quality water, that is, water with sediments below a certain level. Upstream villages could be paid for providing water of the requisite quality. This system of payments for good quality water as an eco-system service was tried out in hydro-electric plants in Nepal and has worked to reduce land degradation. Offering an incentive to provide good quality water could then strengthen watershed management in upstream villages. The mitigating effects of better land management on carbon storage also need to be taken into account. Tree storage of carbon is recognised and rewarded under the UNFCC's REDD programme. In a similar fashion, carbon that is stored in soil and vegetation, also needs to be recognised and rewarded[27].

### 8.4.2 Recent Government Initiatives to Conserve Natural Resources and Protect the Environment

Efficient management of natural resources, such that they leave minimum ecological footprints, combined with the effective disposal and mitigation of toxic wastes and environmental pollutants are crucial for sustainable development. Highlighting the need to conserve our water resources, recent Court directives in March, 2017, in the state have tried to protect natural resources such as the Ganga and Yamuna rivers as well as the Gangotri and Yamunotri glaciers from pollution by declaring them 'living entities' with rights to be protected. The HC order also states that, "rivers, streams, rivulets, lakes, air, meadows, dales, jungles, forests wetlands, grasslands, springs and waterfalls" in Uttarakhand must be given "corresponding rights, duties and liabilities of a living person, in order to preserve and conserve them" [28].

Uttarakhand has rapidly industrialized in the recent past. In this context, the need to reduce consumption of energy from fossil fuels and firewood needs to be emphasized. In early 2017, the High Court in the state banned mining across the state for four months and ordered officials to constitute a high-level committee to recommend guidelines to stop illegal mining and to reclaim mined areas[29]. Ssubsequently this order was stayed by the Supreme Court, which found the blanket ban difficult to justify.

#### *Uttarakhand Action Plan on Climate Change*

The government of Uttarakhand has already taken the important step of formulating an Action Plan on Climate Change (UAPCC 2014), in accordance with the National Action Plan on Climate Change, 2008. For Uttarakhand, it was deemed that adaptation had more significance than mitigation, as the contribution of the state to the Greenhouse Gas Emission (GHG) pool was miniscule compared to the other developed states in the country. The climate response strategy has key elements such as accelerating inclusive economic growth, promoting sustainable development, securing and diversifying livelihoods and safeguarding ecosystem services. Further, the strategy is not to be viewed as stand-alone action as it is planned to be integrated into the regular developmental planning processes. The challenge for the state is to holistically converge existing initiatives and make additional efforts to integrate climate concerns and response measures into all aspects of the development process, from policy and

27 See Vision 2030 Uttarakhand

28 https://www.hindustantimes.com/india-news/uttarakhand-high-court-declares-gangotri-yamunotri-glaciers-as-living-entities/story-q1e7sjBnAGefEK-T5cpezkO.html accessed on 21st November 2018. The Supreme Court, however, has subsequently opined that the Ganga and Yamuna cannot be declared to be living entities.

29 http://www.indiawaterportal.org/articles/uttarakhand-conserve-its-natural-resources accessed on November 14th, 2018.

planning to implementation. The state has adopted this as the underlying principle in the formulation of the Uttarakhand Action Plan for Climate Change (UAPCC) and aims to become a green and carbon neutral state by 2020.

### *The Uttarakhand Green Energy Cess Act, 2014* [30]

This is an Act to promote electricity production from renewable power sources on the basis of a private developer with community co-operation and for incidental matters. In the Uttarakhand Green Cess Act 2014, the state government proposes to impose a levy on power which is being generated in the state but is transmitted outside for usage by other states. The cess would also be imposed on the power supplied to commercial and industrial units. The state government intends to promote private entrepreneurs and community participation in the power sector with the corpus collected from the cess.

### *The Uttarakhand Disaster Recovery Project (World Bank Assisted)*

Based on the findings from the Joint Rapid Damage Needs and Assessment (2013)[31], which involves multi-sector assessments of damages after a disaster has taken place, the Uttarakhand Disaster Recovery Project (UDRP) was launched. The objective of the UDRP is to restore housing and rural connectivity, build resilience of the local communities and to increase the technical capacity of the state entities to respond promptly and effectively to an eligible crisis or emergency. There are six components to the project: resilient infrastructure reconstruction, rural road connectivity, technical assistance and capacity building for disaster risk management, financing disaster response expenses, implementation support and a contingency emergency response.

### *The Uttarakhand Emergency Assistance Project (ADB Assisted)*

The Uttarakhand Emergency Assistance Project was launched in June 2013, through the State Disaster Management Authority (SDMA), to assist the Government of Uttarakhand to meet reconstruction needs due to disasters that severely affect several parts of Uttarakhand. The expected outcome of the project is the restoration of basic public and social infrastructure, improvements in disaster preparedness, project management, and institutional effectiveness. The revised high flood levels of rivers, natural streams and drainage channels will be kept in mind while designing facilities. Geotechnical studies will be undertaken and slope stabilization measures will be considered for slide zones, wherever applicable.

## 8.5 On-going Mitigation Measures by the Government

The importance of quality water provisioning and waste management has received much attention in the context of sustainable development. Various schemes such as the Swachh Bharat Abhiyan (2014), National River Conservation Plan (1995), Swajal Dhara (2002), Namami Gange Programme (2014) for Solid Waste Management, Urban Sewage Treatment Plants, Rural Water and Sewerage Scheme and Jalagam/Watershed Management Plans have been brought in by the government at the central and state levels. This section assesses the situation on the ground in Uttarakhand.

### 8.5.1 Solid and Liquid Waste Management

Waste management is a critical issue for the state of Uttarakhand given the fragility of its eco-system. If not addressed urgently, it may become the major cause of pollution for all the critical riverine systems and valleys.

30 http://www.lawsofindia.org/pdf/uttarakhand/2015/2015UK3.pdf accessed on 20th October 2018

31 Following the massive disaster in Uttarakhand in June 2013, the need to immediately start recovery and reconstruction work, especially in the most affected areas, prompted the need for a rapid assessment to understand the nature of damages post-disaster. The Government of Uttarakhand, in collaboration with the World Bank and the Asian Development Bank initiated an exercise to assess the damages and prepare a recovery framework. The "Uttarakhand Disaster June 2013, Joint Rapid Damage and Needs Assessment" report is the result of this exercise which took place between July 29 and August 7, 2013.

Table 8.9 Location Where Garbage is Disposed off in Rural Areas by Share of Respondents (%), 2017

| District | open space | in open drain | some common point in locality | in community dustbin (dustbin) | on the road | private sweeper | municipal corporation van | Fixed place in the nearby premises | others (specify) |
|---|---|---|---|---|---|---|---|---|---|
| Almora | 62.8 | 2.9 | 0.9 | 0.0 | 0.2 | 0.0 | 0.0 | 24.4 | 8.8 |
| Bageshwar | 19.1 | 0.8 | 7.3 | 1.2 | 0.0 | 0.0 | 4.4 | 10.1 | 57.1 |
| Chamoli | 62.7 | 2.3 | 0.5 | 2.7 | 0.2 | 0.2 | 0.0 | 27.8 | 3.6 |
| Champawat | 41.9 | 6.3 | 1.6 | 0.4 | 0.0 | 0.0 | 0.0 | 48.6 | 1.3 |
| Dehradun | 25.9 | 1.6 | 4.1 | 4.1 | 1.6 | 6.3 | 17.1 | 30.7 | 8.5 |
| Garhwal | 40.8 | 2.9 | 7.8 | 1.8 | 0.0 | 0.4 | 0.2 | 38.1 | 8.0 |
| Haridwar | 35.3 | 3.6 | 17.6 | 2.4 | 0.7 | 1.7 | 1.9 | 34.1 | 2.7 |
| Nainital | 16.2 | 1.0 | 1.7 | 2.2 | 0.2 | 4.7 | 11.4 | 45.0 | 17.4 |
| Pithoragarh | 35.0 | 0.5 | 3.6 | 0.5 | 0.0 | 0.0 | 0.0 | 58.6 | 1.8 |
| Rudraprayag | 15.7 | 0.5 | 14.6 | 6.0 | 0.0 | 0.0 | 2.5 | 54.9 | 5.7 |
| Tehri Garhwal | 45.9 | 1.7 | 11.0 | 1.2 | 0.0 | 0.2 | 0.0 | 38.7 | 1.4 |
| Udham S. Nagar | 65.4 | 4.3 | 2.6 | 0.7 | 0.0 | 0.5 | 0.2 | 24.5 | 1.7 |
| Uttarkashi | 14.7 | 2.9 | 17.3 | 5.0 | 0.8 | 0.2 | 4.3 | 20.4 | 34.5 |
| **Total** | **40.3** | **2.6** | **7.0** | **2.0** | **.4** | **1.5** | **3.6** | **34.0** | **8.7** |

*Source:* UKHDR Survey, 2017

The UKHDR Survey data found that 12 percent of the respondents in rural areas still practised open defecation. The incidence of open defecation was highest in the rural areas of Uttarkashi (25 percent), Rudraprayag (20 percent) and Champawat (20 percent). This was observed despite the fact that rural Uttarakhand was declared as Open Defecation Free (ODF) in June 2017, as a part of the Swachh Bharat Mission (SBM) initiative.

A 2018 report of the Comptroller and Auditor General of India (CAG) has mentioned that the declaration of the state as ODF was "incorrect"[32]. The CAG report for 2016-2017, carried out in seven of the state's 13 districts, mentioned that the state government's claim of "making all the 265 villages in 132 Gram Panchayats of seven districts open defecation free was found to be incorrect". The CAG report also mentioned that during the time of the audit, the state government had made "no significant progress" in constructing Community Sanitation Complexes and Solid and Liquid Waste Management structures.

The above report observed the following:

- Municipal garbage was being indiscriminately dumped on the slopes of the hills.
- The sewage treatment plants at Devprayag and Rishikesh were under-utilised due to deficient planning and lack of coordination between the executing agencies.
- 65 out of 112 nallahs identified in priority towns were still to be tapped resulting in discharge of 26.292 million litres of untreated sewage per day into the Ganga River or its tributaries.
- The capacity of sewage treatment plants in Haridwar and Rishikesh was inadequate for handling waste discharge from the towns resulting in untreated sewage being discharged into the Ganga River.

Similar findings are reported from the UKHDR Survey for rural areas (Table 8.9). On an average, 40 percent respondents reported that they dumped garbage in the open. The share of respondents reporting this was highest for Udham Singh Nagar (65.4 percent), Almora (62.8 percent), Chamoli (62.7 percent), Tehri

32 https://cag.gov.in/sites/default/files/audit_report_files/Chapter_1_Social_General_and_Economic_Sectors_Non-PSUs_Government_of_Report_No_1_of_2018_-_Government_of_Uttarakhand.pdf accessed on 27th November, 2018

Garhwal (45.9 percent), Champawat (41.9 percent) and Pauri Garhwal (40.8 percent).

Thus, there clearly needs to be better implementation of government initiatives such as the SBM coupled with increased awareness of the community in rural areas, in particular, about the need to protect the environment.

The Swajal Department's Open Community Meetings on household sanitation, cleanliness, water and waste management need to be organised regularly. Street campaigns through school children on rainwater harvesting, health, waste management, awareness campaigns for adolescent girls to adopt napkins and healthy practices are being practiced gradually. Hoardings and wall paintings to make people aware of adopting hygienic practices are also being started.

The Uttarakhand Jal Sansthan faces the challenges of supplying water to every village and town according to their demands, ensuring quality water and providing connectivity of drinking water and toilets to every household. To come through with the challenges, a need-based survey of every village to stop the wastage of water would be a step in the right direction. Rainwater harvesting systems in every village also need to be encouraged.

The recent World Bank aided Uttarakhand Water Supply and Sanitation Program (2018) for Peri-Urban Areas, aims to increase access to improved water supply services and comprises six sub-sectoral components: (a) Urban Water Supply, (b) Urban Sanitation, (c) Rural Water Supply, (d) Rural Sanitation, (e) Peri-urban Water Supply, and (f) Peri-urban Sanitation. As part of the Urban Water Supply component, the state envisages treated and pressurized piped water supply for all households by 2030, with at least 60 percent metered connections. The Urban Sanitation component has two sub-components: (a) enhancing the coverage of Individual Household Latrines and (b) expansion of the sewer network.

### 8.5.2 Control of Emissions

In Uttarakhand, there exists the persistent use of wood for cooking, in the hilly regions, in particular. This has twin negative impacts on the environment in terms of depleting the forest cover and contributing to emissions which lead to climate change and warming of the environment. To reduce greenhouse gas (GHG) emissions and as a measure to improve the health and well-being of rural women and children, it is necessary to bring about a switch in cooking fuel from wood and other solid biomass to liquefied petroleum gas (LPG) or electricity. The Government of India's Pradhan Mantri Ujjwala Yojana (2016) has been a major initiative in this direction. The UKHDR Survey finds that in rural areas, the share of respondents reporting use of firewood was relatively high in Champawat (51 percent), Rudraprayag (41.5 percent), Pauri Garhwal (39.7 percent) and Chamoli (39.1 percent).

A green economy creates growth alongwith improving the environment's as well as the people's lives. Conservation of ecosystems and the provisioning of sustainable, clean energy are at the heart of any agenda for a green economy. In this context, a concept called "Green Road" has emerged in road construction practices in the hills and has evolved from the lessons learnt in the past and decade-long experiences in hills road construction and maintenance. It is an environment-friendly and labour-based construction technique which utilizes a mass balancing approach. It is a low-cost solution which focuses on the use of locally available materials and techniques in a sustainable way, by maintaining existing landscapes. In this method, appropriate soil bioengineering techniques are applied to stabilize roadside slopes and reduce soil erosion[33].

Other green technologies used in road construction also need to be propagated to ensure that the surrounding ecology and environment are not affected. Several technologies exist and are practised by the Central Road Research Institute (CRRI), New Delhi, such as the Cold Mix

33 Sudan Acharya (2013)

Technology (Cationic Bitumen Emulsion based), slurry seal[34] and plastic roads[35] (using recycled plastic) which could be encouraged in Uttarakhand. Other indigenous techniques such as The Heat and Cool Method [36] (to replace blasting) could also be utilized to minimize deep fractures and internal fissures caused in rocks by blasting.

### 8.5.3 Suggestions from the Community

During the course of the UKHDR Survey, the investigating team interacted with the local people and conducted workshops in each district along with meeting district level officials to gather views and suggestions from the grassroots regarding various human development issues. Some of the highlight findings have been shared in this chapter. Agriculture, particularly in the hill areas, was reported as greatly impacted by climate change and natural disasters. The adverse impact in terms of soil erosion, rainfall, movements in food and product prices, etc. were also discussed. In this context, useful and environment-friendly remedial suggestions, put forward at the district and village levels, are presented in Box 8.3.

## 8.6 Summing Up and Policy Suggestions

In a hill state, human development is greatly impacted by the natural environment. Human activities, profoundly impact the fragile mountain environment. In order to co-exist in harmony, environmental forces need to be respected and protected such that in the quest for economic progress, the environmental balance is not compromised. It is ultimately in the interest of the people that the natural resources and environment in the state are protected and enhanced. The people of the state, especially in the hills districts, are affected by natural disasters such as floods, earthquakes, cloudbursts, forest fires and so on, on a regular basis, and yet there are very few coping mechanisms in place.

The state government has drawn up a long-term strategy with detailed outlines for improvements in 'Technical Assistance and Capacity Building' for disaster risk management[37]. Conducting Hazard, Risk, Vulnerability and Capacity (HRVC) analyses, augmenting preparedness, ensuring proper land-use and installing monitoring and warning systems are crucial aspects of managing disasters. The UKHDR Survey showcases clearly that there is still very little preparedness on the ground for tackling disasters, although some warning system processes through SMS have been initiated.

Regarding deforestation, as has been pointed out by the UAPCC, given the high forest cover, the state has little scope to increase forest cover and must focus on improving the share of moderately dense forests into dense forests and some part of the open forests into moderately dense forests.

To combat climate change, it is essential to contain Greenhouse gases (GHGs) and given the low contribution of the state to emissions as compared to the country as a whole, the state needs to focus on adaptation measures so that it becomes more and more resilient to climate change. Increased community participation in the management of forest resources via Van Panchayats, watershed management, promoting and protecting bio-diversity as well as promoting sustainable agriculture with organic farming are some of the measures that could be undertaken. Switching to greener fuels is also an important initiative where people's participation is tantamount. The UKHDR Survey reports that even in rural areas, a large number of people are using LPG in place of wood as fuel, although in the hilly terrains there are challenges for reaching LPG to all households. It is extremely important that the people who continue to use firewood are converted to LPG-users with the help of schemes such as the Ujjwala Mission, with the provisioning of sufficient incentives.

34 Central Road Research Institute, New Delhi Further information on the benefits of Cold Mix Technology can be found on http://pmgsy.nic.in/cationic.pdf.
35 The Civil Engineering Department (CED) of the Bokaro Steel Plant has developed a technique for using discarded plastic material in roads. Further information can be found on http://pmgsy.nic.in/WM_RR.pdf
36 The Civil Engineering Department (CED) of the Bokaro Steel Plant has developed a technique for using discarded plastic material in roads. Further information can be found on http://pmgsy.nic.in/WM_RR.pdf
37 For details, see IHD (2018)

**Box 8.3 Select Suggestions from the Community for Meeting Environment Related Challenges**

- Afforestation, especially of trees like banj oak trees which increase the ground water level.
- Uttarakhand being a natural calamity sensitive zone, a clear policy for construction/reconstruction work with strict adherence to building codes should be formulated.
- Every village should have rain water harvesting systems; separate pipelines for drinking water and other domestic uses; single agency for irrigation as well as drinking water.
- The Ujjwala Yojana can help in the reduction of tree cutting for fuel purposes. People's participation to save forests should be encouraged; more funds should be allocated for the Forest Department because forests are a vast area to monitor.
- Encourage use of solar pump-sets for irrigation, sprinkle and drip irrigation, avoid flood irrigation and emphasise animal rearing because it is a great source of organic manure.
- Compulsory crop insurance to protect people from the vagaries of the monsoon and drought conditions.
- Regular exposure visits of progressive farmers outside the state to learn new techniques in hill farming

*Source:* UKHDR Survey and District-level Workshops, 2017

Sanitation habits including open defecation and garbage disposal are areas that need attention, especially in rural areas, as indicated by the UKHDR Survey. In this context, there is the need to raise community awareness for cleaner habits in keeping with the Swachch Bharat Mission as well as containing the disposal of non-biodegradable wastes such as plastics, in order to restore and retain the pristine quality of rivers and the hillside in the scenic and beautiful state of Uttarakhand.

Water and land resources in the state have also been substantially affected by the large hydropower projects. The renewable or green energy option has already been receiving a boost in the state in keeping with the national commitment towards renewable energy production[38]. The adoption of green or sustainable approaches to building roads, construction, initiating seismic assessments of buildings, etc., are ways that can help the state in achieving sustainably higher levels of human development and economic growth.

The state government needs to implement strict rules and policies to control pollution caused by motorized vehicles by creating awareness amongst the motoring public in particular and the general public at large, on the ill-effects of vehicular pollution. Pollution-checking facilities should be provided at petrol pumps and workshops. Standards of various pollutants according to the relevant rules including the Motor Vehicles Act need to be enforced and the enforcement of environmental pollution controls in the state need to be facilitated.

The UKHDR Survey shows clearly the extent to which the people in the hills districts are impacted by natural disasters and climate change. It also shows how the post-disaster impact has been felt through rising prices of food as well as falling prices of produce. Considering that agriculture is the key sector in the hills districts upon which the livelihoods of the people are dependent, adaptation of sustainable farming methods to withstand variable climate, switching to organic farming process, diversifying into newer sectors such as horticulture and aromatic plants, adopting integrated farming methods, crop insurance, etc., are all strategies that can help the farmers benefit as well as protect their fluctuating fortunes.

38 For details, see discussion on SDG 7 in Vision 2030 Uttarakhand.

The hills districts of the state also have enormous potential for providing livelihoods in the tourism sector with the help of expansion of homestays, promotion of adventure sports such as river rafting, and so on, while respecting the boundaries of the carrying capacities of tourist destinations. Ensuring remunerative ecological livelihoods for mountain dwellers needs to be a priority area for human development in Uttarakhand. It is imperative that Uttarakhand heeds the lessons emerging from the 2013 tragedy, especially in the context of the repeated indications of climate change. Environmentally sustainable development is the basic prerequisite for disaster mitigation. Equitable development will reduce the number of the vulnerable population. Governments, local communities and civil society organizations must all come together to be active partners in embarking on an environment-friendly and sustainable development process in the state, one that is also associated with enhanced human development.

# 9

# The Way Forward

# The Way Forward

The foremost goal of human development is to enable the people to lead fulfilling lives by reaching their maximum potential in all spheres of social and economic development. The human development approach focuses on three major issues: people attaining a decent standard of living, leading long and healthy lives, and accessing quality education and skills. The vision for the state of Uttarakhand is that by 2030, all deprived families, rural and urban, will be sufficiently empowered to lift themselves out of poverty by accessing sustainable livelihoods, social protection and financial inclusion. The vision for the health sector is to ensure health and well-being for all its citizens by 2030 by attaining robust maternal and child health, ending malnutrition, reducing or eliminating communicable as well as non-communicable diseases and expanding healthcare services. On the education front, the vision 2030 envisages that all children and youth, irrespective of their socio-economic background, will benefit from quality education at all levels, in both general and technical areas, such that they can reach their full potential.

The present Uttarakhand Human Development Report attempts to assess where the state stands in its journey towards fulfilling Vision 2030, as far as human development is concerned. The preceding chapters have discussed relevant issues in detail, making it evident that in order to enhance human development in the state, almost all the important sectors need to move in unison. Agriculture and its allied sectors, along with tourism, industry, urban development, water and sanitation, migration, environmental sustainability, are all as crucial as the social sectors such as health and education. In this chapter, all the strands are brought together to highlight the strengths and achievements of the state in terms of human development including the challenges that it faces in order to progress towards the targets of Vision 2030. Taking it from there, we discuss the way forward for the state.

## 9.1 Progress and Potentials

Uttarakhand is among the fastest growing states in the country with its economy registering a growth rate of around 7 per cent in 2016-17. It is further estimated to grow by 6.8 per cent in 2017-18 (comparable to all India growth rates). The GSDP growth rate during 2011-12 to 2017-18 has been fairly good and the estimated average per capita income of the state was Rs. 1.61 lakh in 2016-17. The state ranks as the sixth richest Indian state in terms of per capita state domestic product.

Forest and water resources, coupled with favourable agro climatic conditions for growing a variety of fruits, vegetables and medicinal and aromatic plants, are important ecological benefits for the state. These also provide enormous economic opportunities for the people in the form of sustainable livelihoods in horticulture, including aromatic and medicinal plants, and in the use of non-timber forest products. The unique landscape of the state has vast scope for promoting health tourism, adventure sports, eco-tourism, cultural tourism etc. The state is rich in water resources with a niche for the generation of hydro-electricity. It has

huge mineral deposits like limestone, marbles, rock phosphate, dolomite, copper, gypsum etc. It has witnessed massive growth in capital investments arising from supportive industrial policies and generous tax benefits.

The state has made considerable achievements in the key sectors of education and health. The literacy rate as well as the GER at the elementary and secondary levels, are higher than the corresponding national averages. Gender parity is around unity in enrolments at the elementary level. The quality of education at the elementary level has improved as shown by the NAS 2017 results. School infrastructure has shown an improvement (UKHDR Survey). The state has an advantage in higher education with 39 colleges per lakh population, which is well above the All-India average of 26. The life expectancy at birth is 71.5 years in Uttarakhand (2012-16), higher than the national average of 68.5 years. Other key indicators for the health sector such as the infant mortality rate and the under-five mortality rate, have improved over 2004-05 and 2015-16, the figures being higher than those for the All India levels. The incidence of stunting, institutional deliveries and immunization rates have also improved during the same period.

## 9. 2 Challenges

### Hills-Plains Disparities

The challenges to human development in Uttarakhand include growing disparities and inequalities between the hills and the plains districts and across socio-economic groups. The hills districts of the state pose specific problems, including wide diversities and variations in terms of resource endowments and development potential. The predominantly hilly and mountainous terrain, varied climate, limited arable land and difficult agricultural conditions of the hills districts have resulted in a low economic base for the resident populace. Although agriculture is the main occupation of the hill people, landholdings are small, fragmented and scattered. The preponderance of cultivators in tiny size land parcels is most common, barring the plains or tarai regions in Dehradun, Udham Singh Nagar and Haridwar. The plains districts in the state are economically better off compared to the hills districts of the state.

The preconditions for agricultural growth, which critically depend on the intensification of resource use, input absorption capacities, infrastructural back up and economies of scale, do not exist in the hill regions due to conditions of fragility and marginality. Also, relatively low accessibility results in limited mobility and high input costs, severely restricting the possibility of promoting staples or chief consumption commodities. Trade in the hilly regions has been minimal, primarily due to the subsistence nature of Uttarakhand's hill region economy.

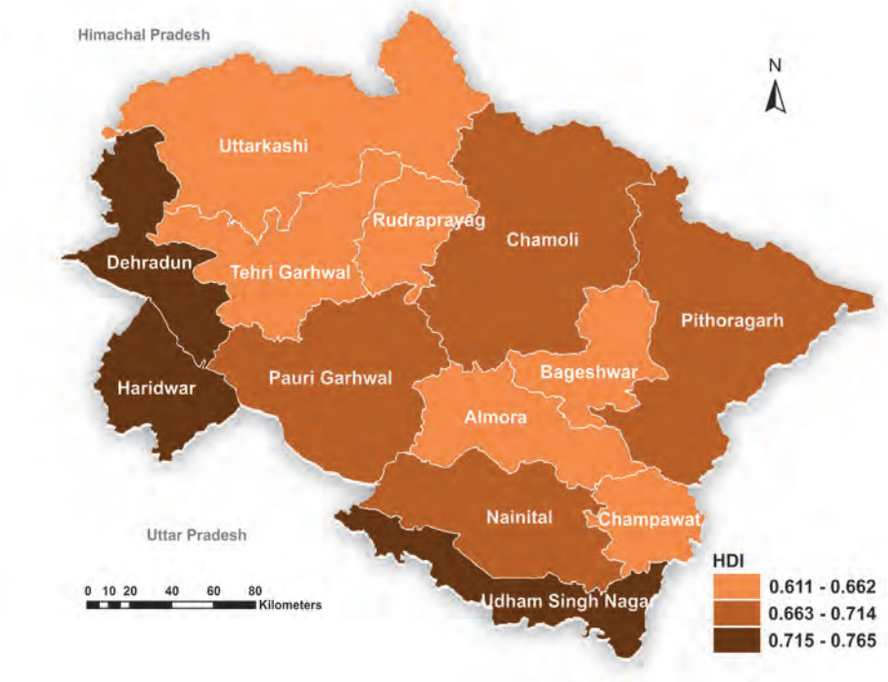
Variations in the growth rates across districts are clearly discernible. The plains districts generally register higher growth rates compared to the hills districts. Across districts, there are huge variations in per capita income, more so between the hills and plains districts. The average per capita income of the state was estimated at Rs.1.61 lakh in 2016-17, higher in the plains districts than in the hills districts. Haridwar, Dehradun and Udham Singh Nagar had per capita incomes of Rs. 2.54 lakh, Rs. 1.95 lakh and Rs. 1.87 lakh, respectively (2016-17). Among the hills districts, the lowest per capita income was estimated for Rudraprayag (Rs. 83.5 thousand) and the highest for Chamoli (Rs. 1.18 lakh). The disparity in per capita incomes between the hills and the plains districts was clearly high.

The hills districts are less developed in terms of infrastructure, including electricity, roads and irrigation. Inter-district inequalities in infrastructure lead to increasing disparities in incomes and livelihoods between the hills and the plains. The HDI values and ranks calculated across the districts clearly reflect this disparity (Map 9.1).

### Poverty Across Districts

Despite the fact that the state has low poverty rates (11 percent, NSS 68th Round, 2011-12), the UKHDR Survey data reports the poverty rate in the hills districts to be higher, with large variations

Map 9.1 District-wise Human Development Index (HDI) Values and Ranks, 2017




*Source:* UKHDR Survey, 2017

across districts. Poverty is more widespread, severe, and uneven in the mountain regions owing to hill specificities that are often not captured in the surveys. The Scheduled Tribes are better off than those belonging to the Scheduled Castes and the Other Backward Castes in terms of per capita income. Clearly, there is a need for greater focus on the alleviation of poverty at disaggregated levels.

## Spatial Industrial Structure

Most of the industries in the state are located in the three plains districts while the hills districts are bereft of industrial activity. Limited infrastructure development in the hills districts owing to mountain specificities is a major cause for the hills lagging behind in industrialization. A majority of the people in the hills districts engage in agriculture which is becoming increasingly uneconomical and unsustainable. There is a pressing need for evolving special policies and support mechanisms to promote micro and small enterprises in the hills, taking into account the diversities and constraints of these regions. From a long term perspective, a shift from agriculture to non-agriculture and niche activities seems to be a strategic option for the state of Uttarakhand.

## Declining Labour Force Participation Rates and Insufficient Job Creation

There has been a continuous decrease in both the overall LFPR and the WPR for Uttarakhand over the period 2004-5 to 2017. There persists a relatively large gender gap in both the LFPR and WPR, which has been widening over the years with women's participation in economic activities almost half that of men's in 2017.

The alarmingly high unemployment rate amongst the youth poses a major challenge for policy interventions in Uttarakhand. Even adult unemployment has been on the rise. The open unemployment rate doubled from 2.1 per cent in 2004-05 to 4.2 per cent in 2017, and during this period the youth (15-29 years) unemployment rate also increased more than twice, from 6 per cent to 13.2 per cent. The unemployment situation is more severe for the educated (above secondary) youth with a 17.4 per cent unemployment rate in 2017.

Over the years, the self-employment base in the state has shown a decline from 75 per cent in 2004-05 to 56.9 per cent in 2017. On the other hand, the proportion of people involved in regular and casual work increased during the same period. In particular, the proportion of regular workers improved sharply (by 6.4 percentage points) compared to casual workers (by 5.5 percentage points) between 2011-12 and 2017. The shift in employment patterns from self-employment to wage activities reflects high under-employment in farming & related activities, the situation getting aggravated due to the absence of any other alternative high income, non-farm, self-employment activities in the state.

## Forced Out-migration

Yet another challenge is the huge out-migration from rural areas (mostly hills) to urban areas in the state and rest of the country. Emptying villages termed as 'ghost villages' have huge implications for both the source and destination areas. Although migration is an important livelihood strategy, it has serious ramifications for the hill economy from a long term perspective. Nearly 8 per cent of the sample population is migrants, the proportion being higher for the hills districts (10.7 per cent) (UKHDR Survey). At the household level, the extent of migrating households is approximately 28 percent, significantly higher (38.5 percent) in the hills districts.

An overwhelmingly large number of long-term migrant workers out-migrate with a combination of poor education levels and low marketable skills, resulting in low incomes. This adds to their vulnerability at the place of their migration destination. The UKHDR Survey clearly reveals a huge magnitude of out migration in the state of Uttarakhand.

## Unplanned Urban Growth

Uttarakhand witnessed high rates of urban growth during 2001-2011. Urban population grew by 40 percent and the share of urban population in total population increased from 26 percent to 30 percent during this period. The number of census towns increased by about 241 percent. The high urban growth has been mostly in the plain districts and few hill districts like Nainital and has been largely unplanned. A significant number of urban population lives in slums with poor housing conditions and lack of basic social services. The state faces the challenge of mobilizing human and financial resources to address the challenge of unplanned urbanization.

## Insufficient Access to Health and Education

One of the major challenges in the health sector is a crippling shortage of doctors and health personnel in the hills districts, which is a major cause behind the slow reduction in the maternal mortality ratio. The level of public health expenditure in Uttarakhand is low. Resources and incentives are needed to expand health infrastructure in the hills and simultaneously retain medical professionals. The burden of diseases in Uttarakhand has been tilted towards non-communicable diseases as of 2016, with 55 percent of the total disease burden coming from NCDs (ICMR et al, 2017). The adverse urban health outcomes vis-à-vis rural health outomes in child health (IMR and U5MR) are also a challenge that needs to be addressed.

Notwithstanding recent improvements in learning outcomes, there is need for further improvements in the quality of school education in the state. Such improvements can also act as a counter for the increasing preference of private schooling. Other challenges are expanding pre-school education access, improving the enrolments in secondary education upwards to higher levels, reducing the number of school drop-outs, (especially in the plains districts), improving quality of higher education institutions, etc. The challenge of youth transitioning from education to employment in a gainful manner needs to be examined, given the low uptake of vocational training options in the state.

## Protecting Environment and Livelihoods

Natural calamities and disasters are a recurring feature in the state, resulting in huge losses in human and animal life, injuries, damage to infrastructure,

loss of income, livelihood opportunities, etc. Environment and pollution issues pose challenges for people's health, long term ecological sustainability, as well as to the potential of generating sustainable livelihoods in the agriculture and horticulture sectors, tourism, industry and hydro-electric power projects, among others.

Various development and deprivation indices constructed using data from the UKHDR Survey clearly reveal that there exists a huge gap across the districts highlighting the need for clear policy direction. The Survey also shows that the human development scenario in terms of its component indices has worsened in certain areas and regions of the state and warrants urgent attention.

## 9.3 People's Perceptions

Development initiatives, especially livelihood interventions, need to be tailored with an understanding of location specific perceptions of sustainable options. Livelihoods entail economic, social and cultural aspects, keeping people at the centre stage. In this context, people's perceptions are of utmost importance. To aptly cover people's perceptions in the Survey, focus group discussions (FGD) were carried out to study in depth the various aspects of human development such as education, health, technical education, basic infrastructure, industry, unemployment among educated youth and employment opportunities etc.

People's perceptions regarding health indicators as well as health facilities clearly points towards higher dissatisfaction levels in the hilly regions and rural areas vis-à-vis the plains regions and urban areas. The hills and rural areas were lacking in doctors, supporting staff and medicine supplies, thereby pushing people to urban centres for better medical and health care services. Respondents from the lowest income quintiles were more dissatisfied with the health facilities as compared to respondents from the higher income quintile groups. Across the social groups too, a large majority were dissatisfied with the health care facilities in the state.

On the education front, a majority of respondents clearly expressed that the quality of technical and professional courses was not that good. Only one tenth of them rated it as very good. Education facilities were rated lower by residents of the hills as compared to those living in the plains and those from rural areas as compared to urban areas. Respondents from the lower income quintile groups were more dissatisfied with the educational courses compared to those from the higher income quintile groups because of the high unaffordable fees charged by various courses. Across social groups, the scheduled tribes and those from the general category rated these courses higher as compared to the other groups. A possible reason for this could be that the scheduled tribes and populace from the general category are generally economically better off and thus their fee paying capacity is also higher. Across districts, while variations exist in respondent feedback, in a majority of cases these courses have been rated average and above.

Basic infrastructure covers a wide range of services such as clean water, sewage facilities, roads, electricity, telecommunications and others, all of which support the basic livelihoods of citizens and businesses enterprises. People's perceptions about basic infrastructure services makes it clear that respondents in the hills and rural areas are more dissatisfied with these services compared to those living in the plains and in urban areas. Similarly, the lower income quintile groups show their dissatisfaction more as compared to respondents from the higher income quintile groups. Across social groups, about one third clearly stated that basic infrastructural services were either below average or not at all satisfactory. There were large inter-district variation in responses.

Employment is an important issue in the state and people in general have expressed disappointment on this front, more so in the hills and rural areas. Overall, there has been a fall in employment opportunities as expressed by one tenths of the people. For the populace in the higher income quintiles groups, employment has shown an increase compared to those in the lower income quintile groups. Across the social groups, the

Scheduled Caste population seems to have faced the brunt of lack of employment opportunities followed by the general category. Respondents from Pithoragarh (22 percent), Rudraprayag, Chamoli, Nainital and Almora (18 percent each) expressed a reduction in employment opportunities.

The unemployment situation is the worst in the case of educated youth, especially so in the hills and rural areas. Overall, two-thirds of the population of respondents (60 percent) stated that there were no employment opportunities for the educated youth. Clearly, those who belonged to the lower income quintiles faced the harshness of the unemployment problem more compared to those in the upper quintiles. Scheduled caste youth were worst hit by the unemployment problem. Rudraprayag and Chamoli districts had a high proportion of unemployed youth stating that there were no employment opportunities for them (50 percent each).

With more than 15 per cent of population living in slums, unplanned urbanization can adversely impact the already existing problems of poor housing conditions, lack of public transportation, congestion and pollution, as well as poor access to basic social services. The major challenges facing the urban poor communities in Uttarakhand include low and fluctuating incomes, poor quality affordable housing, and inadequate access to public infrastructure and services. Homelessness is a particularly important issue in the cities and towns.

## 9.4 Strategies for the Way Forward

Uttarakhand has a rich resource base as well as the potential for developing numerous non-farm activities and enterprises, yet this potential has not been fully exploited. The state needs to convert its rich base of physical resources into effective outcomes in terms of enterprises with value addition activities, capacity building and human resource development. Transformation from a physical to a real resource base would generate demand for numerous types of new skills and competencies. These would ultimately result in employment and incomes in productive activities. For this, the education and skill systems need to be made relevant such that there is a a correspondence between the nature of skills required by enterprises and the type of skills provided by educational and training institutions.

### Employment and Livelihoods

Livelihood opportunities available to the people in Uttarakhand, especially to the rural population in the hills districts, need to be expanded, in order to improve the standard of living and to bridge the hills-plains gap in development. Two broad strategies include the growth-driver sectors of hill agriculture supplemented by the horticulture sector, and the tourism sector, as envisaged in the Vision 2030 Uttarakhand document.

#### *Transformation of Hill Agriculture and Promotion of Niche Activities*

The agriculture sector has potential for livelihood generation along with diversification into areas such as horticulture, aromatic and medicinal plants, animal husbandry including dairy, fisheries, sericulture, bee-keeping, mushroom production, etc.

The main horticultural products grown in the state include fruits, vegetables, potatoes, spices and flowers. There is further scope for growing temperate, sub-tropical, and tropical fruits that would fetch a high price in both the domestic as well as international markets, given the variance in climatic conditions of the state. At present, around 2.5 lakh farmers, (88 percent of whom are small and middle farmers), are associated with horticultural activities. Further, livelihood expansion options in the form of food processing units, (currently more than 650 in number), provide a linkage to the labour- intensive Micro, Small and Medium Enterprises (MSME) sector.

Medicinal and aromatic plants are a niche area with enormous growth as well as employment potential. Aromatic plants and their products, including essential oils such as Japanese mint oil, sandal wood oil, citronella oil, lemon grass oil, etc., are increasing in importance as export items with

demand from many developing countries of Asia. The state can focus on cultivating such bonus crops to generate additional incomes and facilitate maximum land utilization from the existing cropping pattern. At present, aromatic crops are being successfully cultivated in 109 clusters in the state.

The AYUSH department aims to establish Herbal Gardens with the intention of moving into the identification, cultivation and marketing of herbal medicines. Not only would farmers benefit from such diversification, there is also scope for additional employment via MSMEs which could connect with orchards and distilleries for further downstream activities., Local youth could find employment in yoga and wellness centres promoted by AYUSH. There is potential of further employment generation, once the synergy with tourism is developed to promote agro-tourism, or culinary themes for tourist activities and tours etc.

Some parallel initiatives to generate sustainable livelihoods in the state include:

(i) Consolidation of small holdings to make them viable units for improved agricultural productivity

(ii) Improvements in technology appropriate for hill farming.

(iii) Expansion of areas under high value crops such as horticulture crops, vegetables, floriculture, herbs & medicinal plants in different mountain ranges (high, middle and low) according to the suitability of land.

(iv) Supply side support in terms of inputs, credit, training, technology and marketing needs.

(v) Strengthening public institutions and supporting the small and marginal holding farming community. Public institutions include: primary credit societies, Krishi Vigyan Kendras (KVKs), agricultural extension services, SHGs, other village level organizations and rural banks etc.

(vi) Strengthening crop insurance to provide financial support in the event of natural calamities and distresses.

(vii) Public investments for erecting canals and irrigation channels and providing technical knowhow through Krishi Vigyan Kendras (KVKs) and other extension services for improving agriculture in the hill regions.

(viii) Adopting an integrated approach to ensure convergence in the management of animal husbandry, agro-forestry and crop farming etc. that would help ensure better livelihood support.

Employment generation strategies that take into account hill specificities, help in closing the hills-plains gap and discourage out-migration by providing more employment opportunities to locals in the hill regions. To effectively address the disparity between the hills and the plains and to make the strategy of agricultural transformation successful, infrastructure including roads, rail and air services need to be made more efficient in the hill districts to improve connectivity.

### *Tourism Sector*

Tourism has been identified as another growth driver in the Vision 2030 for Uttarakhand. This sector holds immense potential for providing sustainable livelihoods, given its backward and forward linkages, especially in the accommodation and food-oriented projects, amusement parks and water sports.

While pilgrimage and sight-seeing are traditional segments for the tourism sector in Uttarakhand, emerging segments in the form of adventure tourism, spiritual tourism, rural tourism, eco-tourism, etc., hold a lot of promise for generating employment, especially for the youth. With the continued expansion of tourist activities in these areas, the demand for hotels, restaurants, tour operators and guides, porters, transport services, etc., can be expected to rise. Homestays are becoming increasingly popular with tourists, providing direct employment to the local people in rural areas and remote villages. They could prove to be a key strategy in arresting migration in the hills districts where livelihood opportunities are scant.

The state government is developing Gram Panchayats with a view to promote rural tourism. Uttarakhand also can promote medical tourism using medicinal herbs, traditional processes such as the 'Panchakarma' and the 'Ksharsutra'. Such types of tourism efforts, along with yoga and wellness centres, under the stewardship of AYUSH, could generate considerable employment in the hills. In the urban areas, there are opportunities in the marketing and promotional spheres, where educated youth and local people could obtain employment, especially in marketing and IT jobs.

## Education

For school education, the way forward, in the medium-term, could include:

1. Orienting the education system towards enhancing learning outcomes.
2. Providing teachers and students tools for effective learning.
3. Improving existing policies, governance mechanisms and introducing new initiatives.

To elaborate on the first point, an objective, independent system of testing educational outcomes needs to be explored, for supplementing routine text-book based assessments. Based on a sample survey, this test could be modelled along the lines of the NAS at the state level. In addition, the teacher recruitment policy can be revamped to focus on merit and aptitude. Secondly, teachers can be re-trained in pedagogy for activity-based learning. E-content could be developed by the State Council or Educational Research and Training (SCERT) for enhancing learning outcomes and Specific Measurable Attainable Relevant Time-bound (SMART) classes already piloted in the state could be scaled up. Thirdly, some major policy initiatives such as integrating pre-primary with the existing schooling system, upgrading existing schools and building new schools to universalize secondary education, setting up counselling centres in schools etc., need to be considered.

For higher education, more colleges need to be established, with priority for remote hilly regions as well as in areas where the pupil teacher ratio is excessively high. Given the current dissatisfaction with the quality of higher education institutions, as reflected in the primary survey, the State Quality Enhancement Centre that is proposed to be set up in the centre will be an important initiative. Improving employability and planning for physical infrastructure before opening a college for admission are areas which need to be attended to in the future. In the vocational and skill training areas, it is important to make skill development programmes relevant to the needs and desires of local people. Efforts to improve relevant marketable skills are important for promoting employment along with the expansion of an enhanced rural skill base for the diversification of the economy.

## Health

Prevention is important for communicable as well as non-communicable diseases. But resources need to be committed to increase the health screening of the state's population, so that cases are detected in time and necessary follow-ups done, from both the public and the private sector. The National Health Policy (2017) has recommended increasing public spending on health in the states to more than 8 percent of the state government budget by 2020 and Uttarakhand needs to plan accordingly.

Decisions regarding inter-sectoral prioritization could be made by a focal body with the Central Government, as per the suggestions of the Niti Aayog. This body could be constituted for the specific purpose of disease surveillance, health status monitoring, improving public knowledge and doing what is necessary for bringing about improvements in public health action as well as regulation. A counterpart could be created at the state level to co-ordinate public and preventive health initiatives which could in turn have ramifications for not just the health sector, but for the other connected sectors as well. The Niti Aayog has also discussed the creation of a public health cadre at the state level for the above task, and this could be formed by the skill up-gradation of existing human resources.

Monitoring of data on health outcomes at the district/sub-district levels is very important and the MIS system needs to be tailored for this purpose. The health information system must be strengthened for better disease surveillance. Better documentation of health facilities should also be encouraged.

District hospitals should be strengthened and developed as training hubs. A district hospital is envisaged to function as the secondary level of healthcare which provides curative, preventive and promotional health services to the people. It is expected to have good linkages with referral facilities below the district levels, that is, Sub-divisional Hospitals (SDHs), CHCs, and PHCs, as well as with external institutions run by NGOs and private voluntary health organizations.

The usse of technology should be increased for raising public awareness about health issues. For instance, SMS/WhatsApp groups could be created to disseminate information easily among the population.

Any discussion regarding the way forward would be incomplete without touching upon the issue of environmental sustainability. The human development approach needs to take into account the impact that the present form of economic development has on the environment. There is the need to address this issue starting from the community level in the form of raising public awareness and mass movements, to the highest policy level in the form of government policies and laws. Apart from introducing legislations for the sustainable management of natural resources such as water (including liquid and solid waste management) and the protection of forests, the government has undertaken various exercises such as the preparation of the State Action Plan on Climate Change Report for Uttarakhand, a Vulnerability Analysis with respect to climate change for important sectors, the preparation of detailed indicators related to environment and climate change as incorporated in the Vision 2030 document for the state, with the purpose of monitoring their progress. As with health, employment and education, there is a need to strengthen the database in this sector as well and make attempts to estimate some of the indicators that are at present not being assessed due to paucity of data.

Strict and effective implementation of environmental regulations/codes with a view to protecting the environment and ecology of the region is imperative if the state is to remain on its development trajectory and enhance the human development status of its people. Environmental

# Annexures

**Annexure 1**

# Methodology

The Uttarakhand Human Development Report covers various aspects of human development including the quality of life of the people, in Uttarakhand, which depends upon, to a great extent, employment and livelihood opportunities, educational attainments, health and available health services, access to basic civic services and infrastructure, water, the environment and forest resources in the hilly state. The analysis carried out is based primarily on available secondary data sources as well as the primary survey conducted by IHD in thirteen districts of the state viz., the UKHDR Survey, 2017.

## The Human Development Indices

The current Report compares districts on the basis of a composite index of human development. Following the UNDP's methodology, 2017, three types of indices at the district level namely the Human Development Index (HDI), the Gender Development Index (GDI) and the Multidimentional Poverty Index (MPI) have been developed.

### 1. The Human Development Index (HDI)

UNDP's HDI encompasses three dimensions viz., a long and healthy life captured through life expectancy at birth, knowledge measured by the mean and expected years of schooling and the standard of living captured through per capita income (Annexure 1.1).

### 2. The Gender Development Index (GDI)

The Gender Development Index (GDI) measures gender inequalities in achievements in the three basic dimensions of human development viz., health, measured by the female and male life expectancy at birth; education, measured by expected years of schooling for female and male children and the mean years of schooling for adult females and males (25 years and above); and command over economic resources, measured by the estimated per capita income earned by females and males (Annexure 1.1).

### 3. The Multidimentional-Poverty Index (MPI)

The Multidimentional Poverty Index (MPI) identifies multiple deprivations at the household level in education, health and standard of living (Annexure 1.1).

### 4. Secondary Data Sources

The secondary data sources used in this HDR include both national databases as well as state-level data sourced from the economic surveys that have been used to study and analyse trends, patterns and differentials in key human development parameters and outcomes. To gain an understanding on the functioning and impact (coverage, utilization etc.) of important public welfare programmes, MIS data from the relevant ministries/departments at the central/state levels have been collated and analyzed. The major secondary data sources include Census 2011; Oxford Poverty and Human Development Initiative, United Kingdom; Department of Planning, Directorate of Economics & Statistics, Uttarakhand; Finance Department, Government of Uttarakhand; Central Statistical Organsiation; Department of Labour,

Government of Uttarakhand; Rural Development and Panchayati Raj Departments, National Sample Survey (NSS), State Plan and Budget Documents, Sample Registration System (SRS), Ministry of Health; National Family Health Survey (NFHS), District Level Health Survey (DLHS), State Expenditure Bulletin (RBI), Department of Economics and Statistics (DES) State and District Educational Statistics of Uttarakhand, Department of Forestry, Department of Agriculture, Department of Mining and other relevant sources. The Caste Census also forms an important source of information.

The set of indices discussed in the above sections require data at various levels of disaggregation. A preliminary review of the existing secondary data at suitable levels was carried out to get an overview of the scope of adopting the basic UNDP framework for the present Human Development Report. The following matrix offers a synthesis of the framework used for preparing the various indices in this report.

Annexure 1.1: Indicators and Sources of Data

| Indices | Indicators | Sources of Data | Remarks |
|---|---|---|---|
| Human Development Index (HDI)/ Gender Development Index (GDI) | Health<br><br>Life Expectancy at birth | No direct source<br><br>(Based on Primary Survey) | The secondary source does not produce life tables for Uttarakhand (Age wise distribution from the Primary survey was used for it) |
| | Education<br>Expected years of Schooling<br>Mean years of Schooling | Based on Primary Survey<br><br>Based on Primary Survey | |
| | Income<br><br>District Domestic Product per capita at constant prices | Secondary sources | Department of Economics and Statistics (DES) |
| Multidimentional Poverty Index (MPI) | Education<br>Years of Schooling<br>School Attendance | Secondary sources | NFHS-4 |
| | Health<br>Child Mortality<br>Nutrition | | |
| | Living Standard<br>Electricity<br>Improved Sanitation<br>Drinking Water<br>Housing<br>Cooking Fuel<br>Asset Ownership | | |
| Household Expenditure | Household Consumer Expenditure<br><br>Household health expenditure<br><br>Out of Pocket Expenditure | | Based on Primary Survey |

Some of the challenges/constraints posed by the secondary data sources in the preparation of this Human Development Report for Uttarakhand warrant mention here:

- Most of the data required for constructing Human Development Indices were 4-5 years old with current data for reference years like 2016 or 2017 being unavailable.
- Several variables required to construct the HDI and the other indices considered were not available from secondary sources.

- Most importantly, the available secondary data did not provide the details about the required human development indicators disaggregated across various groups such as gender, social groups, occupation, etc. and these were aptly captured by the IHD 2017 HDR primary survey.
- In case of those indicators for which the data was available, the sample size was not enough for generating robust estimates at disaggregated levels such as the district level. The sample size of the National Sample Survey (NSS) is very small to enable district wise estimations of employment, unemployment, wage/earnings and consumption etc.

It was finally found that based on the available secondary data, it was not possible to adopt the framework of the UNDP HDRs in their totality. To overcome these limitations, a detailed primary survey for the purposes of the 'Uttarakhand Human Development Report (UKHDR)' was canvassed across a large number of households covering all the districts encompassing the various aspects of human development as briefly explained below.

## 5. Primary Survey

In the primary survey for the purposes of the Uttarakhand HDR, both qualitative as well as quantitative information/data was collected.

### *Quantitative Information*

Quantitative information was collected through a semi-structured interview- schedule prepared for the household/village level. Before conducting a detailed household survey, a listing or complete census of the households in the identified villages/urban census enumeration blocks (CEBs) was also conducted with basic questions pertaining to a household's characteristics. The detailed survey included different aspects of human development as detailed below.

- Demographic details of household members: age, gender, marital status, duration of stay, main occupation/economic activity, years/levels of education, child education and health status, migration status etc.
- Basic services: type of dwelling, access to drinking water, toilet, waste- disposition, electricity, energy-sources, assets etc.
- Education: years of schooling, enrolment, type of educational facility attended, access parameters, regularity, satisfaction with schooling, mid-day meals etc.
- Health and healthcare: illnesses – acute and chronic, sources of treatment, sources of financing, hospitalization, disabilities, mental health, subjective assessment/ratings of health status, maternal and child health including preventive aspects, mortality, cause of death by verbal autopsy, health aspects of the elderly, perception on government health facilities and quality of care.
- Consumption and sources of income: a short module on consumption expenditure similar to the National Sample Survey Organisation (NSSO), major sources of income, income earned, poverty perceptions.
- Livelihoods: detailed information on major occupation/income sources, regularity of earnings and other labour market aspects, special emphasis on women's work and use of time, wages, social security.
- Impact of Public Programmes: public perception assessments on the access, functioning, utilization and impact of selected important public welfare programmes, e.g., Sarva Shiksha

Abhiyan(SSA), Integrated Child Development Services(ICDS), Public Distribution System (PDS), Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), Indira Awaas Yojana (IAY), Backward Regions Grant Fund (BRGF), Multi-sectoral Development Programme (MSDP) etc. with special focus on state government development schemes.

- A separate section of the questionnaire included questions on tourism, environment and natural disasters.
- The people's perceptions questions covered public services like health, education, public transportation & communication, the Public Distribution System (PDS) etc.

District level data for some of the above mentioned indicators was available from secondary sources and was therefore not collected during the primary survey after due consultation with the state level officials.

*Qualitative Information*

Qualitative information was gathered through Focus Group Discussions (FGDs) with the beneficiaries of various government programmes in sectors relevant to human development (e.g. Rashtriya Swasthya Bima Yojana (RSBY), Janani Suraksha Yojana (JSJ), MNREGS etc.), self-help group members, women, unemployed youth and SC/ST women etc. In-depth interviews with key informants (KIs) such as district level officials and other government officials from various departments were conducted to know and get a better understanding of people's perceptions, experience and success pertaining to different aspects of human development. In addition, some selected case studies of success stories and failures of public programmes as well as people's initiatives were recorded to draw useful lessons.

As mentioned above, such an exercise of carrying out a primary survey across the state of Uttarakhand enabled not only the capturing of required human development variables but also enabled a clear study of the variations in human development indicators across different socio- economic groups (e.g. SC/ST/ OBC/others), gender (male/female) and other vulnerable groups.

*District Level Workshops*

In addition to the various state level consultations and the primary survey, district level workshops were also organised in each district headquarter to discuss various human development prospects and challenges with district level officials, non-government organisations and various political representatives.

**Sample Design**

The minimum sample size for each district was calculated by using Slovin's formula on the population to get robust estimates. The formula is $nY = N / (1 + Ne^2)$, where N=Population, ny=estimated sample, e= alpha level at confidence interval of 96 per cent. This was estimated for about 650 households for a population of above 1 lakh for each district including a 5 per cent design effect at the state level to get robust estimates. Further, the multi-stage sampling method was used to arrive at the first stage unit of the survey (FSU), i.e. the households.

### *Stage 1: Selection of districts*

The district level sample was further distributed into rural and urban areas by its population ratio as per the Census, 2011 for each district. In districts, where the urban sample was small, the districts were treated as separate units with sample size increased to 100 for the estimates (Annexure 1.2).

Annexure 1.2: Population Distribution and Sample for the UKHDR Survey, 2017

| District | Population % | | Sample* | | |
|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Total |
| Uttarkashi | 93 | 7 | 624 | 101 | 725 |
| Chamoli | 85 | 15 | 557 | 110 | 667 |
| Rudraprayag | 96 | 4 | 630 | 100 | 730 |
| Tehri Garhwal | 89 | 11 | 582 | 100 | 682 |
| Dehradun | 44 | 56 | 316 | 367 | 683 |
| Garhwal | 84 | 16 | 549 | 104 | 653 |
| Pithoragarh | 86 | 14 | 560 | 100 | 660 |
| Bageshwar | 97 | 3 | 643 | 100 | 743 |
| Almora | 90 | 10 | 581 | 100 | 681 |
| Champawat | 85 | 15 | 554 | 100 | 654 |
| Nainital | 61 | 39 | 402 | 259 | 661 |
| Udham Singh Nagar | 64 | 36 | 416 | 235 | 651 |
| Haridwar | 63 | 37 | 414 | 241 | 655 |
| Uttarakhand | 70 | 30 | 6828 | 2017 | 8845 |

Note: *At least 100 households were selected for the survey.

### *Stage 2: Selections of block/urban wards*

The First Stage Units (FSU) for the survey were Villages and Urban Census Enumeration Blocks (CEBs). However, before the selection of the sample villages and the CEBs, each district was stratified. All rural blocks and urban wards in a district were grouped into three strata in terms of their population after arranging them in descending order of population concentration. The grouping/stratification was such that the first stratum constituted the top 20 per cent of blocks/wards, the second stratum constituted the middle 50 percent and the third/last stratum constituted the bottom 30 percent of blocks and wards in the arranged frame.

- Depending on the population size of the rural and urban areas of the district, 15 villages from rural areas and 10 CEBs from urban areas were selected from each district. In case of larger wards (400 plus households), more than one CEB was selected randomly from each of the wards. If the numbers of wards were less than 10, as was the case in some districts, then more than one CEB was chosen by covering all wards in the said districts without any stratification.
- The number of villages and CEBs surveyed in each stratum were directly proportional to the share of each stratum, group of blocks and wards in terms of the district population, subject to a minimum allocation of 4 villages and 2 CEBs to each stratum.
- The required number of sample villages and CEBs from each stratum were selected as per the probability proportion to size (PPS) method with replacement, size being total population of the village and wards as per Census 2011.
- Very small villages having less than 30 households were excluded.

The range varied in accordance with the degree of concentration of the population in respective districts. If the urban wards were only 10, there was no need for stratification.

*Stage 3: Selection of households*

- In rural areas, a complete listing of all the households (by door to door visit) was carried out for sample villages having less than 500 households.
- For villages with 500 or more households, two or more hamlet-groups (hg's) were formed.

| Population (in Rural areas)** | Hamlets/ Sub Blocks |
|---|---|
| less than 500 | 1 |
| 501 to 899 | 2 |
| 900 to 1199 | 3 |
| .....so on. | 4 |

- Total number of households in each sample village and CEBs were surveyed and determined by dividing the total sampled households in the district by the number of villages with minimum 10 households from CEBs with minimum 20 from each village.
- In urban areas, complete listing of all the households of randomly selected sample CEBs was done, generally CEBs consists of 120-130 households.
- Finally, from the listing, the required number of sample households was selected by making three stratums (based on the criteria given below) in each village and by using simple random sampling without replacement with a minimum allocation of 4 households from each strata.

| Stratum | Rural Stratum |
|---|---|
| S1: | Relatively affluent households (Landlord (*>=5 acres & =<10 acres, Government/ corporate /company jobs; Big business or enterprises and others relatively better off than the rest*) |
| S2: | Remaining households (middle income) after selecting S1 & S3 |
| S3: | Poor households (*casual labour and other poor)* |

- Similarly, the selection of sample households in each CEB from the listing was done by making three stratums (based on the criteria given below) in urban areas, with a minimum of 3 households from each stratum.

| Stratum | Urban Stratum |
|---|---|
| S1: | households havingMonthly Per Capita Income(MPCI) of top 10% of urban population (MPCI > B) |
| S2: | households having MPCI of middle 60% of urban population (A ≤ MPCI ≤ B) |
| S3: | households having MPCI of bottom 30% of urban population (MPCI • A) |

*Note:* Two cut-off points 'A' and 'B' (in Rs.) have been determined from NSS 66th round data for each NSS state-region for urban areas in such a way that top 10% of the population have MPCE more than 'B' and bottom 30% of the population have MPCE less than A.

## Annexure 2

Estimation procedures for the indices followed in the report are based on UNDP's new methodology (2016), however, with some modifications to overcome data limitations. The procedures are explained in the following.

### *Human Development Indices (HDI)*

HDI is calculated based on three dimensions:

| | |
|---|---|
| Long and Healthy Life | measured by life expectancy at birth |
| Knowledge | measured by mean years of schooling and expected years of schooling |
| Standard of Living | measured by per capita annual income |

Life expectancy at birth at the district level was estimated based on five-year death-age data obtained from SRS census and age distribution from HDR survey by using Chiang's method. The mean years of schooling and expected years of schooling were estimated from the HDR survey data. The first is based on the number of years to complete a particular level for adults 25 years & older and actual level of educational attainment of individuals obtained from the survey and the second is based on enrolment ratios. The district per capita domestic product, obtained directly obtained from DES, UK and MoSPI, CSO, Government of India.

Equation 1: HDI dimension index calculation

**Equation 1.1: HDI index calculation for income**

$$\text{Dimesion Index} = \frac{\text{In[actual value]} - \text{In[minimum value]}}{\text{In[maximum value]} - \text{In[minimum value]}}$$

**Equation 2: Aggregation formula for HDI**

$$\text{HDI} = \sqrt[3]{I_{health} \times I_{education} \times I_{incom}}$$

Calculate the education index which is the artihmetic mean of the two subindices:

$$Education\ index = \frac{Mean\ years\ of\ schooling\ index + Expected\ years\ of\ schooling\ index}{2}$$

Following goal posts are used for normalization of the indicators for HDI:

| Indicators | Minimum | Maximum |
|---|---|---|
| Life Expectancy | 20 | 85 |
| MYS | 0 | 15 |
| EYS | 0 | 13 |
| Income (per capita value in Rs,) | 28485 | 339705 |

In case of Life Expectancy and Mean Year of Schooling (MYS)the maximum-minimum values were taken from United Nations Development Programme (UNDP) Report, 2016 while for the Expected years of Schooling (EYS), the maximum value used was 13 instead of 18 since, in India, the Right to Education ensures education for children in the 6-14 age group; the rest are the same as UNDP's. The income bounds were chosen from the per capita income of the states with minimum taken as for Bihar and the

maximum for Goa.

After normalization by max-min method, the dimension indices for health, education and income were calculated. For education the average value of the two indicators was used to get the education indices. Finally, the HDI is calculated using the geometric mean of the three indices.

### *Gender Development Indices (GDI)*

GDI is calculated based on three dimensions:

| | |
|---|---|
| Long and Healthy Life | measured by male-female life expectancy at birth |
| Knowledge | measured by male-female mean years of schooling and expected years of schooling |
| Estimated earned income | measured by male-female share of economically active population, ratio of female-male wages ,female-male share in population, and income per capita (in Rs) |

Following goal posts are used for normalization of the three indicators of GDI:

| Indicators | Male | | Female | |
|---|---|---|---|---|
| | Minimum | Maximum | Minimum | Maximum |
| Life Expectancy | 82.5 | 17.5 | 22.5 | 87.5 |
| MYS | 0 | 15 | 0 | 15 |
| EYS | 0 | 13 | 0 | 13 |
| Earrings or income (per capita value in Rs,) | 28485 | 339705 | 28485 | 339705 |

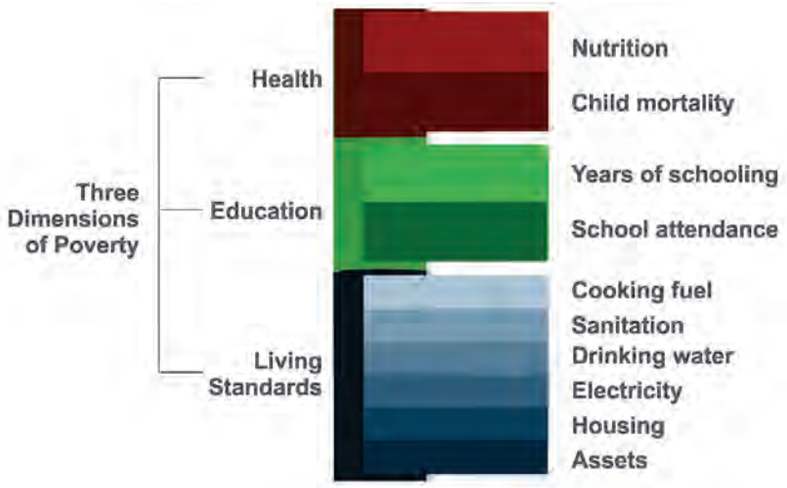
Similar to the HDI above, after normalization by max-min method, the three dimension indices for health, education and per capita income were calculated. Further, the two HDI for males and females was calculated by using the geometric mean of the three indices. Finally GDI is derived by females HDI by males HDI.

## Multidimensional Poverty Index(MPI)

### *Procedure for Calculation of MPI*

The Multidimentional Poverty Index (MPI) uses information from ten indicators as given in the Figure below. Furthermore, they are organised into three equally weighted dimensions namely, health, education and living standards. These dimensions are the same as those used in the Human Development Index (HDI). The MPI has two indicators for health, two for education and six for living standards. The MPI begins by establishing a deprivation profile for each person, which shows which of the ten indicators they are deprived in. Each person is identified as deprived or non-deprived in each indicator based on a deprivation cutoff. In the case of health and education, each household member is identified as deprived or not deprived according to available information for household members.

Composition of the MPI – Dimensions and Indicators



Looking across indicators, each person's deprivation score is constructed based on a weighted average of the deprivations they experience. The indicators use a nested weight structure: equal weights across dimensions and equal weight for each indicator within a dimension. Finally, a poverty cutoff of 33.33% identifies as Multidimensionally poor those people whose deprivation score meets or exceeds this threshold. The MPI reflects either the incidence or headcount ratio (H) of poverty – the proportion of the population who are Multidimensionally poor – and the average intensity (A) of their poverty – the average proportion of indicators in which poor people are deprived. The MPI is calculated by multiplying the incidence of poverty by the average intensity across the poor (HxA). A person is identified as poor if he or she is deprived in at least one-third of the weighted indicators. Those identified as 'vulnerable to poverty' are deprived in 20 per cent to 33.33 per cent of weighted indicators, and those identified as being in 'severe poverty' are deprived in 50 per cent or more of the dimensions.

The Dimensions, Indicators, Deprivation Cutoffs and Weights of the Global MPI 2018

| Dimensions of poverty | MPI indicator | Deprived if… | Weight |
|---|---|---|---|
| Health | | | |
| | Nutrition | Any person under 70 years of age for whom there is nutritional information is under-nourished. + | 1/6 |
| | Child mortality | Any child has died in the family in the five-year period preceding the survey. | 1/6 |
| Education | | | |
| | Years of schooling | No household member aged ten years or older has completed six years of schooling. | 1/6 |
| | School attendance | Any school-aged child++ is not attending school up to the age at which he/she would complete class 8. | 1/6 |
| Living standards | | | |
| | Cooking fuel | The household cooks with dung, wood or charcoal. | 1/18 |
| | Sanitation | The household's sanitation facility is not improved or it is improved but shared with other households.* | 1/18 |
| | Drinking water | The household does not have access to improved drinking water or safe drinking water is at least a 30-minute walk from home, roundtrip.** | 1/18 |
| | Electricity | The household has no electricity. | 1/18 |
| | Housing | The household has inadequate housing: the floor is of natural materials or the roof or wall are of rudimentary materials.*** | 1/18 |
| | Assets | The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike or refrigerator, and does not own a car or truck. | 1/18 |

*Source:* OPHDI MPI Methodological Notes 46; Sabina Alkire, Usha Kanagaratnam and Nicolai Suppa, September, 2018

*Notes:*

+ Adults 20 to 70 years are considered malnourished if their Body Mass Index (BMI) is below 18.5 m/kg2. Those 5 to 20 are identified as malnourished if their age-specific BMI cutoff is below minus two standard deviations. Children under 5 years are considered malnourished if their z-score of either height-for-age (stunting) or weight-for-age (underweight) is below minus two standard deviations from the median of the World Health Organization 2006 reference population. In a majority of the countries, BMI-for-age covered people aged 15 to19 years, as anthropometric data was only available for this age group; if other data were available, BMI-for-age was applied for all individuals above 5 years and under 20 years.

++ Data source for age children start primary school: United Nations Educational, Scientific and Cultural Organization, Institute for Statistics database, Table 1. Education systems [UIS, http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=163].

* A household is considered to have access to improved sanitation if it has some type of flush toilet or latrine, or ventilated improved pit or composting toilet, provided that they are not shared.

** A household has access to clean drinking water if the water source is any of the following types: piped water, public tap, borehole or pump, protected well, protected spring or rainwater, and it is within a 30-minute walk (round trip).

*** Deprived if floor is made of mud/clay/earth, sand or dung; or if dwelling has no roof or walls or if either the roof or walls are constructed using natural materials such as cane, palm/trunks, sod/mud, dirt, grass/reeds, thatch, bamboo, sticks, or rudimentary materials such as carton, plastic/ polythene sheeting, bamboo with mud/stone with mud, loosely packed stones, uncovered adobe, raw/reused wood, plywood, cardboard, unburnt brick or canvas/tent.

## Annexure 2.1: HDI Score and Rank, 2017

| District | Overall | Rank |
|---|---|---|
| Uttarkashi | 0.106 | 1 |
| Hardiwar | 0.101 | 2 |
| Champawat | 0.100 | 3 |
| Almora | 0.096 | 4 |
| Udham Singh Nagar | 0.096 | 5 |
| Bageshwar | 0.080 | 6 |
| Tehri Garhwal | 0.071 | 7 |
| Chamoli | 0.066 | 8 |
| Pithoragarh | 0.059 | 9 |
| Rudraprayag | 0.052 | 10 |
| Nainital | 0.050 | 11 |
| Pauri Garhwal | 0.046 | 12 |
| Dehradun | 0.029 | 13 |
| Uttarakhand | 0.072 | |

Source: OPHDI, 2018

Annexure 2.2: GDI Score and Rank, 2017

| District | GDI | Rank |
|---|---|---|
| Uttarkashi | 0.892 | 1 |
| Rudraprayag | 0.864 | 2 |
| Bageshwar | 0.820 | 3 |
| Pauri Garhwal | 0.791 | 4 |
| Champawat | 0.757 | 5 |
| Pithoragarh | 0.728 | 6 |
| Tehri Garhwal | 0.726 | 7 |
| Almora | 0.721 | 8 |
| Chamoli | 0.698 | 9 |
| Nainital | 0.670 | 10 |
| U S Nagar | 0.632 | 11 |
| Dehradun | 0.593 | 12 |
| Haridwar | 0.561 | 13 |
| GDI | 0.727 | |

Source: UKHDR Survey, 2017

## Annexure 3

Annexure 3.1: GSDP Growth by Economic Sectors (2011-12 prices) (%)

| Industry | 2011-12 to 2014-15 | 2014-15 to 2017-18 | 2011-12 to 2017-18 |
|---|---|---|---|
| 1.Agriculture, forestry,fishing | 0.1 | 0.18 | 0.16 |
| 2.Mining&quarrying | 4.06 | 7.18 | 6.43 |
| Primary sector | 0.61 | 1.26 | 1.07 |
| 3.Manufacturing | 4.91 | 5.88 | 6.19 |
| 4..Electricity, gas& Water supply &other utility services | 4.07 | 5.96 | 5.74 |
| 5.Construction | 5.5 | 4.73 | 5.87 |
| Secondary Sector | 4.94 | 5.7 | 6.1 |
| Industry | 4.91 | 5.75 | 6.11 |
| 6.Transport,storage, Communication & services related to broadcasting | 7.63 | 8.56 | 9.3 |
| 7.Trade,repair, Hotels and restaurants | 6.22 | 5.79 | 6.89 |
| 8.Financialservices | 7.01 | 2.04 | 5.15 |
| 9.Realestate, Ownership of Dwelling & professional services | 5.06 | 4.68 | 5.59 |
| 10.Public administration | 5.07 | 3.97 | 5.18 |
| 11.Otherservices | 11.78 | 4.83 | 9.48 |
| Tertiary Sector | 7.05 | 5.56 | 7.24 |
| GSDP | 5.2 | 5.26 | 6.0 |

Source: Government of Uttarakhand

Annexure 3.2: Labour Market Characteristics (%)

| | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Labour Force Participation Rate | | | | | | | | | |
| 2004-05 | 82.4 | 65.7 | 73.8 | 75.7 | 19.8 | 49.1 | 80.5 | 54.2 | 67.3 |
| 2011-12 | 71.1 | 43.8 | 56.9 | 73.8 | 15.0 | 45.3 | 71.9 | 36.5 | 53.8 |
| 2017 | 69.1 | 31.6 | 49.5 | 70.5 | 15.8 | 43.2 | 69.6 | 26.2 | 47.3 |
| Work Participation Rate | | | | | | | | | |
| 2004-05 | 80.8 | 65.4 | 72.8 | 72.6 | 17.8 | 46.5 | 78.5 | 53.5 | 65.9 |
| 2011-12 | 69.2 | 42.9 | 55.5 | 72.5 | 12.0 | 43.1 | 70.1 | 35.1 | 52.2 |
| 2017 | 66.3 | 31.0 | 47.9 | 66.2 | 14.9 | 40.6 | 66.3 | 25.5 | 45.3 |
| Unemployment Rate | | | | | | | | | |
| 2004-05 | 2.0 | 0.4 | 1.3 | 4.1 | 10.3 | 5.3 | 2.6 | 1.3 | 2.1 |
| 2011-12 | 2.8 | 2.1 | 2.5 | 1.8 | 20.0 | 4.7 | 2.5 | 4.0 | 3.0 |
| 2017 | 4.1 | 1.8 | 3.3 | 6.1 | 5.9 | 6.0 | 4.8 | 2.7 | 4.2 |

Source: NSS various rounds and UKHDR Survey, 2017

## Annexure 3.3: Uttarakhand: Spatial Distribution of Work Participation and Unemployment Rates (%), 2017

| Male | | WPR | | | Unemployment Rate | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Total | Male | Female | Total |
| Sector | Rural | 66.4 | 31.0 | 48.0 | 4.1 | 1.8 | 3.3 |
| | Urban | 66.3 | 14.9 | 40.7 | 6.1 | 6.3 | 6.0 |
| Region | Hill | 64.4 | 37.8 | 50.0 | 4.5 | 1.5 | 3.3 |
| | Plain | 67.8 | 14.2 | 41.5 | 5.0 | 5.7 | 5.1 |
| Social Group | Scheduled Caste | 68.7 | 28.4 | 48.9 | 4.1 | 1.6 | 3.4 |
| | Scheduled Tribe | 68.9 | 22.8 | 45.5 | 2.4 | 3.4 | 2.7 |
| | Other Backward Classes | 70.3 | 19.2 | 44.9 | 4.1 | 4.9 | 4.3 |
| | General | 62.6 | 28.2 | 44.4 | 5.8 | 2.1 | 4.6 |
| Income Quintile | Q1(Poorest) | 67.4 | 30.1 | 47.5 | 4.4 | 1.3 | 3.4 |
| | Q2 | 68.1 | 27.3 | 46.8 | 4.6 | 1.8 | 3.8 |
| | Q3 | 69.2 | 25.1 | 46.9 | 5.4 | 1.8 | 4.5 |
| | Q4 | 66.5 | 22.6 | 44.5 | 4.8 | 4.0 | 4.6 |
| | Q5(Richest) | 60.3 | 21.8 | 40.9 | 4.8 | 5.2 | 4.9 |
| Educational Level | Illiterate | 75.3 | 28.3 | 40.9 | 2.2 | 0.6 | 1.4 |
| | Below Primary | 80.3 | 25.4 | 48.2 | 1.9 | 0.0 | 1.3 |
| | Primary | 79.4 | 29.8 | 52.8 | 2.6 | 0.3 | 1.9 |
| | Middle | 72.4 | 28.3 | 51.8 | 2.5 | 0.5 | 2.0 |
| | Secondary | 59.8 | 17.7 | 42.2 | 3.3 | 1.7 | 3.0 |
| | Senior Secondary | 54.7 | 22.5 | 40.3 | 7.1 | 2.8 | 6.1 |
| | Graduation and above | 64.3 | 25.9 | 45.9 | 9.6 | 9.8 | 9.7 |
| | Technical and professional | 53.3 | 22.5 | 40.3 | 17.9 | 20.0 | 18.4 |
| Total | | 66.3 | 25.5 | 45.4 | 4.8 | 2.7 | 4.2 |

Source: UKHDR Survey, 2017

## Annexure 3.4: District-wise WPR (%) and Unemployment Rate (%), 2017

| District | WPR | UNPR |
|---|---|---|
| Haridwar | 38.8 | 5.1 |
| Dehradun | 40.5 | 5.9 |
| Almora | 43.2 | 3.6 |
| U S Nagar | 45.3 | 4.2 |
| Nainital | 46.7 | 3.9 |
| Tehri Garhwal | 47.2 | 4.6 |
| Pauri Garhwal | 47.4 | 4.5 |
| Pithoragarh | 48.6 | 1.7 |
| Chamoli | 49.3 | 4.2 |
| Champawat | 51.8 | 3.4 |
| Bageshwar | 56.2 | 2.3 |
| Rudraprayag | 63.9 | 1.8 |
| Uttarkashi | 67.3 | 1.0 |
| Uttarakhand | 45.3 | 4.2 |

Source: UKHDR Survey, 2017

## Annexure 3.5: Distribution (%) of Workers by Status of Employment

| | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 2004-05 | | | | | | | | | |
| Self-employed | 70.2 | 92.2 | 80.3 | 52.4 | 48.3 | 51.6 | 65.5 | 88.5 | 75.0 |
| Regular employed | 12.1 | 1.8 | 7.3 | 40.7 | 45.5 | 41.5 | 19.5 | 5.4 | 13.7 |
| Casual Worker | 17.8 | 6.0 | 12.3 | 7.0 | 6.2 | 6.8 | 15.0 | 6.0 | 11.3 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2011-12 | | | | | | | | | |
| Self-employed | 61.6 | 92.2 | 74.0 | 51.3 | 53.5 | 51.6 | 58.6 | 88.8 | 69.0 |
| Regular employed | 16.7 | 3.2 | 11.3 | 39.6 | 42.5 | 40.0 | 23.4 | 6.6 | 17.6 |
| Casual Worker | 21.7 | 4.6 | 14.8 | 9.1 | 4.1 | 8.4 | 18.0 | 4.5 | 13.4 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2017 | | | | | | | | | |
| Self-employed | 48.7 | 77.1 | 60.6 | 41.5 | 45.1 | 42.3 | 46.9 | 73.3 | 56.9 |
| Regular employed | 25.2 | 13.2 | 20.1 | 39.6 | 43.3 | 40.4 | 28.8 | 16.7 | 24.2 |
| Casual Worker | 26.2 | 9.7 | 19.3 | 18.9 | 11.7 | 17.3 | 24.3 | 9.9 | 18.9 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: NSS various rounds and UKHDR Survey, 2017

## Annexure 3.6 : District-wise Percentage Distribution of Workers by Status of Employment, 2017

| District | SE | RE | CL | Total |
|---|---|---|---|---|
| Dehradun | 40.8 | 38.4 | 20.8 | 100.0 |
| U S Nagar | 40.9 | 26.9 | 32.2 | 100.0 |
| Haridwar | 44.4 | 29.2 | 26.3 | 100.0 |
| Tehri Garhwal, | 45.4 | 39.2 | 15.5 | 100.0 |
| Pauri Garhwal | 46.9 | 35.8 | 17.3 | 100.0 |
| Nainital | 48.6 | 33.7 | 17.7 | 100.0 |
| Almora | 59.4 | 22.5 | 18.0 | 100.0 |
| Chamoli | 59.6 | 14.4 | 26.0 | 100.0 |
| Champawat | 65.8 | 14.9 | 19.3 | 100.0 |
| Uttarkashi | 66.8 | 17.9 | 15.3 | 100.0 |
| Bageshwar | 67.0 | 21.0 | 12.0 | 100.0 |
| Pithoragarh | 67.8 | 13.9 | 18.4 | 100.0 |
| Rudraprayag | 72.1 | 15.4 | 12.5 | 100.0 |
| Uttarakhand | 57.1 | 24.1 | 18.8 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 3.7: Distribution of Employment Structure by Broad Sector (%), 2017

| | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 2004-05 | | | | | | | | | |
| Primary | 63.1 | 96.4 | 78.5 | 7.3 | 33.0 | 12.0 | 48.7 | 91.1 | 66.0 |
| Secondary | 16.6 | 1.9 | 9.8 | 25.6 | 13.6 | 23.4 | 18.9 | 2.9 | 12.4 |
| Tertiary | 20.3 | 2.2 | 12.0 | 67.4 | 53.4 | 64.9 | 32.5 | 6.5 | 21.9 |
| 2011-12 | | | | | | | | | |
| Primary | 41.5 | 90.6 | 61.3 | 4.4 | 8.3 | 4.9 | 30.7 | 83.4 | 48.9 |
| Secondary | 29.0 | 5.5 | 19.5 | 31.7 | 26.4 | 31.0 | 29.8 | 7.3 | 22.0 |
| Tertiary | 29.5 | 4.0 | 19.2 | 63.8 | 65.3 | 64.0 | 39.5 | 9.3 | 29.1 |
| 2017 | | | | | | | | | |
| Primary | 44.5 | 81.7 | 55.0 | 5.6 | 8.3 | 6.0 | 30.4 | 68.5 | 39.3 |
| Secondary | 27.7 | 10.7 | 22.9 | 32.6 | 19.6 | 30.9 | 29.4 | 12.3 | 25.4 |
| Tertiary | 27.8 | 7.6 | 22.1 | 61.8 | 72.1 | 63.2 | 40.2 | 19.1 | 35.3 |

Source: NSS various rounds and UKHDR Survey, 2017

## Annexure 3.8 : District-Wise Detail Industrial Structure (%), 2017

| District | Agriculture,Forestry & Fishing | Mining & Quarrying | Manufacturing | Electricity | Construction | Trade,Hotels & Restaurants | Transport,Storage & Communication | Finace., Real Est. & Business | Pub Admn.,Edu.,Health & Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Almora | 56.1 | 0.0 | 5.0 | 0.7 | 10.7 | 11.4 | 4.0 | 1.8 | 10.3 | 100.0 |
| Bageshwar | 71.9 | 0.1 | 2.7 | 0.6 | 3.4 | 8.4 | 2.6 | 0.9 | 9.4 | 100.0 |
| Chamoli | 62.9 | 0 | 2.7 | 0.9 | 11.3 | 8.4 | 4 | 0.8 | 9.0 | 100.0 |
| Champawat | 68.3 | 0 | 2.9 | 0.4 | 10.7 | 8.4 | 3.3 | 0.7 | 5.3 | 100.0 |
| Dehradun | 15.1 | 0.1 | 9.2 | 2.9 | 18.3 | 22.2 | 9.2 | 2.6 | 20.4 | 100.0 |
| Pauri Garhwal | 52.9 | 0.3 | 5.4 | 0.9 | 8.3 | 10.4 | 7.3 | 3.4 | 11.1 | 100.0 |
| Haridwar | 27.9 | 0.8 | 13.5 | 1.7 | 17.5 | 17.8 | 5.8 | 1.7 | 13.3 | 100.0 |
| Nainital | 24.4 | 0.1 | 9.6 | 2.6 | 14.5 | 22 | 10.7 | 1.9 | 14.2 | 100.0 |
| Pithoragarh | 60.4 | 0 | 3.6 | 0.7 | 11 | 11.4 | 3.5 | 0.9 | 8.5 | 100.0 |
| Rudraprayag | 72.3 | 0 | 0.7 | 0.6 | 6.6 | 7.5 | 2.8 | 0.5 | 9.0 | 100.0 |
| Tehri Garhwal | 49.8 | 1.1 | 4.7 | 1.8 | 12.7 | 10.7 | 6.5 | 1.9 | 10.8 | 100.0 |
| Udham Singh Nagar | 23.3 | 0.6 | 18.3 | 1.5 | 23 | 17.3 | 5.7 | 1.3 | 9.0 | 100.0 |
| Uttarkashi | 72.3 | 0 | 4.9 | 1.2 | 5.4 | 4.7 | 2 | 0.5 | 9.0 | 100.0 |
| Uttrakhand | 39.0 | 0.3 | 9.1 | 1.6 | 14.7 | 15.2 | 6.2 | 1.7 | 12.2 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 3.9: Occupation Structure

| | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Senior Officials and Managers | 0.7 | 0.0 | 0.5 | 1.5 | 1.5 | 1.5 | 1.0 | 0.3 | 0.8 |
| Professionals | 4.6 | 3.7 | 4.3 | 8.2 | 13.9 | 8.9 | 5.9 | 5.5 | 5.8 |
| Technicians and Associate Professionals | 2.4 | 1.2 | 2.0 | 4.1 | 11.5 | 5.1 | 3.0 | 3.1 | 3.0 |
| Clerks | 2.4 | 0.9 | 2.0 | 4.9 | 5.9 | 5.1 | 3.3 | 1.8 | 3.0 |
| Service Workers and Shop & Market Sales Workers | 17.0 | 12.2 | 15.6 | 29.9 | 33.8 | 30.4 | 21.6 | 16.1 | 20.3 |
| Skilled Agricultural and related Workers | 27.7 | 68.9 | 39.3 | 3.8 | 7.5 | 4.3 | 19.1 | 57.8 | 28.2 |
| Craft and Related Trades Workers | 7.5 | 2.8 | 6.2 | 12.4 | 10.2 | 12.1 | 9.2 | 4.1 | 8.1 |
| Plant and Machine Operators and Assemblers | 7.1 | 0.6 | 5.2 | 8.5 | 1.1 | 7.5 | 7.6 | 0.7 | 6.0 |
| Elementary Occupations | 30.7 | 9.7 | 24.8 | 26.7 | 14.7 | 25.1 | 29.2 | 10.6 | 24.9 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: UKHDR Survey, 2017

## Annexure 3.10: Average Daily Wage of Regular Workers by Public and Private (in Rs.)

| | | Male | | | Female | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Public | Private | Total | Public | Private | Total | Public | Private | Total |
| Area | Rural | 1002 | 350 | 543 | 439 | 226 | 352 | 822 | 336 | 507 |
| | Urban | 1037 | 368 | 612 | 745 | 288 | 484 | 978 | 355 | 589 |
| Education | Illiterate | 686 | 276 | 291 | 248 | 186 | 200 | 329 | 243 | 253 |
| | Below Primary | 942 | 252 | 392 | 274 | 171 | 198 | 30 | 232 | 340 |
| | Primary | 1027 | 311 | 444 | 320 | 145 | 195 | 829 | 281 | 394 |
| | Middle | 701 | 291 | 381 | 227 | 156 | 199 | 574 | 282 | 359 |
| | Secondary | 748 | 352 | 455 | 241 | 250 | 244 | 655 | 348 | 437 |
| | Senior Secondary | 902 | 354 | 535 | 596 | 229 | 473 | 812 | 343 | 524 |
| | Graduation and above | 1240 | 440 | 832 | 727 | 332 | 561 | 1105 | 418 | 769 |
| | Technical and professional | 1122 | 699 | 912 | 723 | 585 | 640 | 1044 | 668 | 848 |
| | Other | - | 200 | 200 | - | - | - | - | 200 | 200 |
| Region | Hill | 978 | 364 | 626 | 561 | 242 | 446 | 859 | 346 | 588 |
| | Plain | 1068 | 355 | 540 | 536 | 267 | 378 | 940 | 343 | 513 |
| District | Almora | 838 | 391 | 610 | 632 | 323 | 548 | 788 | 384 | 599 |
| | Bageshwar | 986 | 436 | 731 | 948 | 280 | 701 | 978 | 411 | 725 |
| | Chamoli | 989 | 340 | 729 | 529 | 377 | 487 | 857 | 347 | 669 |
| | Champawat | 1114 | 308 | 596 | 312 | 172 | 272 | 774 | 289 | 509 |
| | Dehradun | 1171 | 374 | 678 | 834 | 300 | 509 | 1108 | 360 | 646 |
| | Pauri Garhwal | 1133 | 361 | 667 | 624 | 160 | 474 | 980 | 337 | 628 |
| | Haridwar | 769 | 313 | 394 | 159 | 294 | 222 | 563 | 311 | 369 |
| | Nainital | 787 | 365 | 502 | 544 | 246 | 377 | 723 | 344 | 476 |
| | Pithoragarh | 1228 | 320 | 818 | 496 | 160 | 418 | 968 | 293 | 705 |
| | Rudraprayag | 997 | 401 | 722 | 301 | 253 | 289 | 767 | 377 | 608 |
| | Tehri Garhwal | 950 | 352 | 572 | 391 | 137 | 337 | 765 | 336 | 528 |
| | Udham Singh Nagar | 1074 | 381 | 504 | 525 | 201 | 308 | 930 | 357 | 473 |
| | Uttarkashi | 1134 | 358 | 880 | 1079 | 426 | 854 | 1123 | 373 | 875 |
| | Uttrakhand | 1020 | 358 | 575 | 550 | 258 | 411 | 896 | 344 | 545 |

Source: UKHDR Survey, 2017

Annexure 3.11: District wise Poverty Rate (%), 2017

| District | Rural | Urban | Total |
|---|---|---|---|
| Almora | 34.6 | 4.0 | 30.7 |
| Bageshwar | 12.0 | 7.1 | 11.8 |
| Chamoli | 31.1 | 11.5 | 27.5 |
| Champawat | 36.4 | 27.6 | 35.2 |
| Dehradun | 12.4 | 3.3 | 7.1 |
| Pauri Garhwal | 15.6 | 11.4 | 14.8 |
| Haridwar | 13.9 | 17.2 | 15.3 |
| Nainital | 14.1 | 13.1 | 13.7 |
| Pithoragarh | 13.6 | 10.2 | 13.0 |
| Rudraprayag | 20.1 | 2.8 | 18.3 |
| Tehri Garhwal | 14.0 | 6.5 | 13.0 |
| Udham Singh Nagar | 19.9 | 16.6 | 18.7 |
| Uttarkashi | 10.4 | 4.2 | 9.9 |
| Uttrakhand | 17.9 | 11.1 | 15.6 |

Source: UKHDR Survey, 2017

## Annexure 3.13: Percentage of the Households benefited under MGNREG Scheme in Uttarakhand

| | | MGNREGS Card | Applied for Employment | Got Work | Days of Work (Avg) | Daily Wage (RS.) |
|---|---|---|---|---|---|---|
| Hill/Plain | Hill | 37.1 | 68.1 | 79.8 | 43 | 175 |
| | Plain | 7.6 | 52.3 | 59.9 | 53 | 178 |
| Quintile Group of MPCE | Quintile1 | 35.0 | 69.3 | 78.7 | 44 | 177 |
| | Quintile2 | 28.2 | 65.6 | 78.1 | 45 | 172 |
| | Quintile3 | 21.9 | 63.6 | 74.8 | 42 | 169 |
| | Quintile4 | 19.3 | 63.7 | 78.3 | 46 | 166 |
| | Quintile5 | 12.7 | 62.7 | 78.0 | 38 | 204 |
| District | Almora | 30.3 | 53.4 | 69.1 | 60 | 168 |
| | Bageshwar | 43.5 | 69.6 | 79.0 | 32 | 173 |
| | Chamoli | 54.8 | 90.8 | 91.0 | 47 | 171 |
| | Champawat | 35.7 | 49.0 | 86.6 | 30 | 193 |
| | Dehradun | 10.4 | 39.4 | 61.5 | 53 | 158 |
| | Pauri Garhwal | 27.2 | 61.7 | 78.3 | 42 | 173 |
| | Haridwar | 2.2 | 11.1 | 100.0 | 90 | 175 |
| | Nainital | 17.2 | 52.2 | 94.4 | 55 | 165 |
| | Pithoragarh | 45.9 | 62.3 | 42.5 | 43 | 165 |
| | Rudraprayag | 31.6 | 57.8 | 90.4 | 28 | 183 |
| | Tehri Garhwal | 48.8 | 74.3 | 84.8 | 39 | 175 |
| | Udham Singh Nagar | 10.9 | 68.9 | 58.1 | 51 | 187 |
| | Uttarkashi | 51.8 | 83.9 | 92.3 | 44 | 183 |
| | Uttarakhand | 24.8 | 66.1 | 77.8 | 44.4 | 183.4 |

Source: UKHDR Survey, 2017

## Annexure 3.14: Information about PDS

| | | Have Ration Card | Type of Ration Card | | | |
|---|---|---|---|---|---|---|
| | | Yes | APL | BPL | Antyodya | Total |
| Hill/Plain | Hill | 91.6 | 49.2 | 45.3 | 5.5 | 100.0 |
| | Plain | 85.3 | 52.7 | 44.3 | 3.0 | 100.0 |
| Area | Rural | 91.8 | 47.3 | 48.0 | 4.7 | 100.0 |
| | Urban | 81.6 | 59.1 | 37.8 | 3.1 | 100.0 |
| Quintile Group of MPCE | Quintile 1 | 91.3 | 31.3 | 62.2 | 6.5 | 100.0 |
| | Quintile 2 | 92.1 | 39.7 | 55.0 | 5.3 | 100.0 |
| | Quintile 3 | 88.5 | 50.7 | 44.1 | 5.3 | 100.0 |
| | Quintile 4 | 87.6 | 60.5 | 36.5 | 2.9 | 100.0 |
| | Quintile 5 | 82.0 | 75.7 | 23.4 | .8 | 100.0 |
| District | Almora | 93.9 | 44.7 | 49.3 | 6.0 | 100.0 |
| | Bageshwar | 98.1 | 52.7 | 42.1 | 5.1 | 100.0 |
| | Chamoli | 95.1 | 48.5 | 47.7 | 3.8 | 100.0 |
| | Champawat | 93.9 | 35.5 | 58.1 | 6.4 | 100.0 |
| | Dehradun | 81.5 | 53.3 | 44.8 | 1.9 | 100.0 |
| | Pauri Garhwal | 86.5 | 48.9 | 46.6 | 4.5 | 100.0 |
| | Haridwar | 85.1 | 50.3 | 45.0 | 4.7 | 100.0 |
| | Nainital | 89.5 | 55.8 | 40.3 | 3.8 | 100.0 |
| | Pithoragarh | 96.8 | 56.2 | 39.2 | 4.6 | 100.0 |
| | Rudraprayag | 94.5 | 45.0 | 52.3 | 2.7 | 100.0 |
| | Tehri Garhwal | 86.0 | 45.8 | 45.5 | 8.7 | 100.0 |
| | Udham Singh Nagar | 89.6 | 54.6 | 42.9 | 2.4 | 100.0 |
| | Uttarkashi | 92.8 | 45.8 | 43.0 | 11.2 | 100.0 |
| | Uttarakhand | 88.3 | 51.0 | 44.8 | 4.2 | 100.0 |

Source: UKHDR Survey, 2017

Annexure 3.15: Percentage of Households using the PDS Facility during last 3 months before the Survey

| | | Never used | Used at least once a month | Used more than once a month | Can't say | Total |
|---|---|---|---|---|---|---|
| Region | Hill | 7.8 | 12.8 | 78.5 | .9 | 100.0 |
| | Plain | 13.8 | 16.7 | 67.8 | 1.7 | 100.0 |
| Area | Rural | 8.1 | 15.2 | 75.4 | 1.3 | 100.0 |
| | Urban | 16.7 | 14.0 | 68.0 | 1.3 | 100.0 |
| Quintile Group of MPCE | Quintile 1 | 4.1 | 12.4 | 82.5 | .9 | 100.0 |
| | Quintile 2 | 6.4 | 16.1 | 76.7 | .9 | 100.0 |
| | Quintile 3 | 9.8 | 13.4 | 75.6 | 1.2 | 100.0 |
| | Quintile 4 | 13.7 | 16.4 | 68.5 | 1.5 | 100.0 |
| | Quintile 5 | 21.3 | 15.7 | 60.8 | 2.2 | 100.0 |
| District | Almora | 11.0 | 9.9 | 78.9 | .2 | 100.0 |
| | Bageshwar | 3.5 | 21.6 | 73.0 | 2.0 | 100.0 |
| | Chamoli | 5.7 | 13.9 | 79.6 | .8 | 100.0 |
| | Champawat | 5.2 | 10.8 | 82.7 | 1.3 | 100.0 |
| | Dehradun | 16.8 | 15.3 | 66.1 | 1.8 | 100.0 |
| | Pauri Garhwal | 10.4 | 17.9 | 71.7 | 0.0 | 100.0 |
| | Haridwar | 13.9 | 18.3 | 66.8 | 1.0 | 100.0 |
| | Nainital | 11.7 | 10.4 | 76.5 | 1.3 | 100.0 |
| | Pithoragarh | 8.3 | 1.8 | 89.3 | .7 | 100.0 |
| | Rudraprayag | 1.3 | 8.3 | 89.1 | 1.3 | 100.0 |
| | Tehri Garhwal | 2.5 | 17.3 | 79.7 | .5 | 100.0 |
| | Udham Singh Nagar | 10.7 | 16.5 | 70.4 | 2.4 | 100.0 |
| | Uttarkashi | 7.4 | 22.5 | 67.8 | 2.3 | 100.0 |
| | Uttarakhand | 10.8 | 14.8 | 73.1 | 1.3 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 3.16: Percentage Receiveing the Full Quota of PDS Entitlement

| | | Whether recieved full quota of PDS entitlement | | | | | |
|---|---|---|---|---|---|---|---|
| | | Only some-times | Most of the times | Always | Can't say | Never | Total |
| REgion | Hill | 4.2 | 14.5 | 28.7 | 51.2 | 1.3 | 100.0 |
| | Plain | 5.7 | 17.3 | 18.8 | 55.1 | 3.1 | 100.0 |
| Area | Rural | 4.7 | 15.3 | 25.3 | 52.9 | 1.8 | 100.0 |
| | Urban | 5.5 | 17.2 | 20.7 | 53.5 | 3.0 | 100.0 |
| Quintile Group of MPCE | Quintile 1 | 4.6 | 13.5 | 24.2 | 55.4 | 2.3 | 100.0 |
| | Quintile 2 | 3.7 | 15.0 | 24.3 | 55.5 | 1.4 | 100.0 |
| | Quintile 3 | 6.8 | 18.0 | 24.6 | 49.5 | 1.2 | 100.0 |
| | Quintile 4 | 3.6 | 18.4 | 25.1 | 50.3 | 2.6 | 100.0 |
| | Quintile 5 | 6.4 | 14.7 | 20.9 | 54.5 | 3.6 | 100.0 |
| District | Almora | 2.7 | 10.6 | 25.6 | 60.6 | .5 | 100.0 |
| | Bageshwar | 4.6 | 16.7 | 40.6 | 36.2 | 2.0 | 100.0 |
| | Chamoli | 4.7 | 26.1 | 29.7 | 38.4 | 1.0 | 100.0 |
| | Champawat | 5.7 | 16.7 | 36.7 | 39.7 | 1.2 | 100.0 |
| | Dehradun | 4.9 | 16.4 | 18.9 | 57.1 | 2.7 | 100.0 |
| | Pauri Garhwal | 2.4 | 16.5 | 10.0 | 70.3 | .8 | 100.0 |
| | Haridwar | 6.6 | 20.3 | 17.4 | 54.4 | 1.4 | 100.0 |
| | Nainital | 7.0 | 15.5 | 42.9 | 31.5 | 3.0 | 100.0 |
| | Pithoragarh | 1.3 | 4.7 | 26.6 | 67.0 | .4 | 100.0 |
| | Rudraprayag | 4.8 | 11.3 | 35.1 | 47.8 | 1.1 | 100.0 |
| | Tehri Garhwal | 2.3 | 15.1 | 12.6 | 69.5 | .5 | 100.0 |
| | Udham Singh Nagar | 5.6 | 15.2 | 20.1 | 54.1 | 5.0 | 100.0 |
| | Uttarkashi | 9.3 | 14.6 | 41.2 | 32.7 | 2.1 | 100.0 |
| | Uttarakhand | 5.0 | 15.9 | 23.9 | 53.1 | 2.2 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 3.17: Households Reported Facing Difficulties in Availing PDS Quota (%)

| | | Quantity insufficient | Bad quality | Dishonesty in measurement | Nonavail ability in time | Irregular supply | Combinations of more than one of these | None | Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Hill/ Plain | Hill | 8.8 | 5.5 | 1.5 | 6.1 | 6.0 | .9 | 70.3 | .9 | 100.0 |
| | Plain | 9.7 | 13.1 | 2.3 | 3.8 | 3.9 | 1.0 | 65.1 | 1.1 | 100.0 |
| Area | Rural | 8.3 | 8.0 | 1.9 | 5.1 | 5.1 | 1.1 | 69.4 | 1.1 | 100.0 |
| | Urban | 11.5 | 12.1 | 1.9 | 4.6 | 4.7 | .7 | 63.8 | .7 | 100.0 |
| Quintile Group of MPCE | Quintile 1 | 8.0 | 7.8 | 2.5 | 4.0 | 4.6 | 1.5 | 70.7 | .8 | 100.0 |
| | Quintile 2 | 6.5 | 9.2 | 1.4 | 4.3 | 6.0 | .8 | 71.2 | .6 | 100.0 |
| | Quintile 3 | 11.8 | 7.9 | 2.3 | 7.0 | 5.0 | .9 | 64.1 | .9 | 100.0 |
| | Quintile 4 | 11.0 | 12.5 | 2.0 | 4.5 | 4.7 | .5 | 63.5 | 1.3 | 100.0 |
| | Quintile 5 | 9.2 | 8.8 | 1.0 | 5.1 | 4.7 | 1.0 | 68.7 | 1.5 | 100.0 |
| District | Almora | 3.7 | 12.0 | 4.0 | 4.6 | 3.4 | 1.9 | 69.9 | .5 | 100.0 |
| | Bageshwar | 5.5 | 1.1 | 0.0 | 10.8 | 9.7 | .2 | 70.6 | 2.1 | 100.0 |
| | Chamoli | 10.8 | 2.2 | .7 | 4.4 | 12.6 | 5.4 | 63.3 | .5 | 100.0 |
| | Champawat | 15.8 | 1.9 | 0.0 | 11.9 | 4.5 | 0.0 | 65.9 | 0.0 | 100.0 |
| | Dehradun | 8.5 | 6.8 | 1.2 | 3.1 | 5.1 | .4 | 74.7 | .2 | 100.0 |
| | Pauri Garhwal | 5.5 | 5.7 | 2.3 | 3.6 | 5.4 | .2 | 76.0 | 1.4 | 100.0 |
| | Haridwar | 11.8 | 15.9 | 4.1 | 4.9 | 3.5 | 1.5 | 57.4 | 1.0 | 100.0 |
| | Nainital | 13.7 | 4.4 | .8 | 10.9 | 6.0 | .2 | 63.6 | .6 | 100.0 |
| | Pithoragarh | 3.7 | 4.1 | .2 | .7 | 3.3 | .6 | 87.1 | .4 | 100.0 |
| | Rudraprayag | 12.1 | 1.1 | 1.3 | .9 | 9.7 | .2 | 74.6 | 0.0 | 100.0 |
| | Tehri Garhwal | 6.8 | 7.7 | .9 | 4.0 | 5.6 | .3 | 71.9 | 2.6 | 100.0 |
| | Udham Singh Nagar | 8.8 | 16.2 | 1.5 | 3.3 | 3.3 | 1.1 | 63.6 | 2.1 | 100.0 |
| | Uttarkashi | 15.9 | 8.7 | 4.4 | 10.4 | 4.8 | .5 | 54.9 | .3 | 100.0 |
| | uttarkhand | 9.2 | 9.2 | 1.9 | 4.9 | 5.0 | 1.0 | 67.8 | 1.0 | 100.0 |

Source: UKHDR Survey, 2017

**Annexure 5**

## Annexure 5.1 : Individual Migration Status (%)

| | District | Daily Commuters | Short Term Migrants | Long Term Migrants | Residents | |
|---|---|---|---|---|---|---|
| | | % | % | % | % | % |
| Rural | Almora | 0.0 | 1.3 | 11.8 | 86.9 | 100.0 |
| | Bageshwar | 0.0 | 0.3 | 10.6 | 89.1 | 100.0 |
| | Chamoli | 0.1 | 1.6 | 11.1 | 87.1 | 100.0 |
| | Champawat | 0.8 | 2.5 | 10.0 | 86.7 | 100.0 |
| | Dehradun | 0.1 | 0.3 | 0.7 | 99.0 | 100.0 |
| | Pauri Garhwal | 0.1 | 0.3 | 6.7 | 93.0 | 100.0 |
| | Haridwar | 0.1 | 0.3 | 0.9 | 98.6 | 100.0 |
| | Nainital | 0.9 | 1.5 | 5.7 | 91.8 | 100.0 |
| | Pithoragarh | 0.0 | 0.3 | 11.1 | 88.6 | 100.0 |
| | Rudraprayag | 0.1 | 0.4 | 13.9 | 85.6 | 100.0 |
| | Tehri Garhwal | 0.1 | 0.8 | 8.4 | 90.7 | 100.0 |
| | Udham Singh Nagar | 0.0 | 0.9 | 0.3 | 98.8 | 100.0 |
| | Uttarkashi | 0.1 | 0.7 | 6.3 | 93.0 | 100.0 |
| | Total | 0.2 | 0.9 | 8.2 | 90.8 | 100.0 |
| Urban | Almora | 0.0 | 0.7 | 1.9 | 97.4 | 100.0 |
| | Bageshwar | 0.0 | 1.5 | 2.6 | 95.9 | 100.0 |
| | Chamoli | 0.0 | 1.3 | 3.1 | 95.6 | 100.0 |
| | Champawat | 0.0 | 0.5 | 3.2 | 96.3 | 100.0 |
| | Dehradun | 0.0 | 0.2 | 1.0 | 98.8 | 100.0 |
| | Pauri Garhwal | 0.0 | 0.6 | 2.5 | 96.9 | 100.0 |
| | Haridwar | 0.1 | 0.1 | 2.1 | 97.7 | 100.0 |
| | Nainital | 0.1 | 0.2 | 2.6 | 97.2 | 100.0 |
| | Pithoragarh | 0.4 | 0.9 | 4.1 | 94.6 | 100.0 |
| | Rudraprayag | 0.4 | 1.1 | 6.6 | 91.9 | 100.0 |
| | Tehri Garhwal | 0.2 | 0.5 | 2.5 | 96.8 | 100.0 |
| | Udham Singh Nagar | 0.0 | 0.3 | 1.0 | 98.7 | 100.0 |
| | Uttarkashi | 0.0 | 0.2 | 6.0 | 93.8 | 100.0 |
| | Total | 0.1 | 0.5 | 2.5 | 96.9 | 100.0 |
| Total | Almora | 0.0 | 1.2 | 10.5 | 88.2 | 100.0 |
| | Bageshwar | 0.0 | 0.5 | 9.5 | 90.0 | 100.0 |
| | Chamoli | 0.1 | 1.6 | 9.8 | 88.5 | 100.0 |
| | Champawat | 0.7 | 2.2 | 9.1 | 88.0 | 100.0 |
| | Dehradun | 0.0 | 0.2 | 0.8 | 98.9 | 100.0 |
| | Pauri Garhwal | 0.1 | 0.3 | 6.0 | 93.6 | 100.0 |
| | Haridwar | 0.1 | 0.2 | 1.3 | 98.3 | 100.0 |
| | Nainital | 0.6 | 1.0 | 4.4 | 94.0 | 100.0 |
| | Pithoragarh | 0.1 | 0.4 | 10.0 | 89.5 | 100.0 |
| | Rudraprayag | 0.2 | 0.5 | 13.0 | 86.4 | 100.0 |
| | Tehri Garhwal | 0.1 | 0.8 | 7.6 | 91.5 | 100.0 |
| | Udham Singh Nagar | 0.0 | 0.7 | 0.5 | 98.8 | 100.0 |
| | Uttarkashi | 0.1 | 0.6 | 6.3 | 93.1 | 100.0 |
| | Total | 0.2 | 0.8 | 6.9 | 92.2 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 5.2 : Migration Status of Household

| Area | District | Resident | Daily commuters | Short term Migrant | Long term migrant | Total |
|---|---|---|---|---|---|---|
| | | % | % | % | % | % |
| Rural | Almora | 53.4 | 0.0 | 4.3 | 42.3 | 100.0 |
| | Bageshwar | 61.1 | 0.0 | 1.2 | 37.6 | 100.0 |
| | Chamoli | 55.5 | 0.5 | 4.3 | 39.7 | 100.0 |
| | Champawat | 46.9 | 3.1 | 10.3 | 39.7 | 100.0 |
| | Dehradun | 95.3 | 0.3 | 1.3 | 3.2 | 100.0 |
| | Pauri Garhwal | 74.3 | 0.4 | 1.1 | 24.3 | 100.0 |
| | Haridwar | 95.2 | 0.5 | 1.0 | 3.4 | 100.0 |
| | Nainital | 72.6 | 3.5 | 5.2 | 18.7 | 100.0 |
| | Pithoragarh | 61.4 | 0.2 | .7 | 37.7 | 100.0 |
| | Rudraprayag | 46.5 | 0.5 | 1.3 | 51.7 | 100.0 |
| | Tehri Garhwa | 65.8 | 0.5 | 2.2 | 31.4 | 100.0 |
| | US Nagar, | 95.2 | 0.0 | 3.4 | 1.4 | 100.0 |
| | Uttarkashi | 73.7 | 0.2 | 2.4 | 23.7 | 100.0 |
| | Total | 66.5 | 0.7 | 3.0 | 29.8 | 100.0 |
| Urban | Almora | 91.0 | 0.0 | 2.0 | 7.0 | 100.0 |
| | Bageshwar | 87.0 | 0.0 | 5.0 | 8.0 | 100.0 |
| | Chamoli | 82.7 | 0.0 | 4.5 | 12.7 | 100.0 |
| | Champawat | 84.8 | 0.0 | 2.0 | 13.1 | 100.0 |
| | Dehradun | 95.1 | 0.0 | .8 | 4.1 | 100.0 |
| | Pauri Garhwal | 90.4 | 0.0 | 2.9 | 6.7 | 100.0 |
| | Haridwar | 90.0 | 0.4 | .4 | 9.1 | 100.0 |
| | Nainital | 91.5 | 0.4 | 1.2 | 6.9 | 100.0 |
| | Pithoragarh | 78.0 | 1.0 | 4.0 | 17.0 | 100.0 |
| | Rudraprayag | 71.0 | 2.0 | 3.0 | 24.0 | 100.0 |
| | Tehri Garhwa | 89.0 | 1.0 | 2.0 | 8.0 | 100.0 |
| | US Nagar, | 94.9 | 0.0 | 1.7 | 3.4 | 100.0 |
| | Uttarkashi | 80.2 | 0.0 | 1.0 | 18.8 | 100.0 |
| | Total | 88.9 | 0.3 | 1.9 | 8.9 | 100.0 |
| **Total** | Almora | 58.9 | 0.0 | 4.0 | 37.2 | 100.0 |
| | Bageshwar | 64.6 | 0.0 | 1.7 | 33.6 | 100.0 |
| | Chamoli | 60.0 | 0.4 | 4.3 | 35.2 | 100.0 |
| | Champawat | 52.7 | 2.6 | 9.0 | 35.7 | 100.0 |
| | Dehradun | 95.2 | 0.1 | 1.0 | 3.7 | 100.0 |
| | Pauri Garhwal | 76.8 | 0.3 | 1.4 | 21.5 | 100.0 |
| | Haridwar | 93.3 | 0.5 | .8 | 5.5 | 100.0 |
| | Nainital | 80.0 | 2.3 | 3.6 | 14.1 | 100.0 |
| | Pithoragarh | 63.9 | 0.3 | 1.2 | 34.5 | 100.0 |
| | Rudraprayag | 49.9 | 0.7 | 1.5 | 47.9 | 100.0 |
| | Tehri Garhwa | 69.2 | 0.6 | 2.2 | 28.0 | 100.0 |
| | US Nagar, | 95.1 | 0.0 | 2.8 | 2.2 | 100.0 |
| | Uttarkashi | 74.6 | 0.1 | 2.2 | 23.0 | 100.0 |
| | Total | 71.6 | 0.6 | 2.7 | 25.1 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 5.3 : Main Source of Livelihood of the Households

| District | Self- empl oyed in agric ulture | Self- employ ed in non- agricult ure | Regular wage/sa lary earning (govt.) | Regular wage/sa lary earning (pri- vate) | Casual labour in agricult ural | Casual labour in non- agricult ure | Pension/ rental/re mittance s | Others | Total |
|---|---|---|---|---|---|---|---|---|---|
| Rural | | | | | | | | | |
| Almora | 15.1 | 7.1 | 9.0 | 39.2 | 0.9 | 13.1 | 15.3 | 0.3 | 100.0 |
| Bageshwar | 12.3 | 13.5 | 20.2 | 28.6 | 2.2 | 11.7 | 10.4 | 1.1 | 100.0 |
| Chamoli | 15.3 | 15.6 | 16.5 | 22.4 | d0.9 | 18.0 | 11.0 | 0.4 | 100.0 |
| Champawat | 10.6 | 12.1 | 7.6 | 30.7 | 1.1 | 21.7 | 16.1 | 0.2 | 100.0 |
| Dehradun | 18.0 | 20.9 | 10.4 | 19.3 | 0.3 | 21.8 | 8.9 | 0.3 | 100.0 |
| PauriGarhwal | 15.8 | 8.7 | 17.3 | 27.3 | 1.1 | 10.6 | 19.1 | 0.0 | 100.0 |
| Haridwar | 29.5 | 17.4 | 4.8 | 16.2 | 9.2 | 21.3 | 1.7 | 0.0 | 100.0 |
| Nainital | 11.7 | 21.1 | 16.9 | 23.6 | 2.0 | 11.4 | 12.7 | 0.5 | 100.0 |
| Pithoragarh | 8.6 | 16.3 | 20.4 | 21.4 | 0.4 | 17.3 | 15.2 | 0.5 | 100.0 |
| Rudraprayag | 8.9 | 13.2 | 15.7 | 19.4 | 2.9 | 16.7 | 23.0 | 0.3 | 100.0 |
| TehriGarhwal | 18.9 | 10.7 | 11.7 | 36.8 | 0.5 | 12.5 | 8.6 | 0.3 | 100.0 |
| Udham Singh Nagar | 16.6 | 16.3 | 4.6 | 20.4 | 4.8 | 32.9 | 3.1 | 1.2 | 100.0 |
| Uttarkashi | 31.7 | 12.2 | 20.0 | 11.7 | 3.5 | 16.0 | 2.7 | 2.1 | 100.0 |
| Total | 17.7 | 15.0 | 11.6 | 23.6 | 2.9 | 19.0 | 9 | 0.5 | 100.0 |
| Urban | | | | | | | | | |
| Almora | 5.0 | 21.0 | 31.0 | 16.0 | 0.0 | 6.0 | 18.0 | 3.0 | 100.0 |
| Bageshwar | 1.0 | 35.0 | 35.0 | 8.0 | 1.0 | 11.0 | 9.0 | 0.0 | 100.0 |
| Chamoli | 8.2 | 25.5 | 35.5 | 7.3 | 0.9 | 10.9 | 11.8 | 0.0 | 100.0 |
| Champawat | 1.0 | 23.2 | 14.1 | 16.2 | 0.0 | 32.3 | 13.1 | 0.0 | 100.0 |
| Dehradun | 7.9 | 21.3 | 21.8 | 22.3 | 0.0 | 11.2 | 15.5 | 0.0 | 100.0 |
| Pauri Garhwal | 10.6 | 17.3 | 26.9 | 15.4 | 2.9 | 4.8 | 22.1 | 0.0 | 100.0 |
| Haridwar | 6.6 | 25.7 | 16.6 | 24.1 | 0.4 | 19.1 | 6.6 | 0.8 | 100.0 |
| Nainital | 4.6 | 32.8 | 12.7 | 22.8 | 1.5 | 18.9 | 5.0 | 1.5 | 100.0 |
| Pithoragarh | 3.0 | 33.0 | 30.0 | 12.0 | 0.0 | 8.0 | 14.0 | 0.0 | 100.0 |
| Rudraprayag | 12.0 | 37.0 | 18.0 | 16.0 | 0.0 | 2.0 | 14.0 | 1.0 | 100.0 |
| Tehri Garhwa | 11.0 | 13.0 | 52.0 | 15.0 | 0.0 | 3.0 | 5.0 | 1.0 | 100.0 |
| Udham Singh Nagar | 1.7 | 30.6 | 6.4 | 33.2 | 3.4 | 21.7 | 2.6 | 0.4 | 100.0 |
| Uttarkashi | 5.9 | 17.8 | 47.5 | 15.8 | 0.0 | 5.0 | 6.9 | 1.0 | 100.0 |
| Total | 6.0 | 25.5 | 18.5 | 23.4 | 1.0 | 15.2 | 9.8 | 0.6 | 100.0 |
| Almora | 13.8 | 8.8 | 11.8 | 36.3 | 0.8 | 12.2 | 15.7 | 0.7 | 100.0 |
| Bageshwar | 11.9 | 14.3 | 20.8 | 27.8 | 2.1 | 11.6 | 10.4 | 1.0 | 100.0 |
| Chamoli | 14.1 | 17.3 | 19.8 | 19.9 | 0.9 | 16.8 | 11.1 | 0.3 | 100.0 |
| Champawat | 9.2 | 13.8 | 8.6 | 28.5 | 0.9 | 23.3 | 15.6 | 0.2 | 100.0 |
| Dehradun | 11.9 | 21.1 | 17.3 | 21.1 | 0.1 | 15.4 | 12.9 | 0.1 | 100.0 |
| Pauri Garhwal | 14.9 | 10.4 | 19.1 | 25.1 | 1.4 | 9.5 | 19.7 | 0.0 | 100.0 |
| Haridwar | 19.4 | 21.1 | 10.0 | 19.7 | 5.3 | 20.3 | 3.9 | 0.4 | 100.0 |
| Nainital | 8.7 | 26.2 | 15.1 | 23.3 | 1.8 | 14.7 | 9.4 | 0.9 | 100.0 |
| Pithoragarh | 7.6 | 19.0 | 22.0 | 19.9 | 0.3 | 15.8 | 15.0 | 0.4 | 100.0 |
| Rudraprayag | 9.2 | 15.9 | 16.0 | 19.0 | 2.5 | 15.0 | 22.0 | 0.4 | 100.0 |
| Tehri Garhwa | 17.8 | 11.0 | 17.4 | 33.7 | 0.4 | 11.2 | 8.1 | 0.4 | 100.0 |
| Udham Singh Nagar | 11.1 | 21.6 | 5.2 | 25.2 | 4.3 | 28.8 | 2.9 | 0.9 | 100.0 |
| Uttarkashi | 29.7 | 12.6 | 22.2 | 12.0 | 3.2 | 15.1 | 3.1 | 2.0 | 100.0 |
| Total | 13.7 | 18.6 | 14.0 | 23.6 | 2.3 | 17.7 | 9.7 | 0.5 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure 5.4 : State and Country from Where Migrated

| Districts | Bihar | Delhi | Haryana | Himachal Pradesh | J&K | Odisha | Punjab | Rajasthan | Uttar Pradesh | Uttara-khand | West Ben-gal | Nepal | Bangladesh | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Almora | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 80.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Bageshwar | 0.0 | 7.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 66.0 | 7.5 | 7.5 | 0.0 | 100.0 |
| Chamoli | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.7 | 80.5 | 3.9 | 3.9 | 0.0 | 100.0 |
| Champawat | 0.0 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.9 | 52.6 | 0.0 | 4.8 | 0.0 | 100.0 |
| Dehradun | 4.2 | 1.4 | 0.0 | 1.4 | 1.4 | 1.1 | 1.1 | 0.0 | 38.0 | 51.4 | 0.0 | 0.0 | 0.0 | 100.0 |
| Pauri Garhwal | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 19.6 | 72.9 | 0.0 | 0.0 | 0.0 | 100.0 |
| Haridwar | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 64.8 | 30.8 | 0.0 | 0.0 | 0.0 | 100.0 |
| Nainital | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.8 | 55.6 | 0.0 | 0.0 | 0.0 | 100.0 |
| Pithoragarh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 94.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Rudraprayag | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.9 | 38.4 | 9.3 | 0.0 | 0.0 | 100.0 |
| Tehri Garhwal | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.3 | 82.2 | 1.7 | 3.3 | 0.0 | 100.0 |
| Udham Singh Nagar | 3.5 | 3.6 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.2 | 19.3 | 5.3 | 0.0 | 6.9 | 100.0 |
| Uttarkashi | 4.5 | 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.4 | 65.2 | 4.5 | 0.0 | 0.0 | 100.0 |
| Total | 2.7 | 1.2 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.7 | 42.2 | 47.7 | 1.3 | 0.4 | 1.3 | 100.0 |

Source: UKHDR Survey, 2017

## Annexure: 5.5 Place of Migration (from the place of origin) %

| District | Within district (rural) | Within district (urban) | Within state outside district (rural) | Within state outside district (urban) | Outside state in rural area | Outside state in urban area | Outside country | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| Almora | 1.1 | 2.4 | 0.0 | 15.0 | 1.6 | 80.0 | 0.0 | 0.0 | 100.0 |
| Bageshwar | 0.3 | 0.0 | 1.3 | 18.0 | 0.0 | 77.7 | 2.2 | 0.6 | 100.0 |
| Chamoli | 4.4 | 9.7 | 2.1 | 22.6 | 1.8 | 58.9 | 0.5 | 0.0 | 100.0 |
| Champawat | 1.7 | 1.7 | 1.4 | 16.7 | 17.6 | 59.3 | 1.7 | 0.0 | 100.0 |
| Dehradun | 0.0 | 8.8 | 2.4 | 8.8 | 2.4 | 77.6 | 0.0 | 0.0 | 100.0 |
| Pauri Garhwal | 1.8 | 9.6 | 0.5 | 10.3 | 1.1 | 76.1 | 0.5 | 0.0 | 100.0 |
| Haridwar | 1.6 | 9.2 | 5.4 | 17.8 | 19.7 | 44.2 | 2.2 | 0.0 | 100.0 |
| Nainital | 0.5 | 11.4 | 5.9 | 20.8 | 6.3 | 51.0 | 3.5 | 0.5 | 100.0 |
| Pithoragarh | 0.3 | 2.8 | 0.3 | 23.3 | 1.6 | 71.3 | 0.3 | 0.0 | 100.0 |
| Rudraprayag | 1.2 | 8.6 | 1.2 | 20.2 | 3.9 | 61.2 | 3.8 | 0.0 | 100.0 |
| Tehri Garhwal | 1.5 | 6.8 | 1.5 | 20.1 | 3.0 | 61.0 | 6.0 | 0.0 | 100.0 |
| Udham Singh Nagar | 0.0 | 0.0 | 2.6 | 15.1 | 15.0 | 55.0 | 12.4 | 0.0 | 100.0 |
| Uttarkashi | 6.3 | 20.1 | 3.6 | 36.7 | 2.5 | 28.2 | 0.8 | 1.7 | 100.0 |
| **Total** | **1.6** | **6.8** | **2.0** | **18.9** | **5.0** | **63.4** | **2.3** | **0.2** | **100.0** |

*Source:* UKHDR Survey, 2017

## Annexure 5.6 : Percentage Distribution of Remittance Amount **(Rs.)**

| District | Upto 5000 | 5001-10000 | 10,001-20,000 | 20,001-50,000 | 50,001-75,000 | 75001-10,0000 | 10,0000+ | Total |
|---|---|---|---|---|---|---|---|---|
| Almora | 12.5 | 19.0 | 20.6 | 20.3 | 3.9 | 8.9 | 14.8 | 100.0 |
| Bageshwar | 9.3 | 14.2 | 18.1 | 35.0 | 8.7 | 5.5 | 9.3 | 100.0 |
| Chamoli | 1.6 | 4.6 | 6.2 | 23.5 | 21.2 | 15.7 | 27.2 | 100.0 |
| Champawat | 3.2 | 3.2 | 4.5 | 23.1 | 27.9 | 23.7 | 14.4 | 100.0 |
| Dehradun | 8.7 | 6.7 | 13.4 | 18.0 | 6.7 | 17.2 | 29.4 | 100.0 |
| Pauri Garhwal | 3.5 | 6.6 | 16.4 | 44.4 | 7.9 | 8.4 | 12.8 | 100.0 |
| Haridwar | 6.7 | 4.0 | 19.3 | 9.9 | 5.4 | 23.0 | 31.7 | 100.0 |
| Nainital | 7.5 | 2.0 | 10.0 | 16.7 | 15.3 | 19.2 | 29.3 | 100.0 |
| Pithoragarh | 1.2 | 0.4 | 1.2 | 15.5 | 20.8 | 24.2 | 36.7 | 100.0 |
| Rudraprayag | 4.8 | 5.1 | 7.4 | 22.1 | 20.2 | 14.3 | 26.1 | 100.0 |
| Tehri Garhwal | 11.4 | 5.4 | 16.4 | 37.1 | 17.3 | 9.4 | 3.0 | 100.0 |
| Udham Singh Nagar | 8.2 | 0.0 | 15.7 | 7.9 | 3.9 | 28.4 | 35.9 | 100.0 |
| Uttarkashi | 19.8 | 4.6 | 11.9 | 25.8 | 12.2 | 8.9 | 16.6 | 100.0 |
| Total | 7.1 | 6.5 | 12.2 | 23.5 | 13.8 | 15.4 | 21.5 | 100.0 |

Source: UKHDR Survey, 2017

Annexure 6.1 : District-wise Proportion of Population (aged 15 years and above ) by Education Level

| | Primary and upper primary | Secondary | Higher Secondary | Higher Education (Graduation, Post-Graduation, Professional) | Diploma | Illiterate |
|---|---|---|---|---|---|---|
| Hill | | | | | | |
| Almora | 25.86 | 23.14 | 21.76 | 12.93 | 0.99 | 15.31 |
| Bageshwar | 21.69 | 21.1 | 28.71 | 15.39 | 0.4 | 12.71 |
| Chamoli | 24.13 | 21.09 | 22.65 | 16.75 | 0.24 | 15.18 |
| Champawat | 34.09 | 19.31 | 18.36 | 11.47 | 0.35 | 16.43 |
| Pauri Garhwal | 23.23 | 19.5 | 25.8 | 16.78 | 2.56 | 12.12 |
| Nainital | 28.11 | 19.02 | 19.35 | 19.94 | 0.45 | 13.10 |
| Pithoragarh | 28.7 | 21.49 | 22.95 | 16.27 | 0.09 | 10.46 |
| Rudraprayag | 23.83 | 20.96 | 24.83 | 15.37 | 0.41 | 14.57 |
| TehriGarhwal | 22.85 | 19.1 | 27.22 | 12.31 | 2.23 | 16.30 |
| Uttarkashi | 20.59 | 15.59 | 22.67 | 21.56 | 1.02 | 18.53 |
| Plain | | | | | | |
| Dehradun | 25.5 | 17.87 | 19.06 | 20.67 | 3.31 | 13.55 |
| Haridwar | 36.44 | 19.04 | 15.46 | 11.26 | 1.29 | 16.28 |
| Udham Singh Nagar | 28.77 | 18.93 | 13.98 | 16.65 | 1.46 | 20.05 |
| Uttarakhand | 27.92 | 19.29 | 19.52 | 16.24 | 1.53 | 15.38 |

Source: UKHDR Survey, 2017

Annexure 6.2 : Adult Literacy Rate (%)

| | Male | Female | Total | Gender gap |
|---|---|---|---|---|
| Hill | | | | |
| Almora | 93.44 | 75.22 | 84.69 | 18.22 |
| Bageshwar | 96.32 | 77.62 | 87.29 | 18.7 |
| Chamoli | 94.55 | 74.41 | 84.86 | 20.14 |
| Champawat | 93.79 | 71.88 | 83.58 | 21.91 |
| Pauri Garhwal | 96.89 | 79.2 | 87.89 | 17.69 |
| Nainital | 91.61 | 81.87 | 86.91 | 9.74 |
| Pithoragarh | 96.95 | 82.09 | 89.54 | 14.86 |
| Rudraprayag | 95.35 | 75.15 | 85.43 | 20.2 |
| Tehri Garhwal | 94.55 | 72.93 | 83.71 | 21.62 |
| Uttarkashi | 93.54 | 68.26 | 81.47 | 25.28 |
| Plain | | | | |
| Dehradun | 92.03 | 80.78 | 86.45 | 11.25 |
| Haridwar | 89.95 | 76.95 | 83.73 | 13 |
| Udham Singh Nagar | 86.39 | 72.83 | 79.95 | 13.56 |
| Uttarakhand | 91.81 | 77 | 84.61 | 14.81 |

Source: UKHDR Survey, 2017

## Annexure 6.3 : Youth Literacy Rates (%)

| | Male | Female | Person |
|---|---|---|---|
| Hill | | | |
| Almora | 99.42 | 99.03 | 99.23 |
| Bageshwar | 100 | 99.74 | 99.86 |
| Chamoli | 99.48 | 99.71 | 99.59 |
| Champawat | 98.72 | 99.37 | 99.02 |
| Pauri Garhwal | 99.29 | 98.19 | 98.75 |
| Nainital | 97.92 | 96.88 | 97.42 |
| Pithoragarh | 99.67 | 100 | 99.83 |
| Rudraprayag | 99.51 | 99.03 | 99.27 |
| Tehri Garhwal | 99.07 | 98.67 | 98.88 |
| Plain | | | |
| Dehradun | 98.14 | 98.74 | 99.01 |
| Haridwar | 98.47 | 97.14 | 98.44 |
| Udham Singh Nagar | 96.41 | 96.72 | 96.56 |
| Uttarkashi | 99.77 | 99.73 | 99.63 |
| Uttarakhand | 98.31 | 98.06 | 98.78 |

Source: UKHDR Survey, 2017

## Annexure 6.4 : Age Specific Enrolment Rates by Districts(%)

| Age Group | 6-14 | 15-16 | 17-18 | 19-24 | 6-24 |
|---|---|---|---|---|---|
| Almora | 98.6 | 97.8 | 91.9 | 45.1 | 81.3 |
| Bageshwar | 99.7 | 98.2 | 83.0 | 40.9 | 76.1 |
| Chamoli | 99.8 | 98.5 | 79.4 | 34.0 | 74.6 |
| Champawat | 98.8 | 93.3 | 72.3 | 34.9 | 75.1 |
| Dehradun | 99.4 | 93.8 | 76.2 | 45.6 | 78.3 |
| Pauri Garhwal | 99.3 | 97.1 | 86.7 | 53.8 | 83.7 |
| Haridwar | 95.5 | 79.0 | 63.9 | 37.9 | 72.8 |
| Nainital | 98.6 | 87.5 | 65.0 | 41.0 | 74.3 |
| Pithoragarh | 99.8 | 97.2 | 87.5 | 53.3 | 84.0 |
| Rudraprayag | 99.2 | 99.4 | 89.1 | 41.6 | 79.1 |
| Tehri Garhwal | 98.7 | 98.4 | 87.5 | 45.8 | 80.9 |
| Udham Singh Nagar | 95.1 | 82.3 | 69.7 | 34.0 | 70.9 |
| Uttarkashi | 98.6 | 100.0 | 88.4 | 50.1 | 81.8 |
| Uttarakhand | 97.7 | 89.3 | 74.7 | 41.5 | 76.2 |

Source: UKHDR Survey, 2017

## Annexure 6.5 : Distribution of Out of School Children by District (%)

| | Left after enrollment | Enrolled but not attending | Never enrolled | Goes to informal institution |
|---|---|---|---|---|
| Hill | | | | |
| Almora | 62.23 | | 37.77 | |
| Bageshwar | 79.08 | 18.62 | 2.30 | |
| Chamoli | 90.95 | 9.05 | | |
| Champawat | 82.13 | 7.14 | 7.14 | 3.59 |
| Pauri Garhwal | 63.48 | | 36.52 | |
| Nainital | 79.52 | 2.39 | 15.70 | 2.39 |
| Pithoragarh | 82.42 | | 17.58 | |
| Rudraprayag | 44.44 | | 55.56 | |
| Tehri Garhwal, | 49.87 | | 50.13 | |
| Uttarkashi | 55.67 | | 44.33 | |
| Plain | | | | |
| Dehradun | 89.87 | | 10.13 | |
| Haridwar | 77.76 | 1.07 | 16.88 | 4.29 |
| Udham Singh Nagar | 82.10 | 1.26 | 15.38 | 1.26 |
| Uttarakhand | 79.11 | 1.41 | 17.20 | 2.29 |

Source: UKHDR Survey, 2017

## Annexure 6.6 : Reasons for Dropout at Class-XI-XII (%)

| | |
|---|---|
| Work at home | 4.21 |
| Need to support earnings | 29.18 |
| School to far distance | 10.64 |
| Teachers beat | 2.27 |
| Fees/expenses unaffordable | 12.91 |
| Not interested in studying | 8.68 |
| Got married | 0.6 |
| Ill-health | 6.34 |
| Family got displaced | 3.09 |
| House hold work | 8.26 |
| Work out side home | 3.9 |
| Others | 9.91 |

Source: UKHDR Survey, 2017

## Annexure 6.7 : Reasons for Dropout at Class IX-X (%)

| | |
|---|---|
| Work at home | 11.18 |
| Need to support earnings | 16.93 |
| School to far distance | 2.3 |
| Teachers beat | 0.9 |
| Failed in exam | 2.96 |
| Fees/expenses unaffordable | 12.77 |
| Not interested in studying | 27.82 |
| childrearing | 1.76 |
| House hold work | 9.69 |
| Work out side home | 1.12 |
| Others | 12.55 |

Source: UKHDR Survey, 2017

## Annexure 6.8 : Percentage of Children in Age-group of 3-6 Years, Attending Pre-primary School by Gender

| | Male | Female | Total |
|---|---|---|---|
| Hill | | | |
| Almora | 47.10 | 37.92 | 42.55 |
| Bageshwar | 54.67 | 53.23 | 53.98 |
| Chamoli | 46.43 | 52.08 | 48.98 |
| Champawat | 57.63 | 51.37 | 54.63 |
| Pauri Garhwal | 50.21 | 49.73 | 50 |
| Nainital | 56.76 | 51.88 | 54.63 |
| Pithoragarh | 57.19 | 51.18 | 54.22 |
| Rudraprayag | 48.94 | 51.44 | 50.02 |
| TehriGarhwal | 43.39 | 49.37 | 45.88 |
| Uttarkashi | 42.59 | 57.84 | 49.65 |
| Plain | | | |
| Dehradun | 46.51 | 36.13 | 41.85 |
| Haridwar | 38.75 | 57.80 | 48.16 |
| Udham Singh Nagar | 48.56 | 36.72 | 42.62 |
| Uttarakhand | 47.48 | 47 | 47.25 |

Source: UKHDR Survey, 2017

Annexure **6.9:** Percentage of Children (3-6 years) Attending Anganwadi Centre or Private Pre-Primary School by District

| | Aanganwadi centre | Private school | Other |
|---|---|---|---|
| Hill | | | |
| Almora | 72.66 | 27.34 | 0 |
| Bageshwar | 51.64 | 48.36 | 0 |
| Chamoli | 88.74 | 11.25 | 0.01 |
| Champawat | 67.76 | 30.62 | 1.62 |
| Pauri Garhwal | 46.67 | 51.62 | 1.71 |
| Nainital | 39.83 | 58.43 | 1.74 |
| Pithoragarh | 67.52 | 32.48 | 0 |
| Rudraprayag | 59.27 | 40.06 | 0.67 |
| Tehri Garhwal | 60.47 | 38.24 | 1.29 |
| Uttarkashi | 24.26 | 67.83 | 7.91 |
| Plain | | | |
| Dehradun | 21.44 | 72.72 | 5.84 |
| Haridwar | 66.07 | 28.22 | 5.71 |
| Udham Singh Nagar | 50.89 | 47.93 | 1.18 |
| Uttarakhand | 51.94 | 45.12 | 2.94 |

Source: UKHDR Survey, 2017

Annexure 6.10 : Proportion of Households by Distance from School (in%)

| Hill | Within1km | 1to2km | 2to4km | >5km |
|---|---|---|---|---|
| Almora | 35.83 | 37.24 | 15.14 | 11.79 |
| Bageshwar | 40.26 | 38.55 | 15.38 | 5.81 |
| Chamoli | 44.20 | 37.87 | 11.43 | 6.5 |
| Champawat | 44.9 | 38.27 | 8.05 | 8.78 |
| Pauri Garhwal | 47.32 | 31.84 | 13.02 | 7.82 |
| Nainital | 52.84 | 31.14 | 10.67 | 5.35 |
| Pithoragarh | 46.82 | 41.02 | 7.11 | 5.05 |
| Rudraprayag | 52.17 | 35.72 | 5.45 | 6.66 |
| Tehri Garhwal, | 46.69 | 29.53 | 17.75 | 6.03 |
| Uttarkashi | 52.25 | 19.42 | 13.32 | 15.01 |
| Plain | | | | |
| Dehradun | 48.07 | 37.18 | 9.53 | 5.22 |
| Haridwar | 62.06 | 22.99 | 6.76 | 8.19 |
| Udham Singh Nagar | 69.15 | 16.47 | 7.75 | 6.63 |
| Uttarakhand | 52.27 | 30.19 | 10.22 | 7.32 |

Source: UKHDR Survey,2017

## Annexure 6.11 : Percentage Distribution of Children by Type of Institutions Attended (Std I-VIII)

| | Government | Private |
|---|---|---|
| Hill | | |
| Almora | 68.01 | 31.99 |
| Bageshwar | 55.50 | 44.5 |
| Chamoli | 71.37 | 28.63 |
| Champawat | 76.46 | 23.54 |
| Pauri Garhwal | 48.54 | 51.46 |
| Nainital | 54.23 | 45.77 |
| Pithoragarh | 55.64 | 44.36 |
| Rudraprayag | 64.16 | 35.84 |
| Tehri Garhwal, | 55.94 | 44.06 |
| Uttarkashi | 51.00 | 49 |
| Plain | | |
| Dehradun | 33.90 | 66.1 |
| Haridwar | 41.10 | 58.9 |
| Udham Singh Nagar | 36.57 | 63.43 |
| Uttarakhand | 47.39 | 52.61 |

Source: UKHDR Survey, 2017

## Annexure 6.12 : Education Expenditure as a Percentage of Total Expenditure

| Hill | Rural | Urban | Total |
|---|---|---|---|
| Almora | 12.9 | 18.0 | 14.3 |
| Bageshwar | 8.9 | 14.1 | 9.6 |
| Chamoli | 4.4 | 13.0 | 5.7 |
| Champawat | 11.5 | 17.1 | 12.6 |
| Pauri Garhwal | 11.1 | 15.9 | 12.4 |
| Nainital | 13.7 | 12.6 | 13.3 |
| Pithoragarh | 9.6 | 15.7 | 10.5 |
| Rudraprayag | 12.2 | 16.2 | 12.9 |
| Tehri Garhwal, | 8.0 | 12.0 | 9.0 |
| Uttarkashi | 8.9 | 12.7 | 9.5 |
| Plain | | | |
| Dehradun | 9.5 | 14.6 | 12.5 |
| Haridwar | 9.9 | 12.6 | 11.0 |
| Udham Singh Nagar, | 13.1 | 12.7 | 13.0 |
| Uttarakhand | 9.6 | 14.0 | 10.7 |

Source: UKHDR Survey, 2017

## Annexure 6.13 : Average Household Education Expenditure (in Rs)

| | Rural | Urban | Total |
|---|---|---|---|
| Almora | 474.28 | 1984.33 | 699.32 |
| Bageshwar | 945.46 | 1409.06 | 1008.12 |
| Chamoli | 451.38 | 1270.31 | 586.82 |
| Champawat | 413.00 | 978.74 | 497.82 |
| Dehradun | 739.61 | 1644.67 | 1229.17 |
| PauriGarhwal | 642.03 | 1260.48 | 739.73 |
| Haridwar | 519.62 | 817.26 | 629.96 |
| Nainital | 866.54 | 794.60 | 838.34 |
| Pithoragarh | 677.49 | 1144.08 | 748.66 |
| Rudraprayag | 567.12 | 1201.39 | 654.45 |
| TehriGarhwal, | 453.08 | 1715.79 | 641.72 |
| UdhamSinghNagar, | 935.19 | 919.56 | 929.50 |
| Uttarkashi | 1096.07 | 1617.74 | 1169.51 |
| Uttarakhand | 670.27 | 1238.51 | 800.47 |

Source: UKHDR Survey, 2017

## Annexure 6.14 : Percentage of Children Under Various Governments Assistance

| | Books | School Uniform | Scholarship | Midday Meal | Cycles | Others |
|---|---|---|---|---|---|---|
| Almora | 60.7 | 54.2 | 37.3 | 45.4 | 10.8 | 30.1 |
| Bageshwar | 50.0 | 42.4 | 13.0 | 31.7 | 0.3 | 46.3 |
| Chamoli | 77.6 | 64.4 | 11.9 | 58.5 | 0.0 | 11.6 |
| Champawat | 76.8 | 56.7 | 9.7 | 72.6 | 0.2 | 21.3 |
| Dehradun | 55.9 | 44.1 | 9.4 | 36.7 | 2.5 | 30.9 |
| Pauri Garhwal | 58.9 | 46.3 | 5.9 | 45.9 | 0.3 | 29.3 |
| Haridwar | 59.1 | 35.4 | 11.8 | 51.7 | 5.0 | 23.4 |
| Nainital | 62.4 | 47.4 | 18.4 | 57.3 | 0.8 | 23.8 |
| Pithoragarh | 55.1 | 56.8 | 23.0 | 55.4 | 0.3 | 34.0 |
| Rudraprayag | 64.3 | 39.1 | 18.7 | 50.9 | 1.2 | 27.3 |
| Tehri Garhwal | 58.2 | 49.7 | 8.0 | 52.2 | 1.7 | 26.9 |
| Udham Singh Nagar | 57.3 | 36.4 | 21.6 | 29.5 | 4.4 | 29.2 |
| Uttarkashi | 64.6 | 52.3 | 28.7 | 42.1 | 0.5 | 5.1 |
| Uttarakhand | 60.3 | 45.5 | 16.4 | 47.1 | 2.9 | 26.4 |

Source: UKHDR Survey, 2017

## Annexure 6.15 : Quality of Mid-day Meal in Uttarakhnad (%)

| | Very good | Good | Average | Below average |
|---|---|---|---|---|
| Quality of food | 19.21 | 72.76 | 5.81 | 2.22 |
| Regularity of the food | 18.93 | 69.54 | 10.07 | 1.46 |
| Quantity | 18.39 | 66.34 | 13.54 | 1.42 |
| Hygiene | 17.74 | 67.76 | 12.27 | 2.22 |
| Taste | 16.19 | 69.24 | 12.04 | 2.54 |

Source: UKHDR Survey, 2017

## Annexure 6.16 : Awareness and Benefit Received on Free Education for Girl Child (%)

| | Awareness | Benefit Received |
|---|---|---|
| Almora | 21.9 | 39.1 |
| Bageshwar | 50.7 | 70.9 |
| Chamoli | 39.5 | 32.7 |
| Champawat | 28.1 | 20.9 |
| Dehradun | 22.5 | 9.6 |
| Pauri Garhwal | 21.3 | 18.9 |
| Haridwar | 11.6 | 21.3 |
| Nainital | 39.3 | 22.4 |
| Pithoragarh | 31.8 | 24.1 |
| Rudraprayag | 66.1 | 36.4 |
| Tehri Garhwal, | 18.5 | 14.5 |
| Udham Singh Nagar | 22.4 | 21.7 |
| Uttarkashi | 58.0 | 50.2 |
| Uttarakhand | 26.0 | 29.1 |

Source: UKHDR Survey, 2017

## Annexure 6.17: Type of Vocational Training (%)

| | |
|---|---|
| Formal | 5.82 |
| Informal | 0 |
| None | 94.18 |

Source: UKHDR Survey, 2017

## Annexure 6.18 : Level of Vocational Training (%)

| | |
|---|---|
| Certificate | 50.86 |
| Diploma | 49.14 |

Source: UKHDR Survey, 2017

## Annexure 6.19 : Place of Vocational Training (%)

| | |
|---|---|
| Govt. institution | 41.24 |
| Pvt. institution | 51.28 |
| Institution run by NGO/Trust ,.NG | 3.42 |
| On the job training | 1.45 |
| Others(specify) | 2.62 |

Source: UKHDR Survey, 2017

## Annexure 6.20 : Field of training (%)

| | |
|---|---|
| Agriculture and food processing | 3.9 |
| Automobile | 9.07 |
| Beauty & wellness sector | 2.64 |
| Banking,,Financial services | 3.43 |
| Construction work | 3.36 |
| Electronics | 6.59 |
| Healthcare | 4.3 |
| IT/ITes | 21.55 |
| Hotel & Catering | 5 |
| Apparel/Textile related works | 2.82 |
| Nursing/Mid wifery, etc | 3.5 |
| Any other | 33.84 |

Source: UKHDR Survey, 2017

## Annexure 7.1 : Mortality Indicators for Uttarakhand and India

| Mortality indicators | Uttarakhand | | | | All India | | | |
|---|---|---|---|---|---|---|---|---|
| | 2005-06 | 2015-16 | | | 2005-06 | 2015-16 | | |
| | Total | Rural | Urban | Total | Total | Rural | Urban | Total |
| IMR | 42 | 39 | 44 | 40 | 57 | 46 | 29 | 41 |
| U5MR | 56 | 46 | 49 | 47 | 74 | 56 | 34 | 50 |

Source: NFHS-3 (2005-06), NFHS-4 (2015-16)

## Annexure 7.2 : Place of Delivery of Live Births for Uttarakhand

| Uttarakhand | Home | At home In the presence of a trained dai | At home In the presence of a trained birth attendant | Home deliveries | Government hospital | Private hospital | Institutional delivery | Total |
|---|---|---|---|---|---|---|---|---|
| Rural | 15.4 | 5.4 | 6.7 | 27.5 | 50.7 | 21.8 | 72.5 | 100 |
| Urban | 7.4 | 1.3 | 7.1 | 15.8 | 51.2 | 33 | 84.2 | 100 |
| Hill | 15.5 | 4.7 | 6.7 | 27 | 58.4 | 14.7 | 73 | 100 |
| Plain | 10.1 | 3.4 | 6.9 | 20.4 | 44.1 | 35.5 | 79.6 | 100 |
| Poorest | 19.3 | 6.2 | 4.9 | 30.5 | 49.1 | 20.4 | 69.5 | 100 |
| Poor | 11.3 | 4.6 | 9.1 | 25 | 54.2 | 20.8 | 75 | 100 |
| Middle | 13.1 | 3.6 | 6.5 | 23.2 | 50.7 | 26 | 76.8 | 100 |
| Rich | 11 | 2.8 | 8.5 | 22.4 | 50.7 | 27 | 77.6 | 100 |
| Richest | 3.8 | 0.9 | 4.2 | 8.8 | 48.2 | 43 | 91.2 | 100 |
| Scheduled Caste | 16.7 | 3.1 | 7.9 | 27.6 | 52.4 | 20 | 72.4 | 100 |
| Scheduled Tribe | 6.2 | 10.3 | 4.9 | 21.4 | 56.6 | 21.9 | 78.6 | 100 |
| Other Backward Classes | 12.2 | 5.2 | 5.1 | 22.5 | 47.5 | 29.9 | 77.5 | 100 |
| General | 11.4 | 3 | 7.8 | 22.3 | 52.4 | 25.3 | 77.7 | 100 |

Source: UKHDR Survey, 2017

## Annexure 7.3 : District-wise Distribution of Immunization Status of Children Born in the Last Five Years

| District | Immunization status (of births during the last five years) | | | |
|---|---|---|---|---|
| | Completed | Still continuing | Partially | None |
| Almora | 22.4 | 73.1 | 3.4 | 1.1 |
| Bageshwar | 19.3 | 50.2 | 27.0 | 3.5 |
| Chamoli | 7.2 | 86.1 | 5.7 | 1.0 |
| Champawat | 11.5 | 84.2 | 3.5 | 0.8 |
| Dehradun | 12.8 | 83.8 | 2.3 | 1.1 |
| Pauri Garhwal | 19.0 | 80.4 | 0.0 | 0.6 |
| Haridwar | 32.7 | 58.1 | 8.1 | 1.1 |
| Nainital | 9.4 | 76.9 | 12.5 | 1.2 |
| Pithoragarh | 7.8 | 86.8 | 3.6 | 1.8 |
| Rudraprayag | 10.6 | 76.8 | 10.5 | 2.1 |
| Tehri Garhwal | 15.9 | 78.8 | 4.2 | 1.1 |
| Udham Singh Nagar | 23.3 | 69.7 | 6.5 | 0.5 |
| Uttarkashi | 18.5 | 62.9 | 13.3 | 5.3 |

Source: unknown

Annexure 7.4 : District-wise Enrolment of Children (3-6years) in Anganwadi Centre

| District | % Children enrolled in AWC |
|---|---|
| Almora | 86.2 |
| Bageshwar | 81.5 |
| Chamoli | 75.5 |
| Champawat | 66.9 |
| Dehradun | 64.1 |
| Pauri Garhwal | 55.3 |
| Haridwar | 51.3 |
| Nainital | 48.9 |
| Pithoragarh | 65.0 |
| Rudraprayag | 70.2 |
| Tehri Garhwal | 58.3 |
| Udham Singh Nagar | 63.4 |
| Uttarkashi | 71.1 |
| Total | 61.4 |

Source: UKHDR Survey, 2017

Annexure 7.5 : Enrolment of Children (3-6 years) in Anganwadi Centre for Uttarakhand

| Uttarakhand | % Children enrolled in AWC |
|---|---|
| Residence | |
| Rural | 62.1 |
| Urban | 60.2 |
| Hill | 64.4 |
| Plain | 58.9 |
| Caste groups | |
| Scheduled Caste | 58.5 |
| Scheduled Tribe | 66.1 |
| Other Backward Classes | 61.6 |
| General | 62.5 |
| Income groups | |
| Poorest | 66.5 |
| Poor | 56.2 |
| Middle | 59.7 |
| Rich | 65.0 |
| Richest | 59.3 |
| Uttarakhand | 61.4 |

Source: UKHDR Survey, 2017

Annexure 7.6: Services Received by Children (3-6 years) from Anganwadi Centre Uttarakhand) (%)

| Utarakhand | Have you visited to AWC in Last 3 months | Services received from ICDS | | | | What to give your children to eat | How to feed your children | What practices to follow while cooking/feeding | Identifying danger signs for disease or under-nutrition |
|---|---|---|---|---|---|---|---|---|---|
| | Yes | Good | Average | Bad | Can't say | Yes | Yes | Yes | Yes |
| Rural | 86.1 | 65.3 | 26.1 | 3.3 | 5.3 | 77.3 | 74.3 | 71.2 | 64.4 |
| Urban | 79.5 | 59.8 | 25.2 | 2 | 13 | 68.5 | 66.3 | 63.6 | 62.3 |
| Hill | 86.7 | 69 | 24 | 2 | 4.9 | 80.5 | 77.9 | 75.1 | 68.7 |
| Plain | 81.2 | 58.2 | 27.5 | 3.6 | 10.7 | 68.5 | 65.6 | 62.5 | 59 |
| Scheduled Caste | 86.2 | 67.3 | 23.7 | 3.3 | 5.7 | 81.9 | 77.5 | 75.8 | 68.1 |
| Scheduled Tribe | 79.2 | 61.6 | 33.4 | 2.4 | 2.5 | 68.1 | 71.3 | 67.9 | 55.9 |
| Other Backward Classes | 77.3 | 58.6 | 26.8 | 4.6 | 10 | 70.1 | 66.5 | 62.7 | 60.5 |
| General | 88.4 | 65.6 | 25.3 | 1.3 | 7.8 | 74.5 | 72.6 | 69.8 | 64.8 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Poorest | 89.3 | 67 | 26.5 | 4.4 | 2.1 | 82.1 | 80.3 | 75 | 65.3 |
| Poor | 84.7 | 63.5 | 26.1 | 2 | 8.4 | 73.9 | 69.9 | 68.6 | 66.3 |
| Middle | 80.1 | 58.5 | 30.3 | 3.8 | 7.4 | 69.1 | 64.7 | 62.8 | 60.8 |
| Rich | 78.8 | 61.3 | 22.7 | 1.2 | 14.8 | 71 | 70 | 65.4 | 61 |
| Richest | 83.3 | 66.3 | 20.5 | 1.9 | 11.3 | 70 | 67.6 | 67.7 | 63.2 |

Source: UKHDR Survey, 2017

Annexure 7.7: District-wise Services Received by Children (3-6 years) from Anganwadi Centre (%)

| District | Have you visited to AWC in Last 3 months | Services received from ICDS | | | | What to give your children to eat | How to feed your children | What ractic-es to follow while cook-ing/feeding | Identifying danger signs for disease or under-nutri-tion |
|---|---|---|---|---|---|---|---|---|---|
| | Yes | Good | Average | Bad | Can't say | Yes | Yes | Yes | Yes |
| Almora | 91.5 | 72.9 | 19.4 | 2.0 | 5.7 | 88.4 | 87.4 | 85.5 | 81.6 |
| Bageshwar | 94.5 | 64.8 | 33.0 | 0.0 | 2.2 | 69.0 | 65.0 | 56.6 | 58.8 |
| Chamoli | 97.0 | 66.4 | 29.6 | 3.0 | 1.0 | 95.9 | 95.9 | 94.9 | 91.8 |
| Champawat | 86.5 | 80.8 | 16.3 | 0.0 | 2.9 | 88.5 | 85.6 | 84.6 | 76.9 |
| Dehradun | 71.7 | 49.6 | 26.5 | 1.2 | 22.7 | 51.4 | 49.0 | 49.0 | 50.2 |
| Pauri Garhwal | 82.9 | 54.0 | 27.0 | 1.9 | 17.1 | 63.5 | 59.7 | 55.5 | 47.9 |
| Haridwar | 83.8 | 61.7 | 28.4 | 3.7 | 6.2 | 72.6 | 63.0 | 57.2 | 53.9 |
| Nainital | 79.3 | 80.6 | 13.8 | 2.6 | 3.0 | 85.8 | 83.0 | 79.1 | 65.5 |
| Pithoragarh | 92.3 | 75.7 | 22.6 | 0.0 | 1.7 | 83.2 | 83.4 | 83.4 | 78.9 |
| Rudraprayag | 94.4 | 73.6 | 22.9 | 3.5 | 0.0 | 79.9 | 75.6 | 76.5 | 74.7 |
| Tehri Garhwal | 78.7 | 55.9 | 31.0 | 3.3 | 9.8 | 69.0 | 62.4 | 60.8 | 49.3 |
| Udham Singh Nagar | 86.8 | 62.5 | 27.5 | 5.5 | 4.5 | 79.2 | 81.4 | 78.1 | 70.5 |
| Uttarkashi | 75.9 | 52.2 | 40.0 | 3.1 | 4.6 | 66.2 | 63.0 | 55.4 | 51.3 |
| Total | 83.9 | 63.4 | 25.8 | 2.9 | 7.9 | 74.3 | 71.6 | 68.6 | 63.7 |

Source: UKHDR Survey, 2017

Annexure 7.8 : Annual per Capita health Care and Medical Expenditure and its Share to Total Household Expenditure

| Uttarakhand | Per capita health care and medical expenditure(Rs.) | Male Proportion of Medical Expenditure to Total Household Expenditure (%) | Female Proportion of Medical Expenditure to Total Household Expenditure (%) | Proportion of Med-ical Expenditure to Total Household Expenditure(%) |
|---|---|---|---|---|
| Rural | 3518.1 | 9.5 | 9.1 | 9.3 |
| Urban | 4202.8 | 10.4 | 9.2 | 9.7 |
| Scheduled Caste | 2785.2 | 6.7 | 9.7 | 8.0 |
| Scheduled Tribe | 3543.8 | 8.5 | 3.5 | 5.1 |
| Other Backward Classes | 3745.9 | 12.2 | 10.2 | 11.0 |
| General | 4140.1 | 10.0 | 9.2 | 9.5 |
| Hill | 2931.9 | 8.3 | 6.1 | 7.1 |
| Plain | 4368.6 | 11.0 | 11.7 | 11.4 |
| Poorest | 1912.4 | 11.5 | 5.9 | 8.2 |
| Poor | 2576.5 | 11.7 | 10.5 | 11.0 |
| Middle | 2818.2 | 10.4 | 9.1 | 9.7 |
| Rich | 4614.3 | 7.1 | 9.8 | 8.4 |
| Richest | 7273.9 | 10.5 | 9.6 | 9.9 |
| Total | 3740.5 | 9.8 | 9.2 | 9.4 |

Source: UKHDR Survey, 2017

## Annexure 7.9: District-wise Annual Per Capita Healthcare Expenditure by Residence

| District | Rural | Urban | Total |
|---|---|---|---|
| Udham Singh Nagar | 4377.49 | 3057.42 | 3887.76 |
| Dehradun | 1854.06 | 4177.45 | 3251.01 |
| Uttarkashi | 3220.62 | 3452.61 | 3239.09 |
| Pithoragarh | 2300.01 | 5508.43 | 2833.25 |
| Bageshwar | 2600.02 | 1498.47 | 2558.83 |
| Haridwar | 3471.62 | 1238.32 | 2482.53 |
| Pauri Garhwal | 2010.02 | 1917.07 | 1992.56 |
| Tehri Garhwal | 1700.88 | 3579.4 | 1968.35 |
| Almora | 1593.14 | 2414.71 | 1698.7 |
| Chamoli | 1518.67 | 1838.43 | 1573.29 |
| Nainital | 1535.02 | 1311.04 | 1438.91 |
| Rudraprayag | 1132.38 | 1156.77 | 1135.13 |
| Champawat | 629.58 | 582.37 | 622.53 |
| Total | 2479.86 | 2742.02 | 2569.62 |

Source: UKHDR Survey, 2017

## Annexure 7.10: Gender-wise Annual per Household Distribution of Medical and Non-medical Expenses for Short Term Morbidity

| | | Male | | Female | | Total | |
|---|---|---|---|---|---|---|---|
| Area | District | Medical expenses (in Rs.) | Non-Medical expense s (in Rs.) | Medical expenss s (in Rs.) | Non-Medical expenses (in Rs.) | Medical expenses (in Rs.) | Non-Medical expenses (in Rs.) |
| Rural | Almora | 2810 | 441 | 3210 | 462 | 3088 | 456 |
| | Bageshwar | 2293 | 464 | 3926 | 464 | 3223 | 464 |
| | Chamoli | 7310 | 1875 | 8878 | 1876 | 8164 | 1876 |
| | Champawat | 3430 | 515 | 2492 | 413 | 2854 | 453 |
| | Dehradun | 6574 | 1542 | 4561 | 661 | 5567 | 1101 |
| | Pauri Garhwal | 3923 | 893 | 3859 | 799 | 3884 | 835 |
| | Haridwar | 2418 | 296 | 2757 | 312 | 2612 | 305 |
| | Nainital | 4250 | 480 | 3262 | 568 | 3664 | 533 |
| | Pithoragarh | 4718 | 197 | 3991 | 410 | 4358 | 303 |
| | Rudraprayag | 3793 | 421 | 4718 | 764 | 4378 | 638 |
| | Tehri Garhwal | 4417 | 785 | 1920 | 420 | 3078 | 589 |
| | Udham Singh Nagar | 5821 | 756 | 2842 | 461 | 4059 | 582 |
| | Uttarkashi | 9736 | 1466 | 8395 | 1307 | 8990 | 1377 |
| | Total | 4619 | 675 | 3666 | 557 | 4062 | 606 |
| Urban | Almora | 17526 | 3035 | 12744 | 1086 | 14251 | 1700 |
| | Bageshwar | 1316 | 47 | 3757 | 473 | 2729 | 293 |
| | Chamoli | 11383 | 2500 | 4938 | 818 | 7213 | 1412 |
| | Champawat | 2722 | 228 | 1990 | 200 | 2214 | 208 |
| | Dehradun | 17534 | 3219 | 13563 | 3343 | 15205 | 3292 |
| | Garhwal | 3325 | 113 | 9043 | 1571 | 5993 | 793 |
| | Haridwar | 3002 | 331 | 2500 | 421 | 2738 | 379 |
| | Nainital | 8866 | 512 | 1921 | 217 | 4154 | 312 |
| | Pithoragarh | 3750 | 504 | 15596 | 1186 | 10129 | 871 |
| | Rudraprayag | 12231 | 2371 | 2512 | 281 | 6422 | 1122 |
| | Tehri Garhwal | 3367 | 750 | 2144 | 250 | 2756 | 500 |
| | Udham SinghNagar | 9216 | 664 | 4851 | 459 | 6686 | 545 |
| | Uttarkashi | 53110 | 1659 | 5616 | 897 | 29988 | 1288 |
| | Total | 10509 | 1390 | 6713 | 1274 | 8280 | 1322 |
| Total | Almora | 4827 | 797 | 4463 | 544 | 4575 | 622 |
| | Bageshwar | 2260 | 450 | 3920 | 464 | 3206 | 458 |
| | Chamoli | 7914 | 1967 | 8048 | 1653 | 7989 | 1790 |
| | Champawat | 3351 | 483 | 2415 | 381 | 2766 | 419 |
| | Dehradun | 13385 | 2584 | 10857 | 2537 | 11976 | 2558 |
| | Garhwal | 3827 | 768 | 4343 | 871 | 4137 | 830 |
| | Haridwar | 2632 | 309 | 2673 | 347 | 2655 | 330 |
| | Nainital | 5856 | 491 | 2678 | 415 | 3862 | 444 |
| | Pithoragarh | 4634 | 224 | 5171 | 489 | 4902 | 356 |
| | Rudraprayag | 4770 | 647 | 4493 | 715 | 4596 | 690 |
| | Tehri Garhwal | 4210 | 778 | 1959 | 390 | 3019 | 572 |
| | Udham SinghNagar | 7063 | 722 | 3554 | 460 | 5003 | 569 |
| | Uttarkashi | 13163 | 1481 | 8226 | 1282 | 10439 | 1371 |
| | Total | 6498 | 903 | 4645 | 788 | 5413 | 836 |

Source: UKHDR Survey, 2017

## Annexure 7.11: Gender-wise Annual per Household Distribution of Medical and Non-medical Expenses for Long Term Morbidity

| | District | Male | | Female | | Total | |
|---|---|---|---|---|---|---|---|
| Area | | Non-Medical expense s (in Rs.) | Medical expenss s (in Rs.) | Non-Medical expenses (in Rs.) | Non-Medical expense s (in Rs.) | Medical expenss s (in Rs.) | Non-Medical expenses (in Rs.) |
| Rural | Almora | 36828 | 2277 | 10372 | 866 | 18658 | 1308 |
| | Bageshwar | 41836 | 3989 | 19229 | 1739 | 28343 | 2646 |
| | Chamoli | 38598 | 7228 | 19232 | 3193 | 28334 | 5090 |
| | Champawat | 7781 | 1189 | 5650 | 995 | 6549 | 1077 |
| | Dehradun | 29769 | 2801 | 9717 | 626 | 17920 | 1516 |
| | Pauri Garhwal | 45294 | 5128 | 20850 | 3646 | 29756 | 4186 |
| | Haridwar | 21635 | 1923 | 16578 | 1505 | 18897 | 1697 |
| | Nainital | 14197 | 2065 | 16007 | 1333 | 15278 | 1627 |
| | Pithoragarh | 41356 | 6447 | 21885 | 1864 | 32957 | 4470 |
| | Rudraprayag | 25393 | 4374 | 10574 | 1912 | 17896 | 3128 |
| | Tehri Garhwal | 25725 | 4522 | 15825 | 2477 | 19510 | 3238 |
| | Udham Singh Nagar | 20859 | 2086 | 21540 | 2202 | 21274 | 2157 |
| | Uttarkashi | 15354 | 1807 | 13449 | 1900 | 14208 | 1863 |
| | Total | 26596 | 2953 | 16613 | 1801 | 20738 | 2277 |
| Urban | Almora | 18750 | 1500 | 1832 | 223 | 5457 | 496 |
| | Bageshwar | 24065 | 1594 | 5306 | 429 | 14685 | 1012 |
| | Chamoli | 19418 | 4136 | 39382 | 4706 | 31539 | 4482 |
| | Champawat | 5273 | 545 | 2713 | 63 | 4195 | 342 |
| | Dehradun | 31230 | 6210 | 43871 | 5582 | 39071 | 5820 |
| | Pauri Garhwal | 11844 | 3167 | 15825 | 2664 | 14857 | 2786 |
| | Haridwar | 20164 | 1797 | 17548 | 1809 | 18559 | 1804 |
| | Nainital | 12482 | 1857 | 12420 | 1085 | 12443 | 1377 |
| | Pithoragarh | 101333 | 19344 | 71273 | 8727 | 84800 | 13505 |
| | Rudraprayag | 8213 | 1800 | 1783 | 367 | 5457 | 1186 |
| | Tehri Garhwal | 82857 | 7893 | 55544 | 4619 | 64871 | 5737 |
| | Udham Singh Nagar | 26664 | 1919 | 21677 | 1415 | 24058 | 1655 |
| | Uttarkashi | 16007 | 3400 | 7900 | 1326 | 11476 | 2241 |
| | Total | 26605 | 3352 | 25922 | 2753 | 26197 | 2994 |
| Total | Almora | 35333 | 2213 | 9253 | 782 | 17121 | 1214 |
| | Bageshwar | 41126 | 3893 | 18848 | 1704 | 27900 | 2593 |
| | Chamoli | 34834 | 6621 | 24284 | 3573 | 29059 | 4952 |
| | Champawat | 7064 | 1005 | 5135 | 831 | 6017 | 911 |
| | Dehradun | 30528 | 4573 | 28510 | 3353 | 29304 | 3833 |
| | Pauri Garhwal | 38955 | 4756 | 19371 | 3357 | 25891 | 3823 |
| | Haridwar | 21232 | 1889 | 16904 | 1607 | 18793 | 1730 |
| | Nainital | 13317 | 1958 | 14075 | 1199 | 13780 | 1495 |
| | Pithoragarh | 50211 | 8351 | 32661 | 3361 | 42266 | 6092 |
| | Rudraprayag | 23118 | 4033 | 9691 | 1756 | 16446 | 2902 |
| | Tehri Garhwal | 35323 | 5088 | 23275 | 2879 | 27693 | 3689 |
| | Udham Singh Nagar | 23506 | 2010 | 21590 | 1910 | 22406 | 1953 |
| | Uttarkashi | 15430 | 1994 | 12897 | 1844 | 13918 | 1904 |
| | Total | 26599 | 3084 | 19763 | 2123 | 22561 | 2516 |

Source: UKHDR Survey, 2017

Annexure 7.12: Distribution of Beneficiaries by Type of Scheme in Uttarakhand

| Uttarakhand | | If covered, type of scheme (%) | | | | | |
|---|---|---|---|---|---|---|---|
| | Whether any family member has any health insurance (Yes %) | ESIS/CGHS | Employer-provided | Medical Insurance | RSBY | Other (specify) | Mukhyamantri Swasthya Bima Yojana |
| Scheduled Caste | 32.2 | 5.8 | 0.5 | 1.2 | 31.9 | 5.1 | 55.4 |
| Scheduled Tribe | 26.9 | 19.3 | 8.1 | 3.2 | 28.4 | 3.6 | 37.4 |
| Other Backward Classes | 25.3 | 7.9 | 1.9 | 3.3 | 25.4 | 4.2 | 57.4 |
| General | 32.5 | 21.9 | 2.2 | 2.8 | 24.4 | 3.8 | 44.9 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Poorest | 28.9 | 2.5 | 0.9 | 0.6 | 35.6 | 2.2 | 58.2 |
| Poor | 29.9 | 2 | 0.8 | 0.8 | 28.6 | 3.4 | 64.4 |
| Middle | 29.3 | 6.5 | 1 | 2 | 31.7 | 3.6 | 55.2 |
| Rich | 31 | 17 | 2.4 | 2.5 | 24.8 | 2.7 | 50.6 |
| Richest | 32.1 | 46.3 | 4.8 | 6.7 | 12.1 | 8.5 | 21.5 |

Source: UKHDR Survey, 2017

## Annexure 7.13: District-wise Distribution of Health Insurance Beneficiaries by Type of Scheme

| | Uttarakhand | | If covered, type of scheme (%) | | | | | |
|---|---|---|---|---|---|---|---|---|
| Area | | Whether any family member has any health insurance (Yes %) | ESIS/CGHS | Employer-provided | Medical Insurance | RSBY | Other (specify) | Mukhyamantri Swasthya Bima Yojana |
| Rural | Almora | 25 | 5.5 | 0.7 | 0 | 20 | 1.4 | 72.4 |
| | Bageshwar | 51.2 | 19.8 | 4.3 | 0.3 | 14.6 | 1.5 | 59.6 |
| | Chamoli | 24.6 | 35.8 | 3.6 | 4.4 | 52.6 | 1.5 | 2.2 |
| | Champawat | 51.8 | 0.7 | 0.3 | 0 | 2.8 | 9.8 | 86.4 |
| | Dehradun | 32.9 | 16.3 | 0 | 5.8 | 25 | 1.9 | 51 |
| | Pauri Garhwal | 33 | 21.5 | 1.1 | 1.1 | 17.7 | 5.5 | 53 |
| | Haridwar | 15.2 | 3.2 | 3.2 | 3.2 | 39.7 | 3.2 | 47.6 |
| | Nainital | 39.3 | 0.6 | 2.5 | 1.3 | 12.7 | 2.5 | 80.4 |
| | Pithoragarh | 54.6 | 31.4 | 0.7 | 1.6 | 53.6 | 0.3 | 12.4 |
| | Rudraprayag | 38.7 | 0.4 | 1.2 | 0 | 31.6 | 3.7 | 63.1 |
| | TehriGarhwal | 32.5 | 4.8 | 0 | 3.7 | 29.1 | 3.2 | 59.3 |
| | Udham Singh Nagar | 25.5 | 3.8 | 2.8 | 1.9 | 30.2 | 4.7 | 56.6 |
| | Uttarkashi | 42 | 10.3 | 3.1 | 3.4 | 34.7 | 13 | 35.5 |
| | Total | 31.9 | 12 | 1.7 | 2.2 | 28.1 | 3.7 | 52.4 |
| Urban | Almora | 15 | 0 | 26.7 | 13.3 | 0 | 6.7 | 53.3 |
| | Bageshwar | 45 | 15.6 | 2.2 | 2.2 | 17.8 | 0 | 62.2 |
| | Chamoli | 36.4 | 15 | 0 | 10 | 75 | 0 | 0 |
| | Champawat | 55.6 | 0 | 0 | 0 | 0 | 1.8 | 98.2 |
| | Dehradun | 27 | 35.4 | 4 | 4 | 6.1 | 5.1 | 45.5 |
| | Pauri Garhwal | 31.7 | 27.3 | 3 | 0 | 12.1 | 15.2 | 42.4 |
| | Haridwar | 18.3 | 43.2 | 4.5 | 6.8 | 15.9 | 9.1 | 20.5 |
| | Nainital | 45.6 | 1.7 | 0 | 0 | 33.9 | 4.2 | 60.2 |
| | Pithoragarh | 53 | 35.8 | 0 | 3.8 | 49.1 | 0 | 11.3 |
| | Rudraprayag | 37 | 2.7 | 0 | 0 | 35.1 | 5.4 | 56.8 |
| | TehriGarhwal | 17 | 29.4 | 0 | 5.9 | 17.6 | 5.9 | 41.2 |
| | Udham Singh Nagar | 20.4 | 8.3 | 2.1 | 2.1 | 37.5 | 2.1 | 47.9 |
| | Uttarkashi | 48.5 | 22.4 | 12.2 | 14.3 | 28.6 | 6.1 | 16.3 |
| | Total | 27.2 | 23.4 | 2.9 | 3.5 | 22.2 | 5.1 | 43 |
| Total | Almora | 23.7 | 5.1 | 2.8 | 1.1 | 18.4 | 1.8 | 70.9 |
| | Bageshwar | 50.9 | 19.6 | 4.2 | 0.4 | 14.7 | 1.5 | 59.7 |
| | Chamoli | 26.6 | 30.9 | 2.8 | 5.7 | 57.8 | 1.1 | 1.7 |
| | Champawat | 52.4 | 0.6 | 0.3 | 0 | 2.3 | 8.5 | 88.3 |
| | Dehradun | 29.3 | 26.9 | 2.2 | 4.8 | 14.5 | 3.7 | 47.9 |
| | Pauri Garhwal | 32.7 | 22.6 | 1.5 | 0.9 | 16.7 | 7.3 | 51.1 |
| | Haridwar | 16.6 | 22.7 | 3.8 | 5 | 28.1 | 6.1 | 34.4 |
| | Nainital | 42 | 1.1 | 1.4 | 0.7 | 22.5 | 3.3 | 71 |
| | Pithoragarh | 54.4 | 32.1 | 0.5 | 2 | 52.9 | 0.3 | 12.2 |
| | Rudraprayag | 38.5 | 0.7 | 1.1 | 0 | 31.9 | 3.9 | 62.4 |
| | TehriGarhwal | 30.3 | 6.7 | 0 | 3.9 | 28.2 | 3.4 | 57.8 |
| | Udham Singh Nagar | 23.6 | 5.2 | 2.6 | 1.9 | 32.5 | 3.9 | 53.8 |
| | Uttarkashi | 42.5 | 11.4 | 3.9 | 4.4 | 34.2 | 12.4 | 33.8 |
| | Total | 30.3 | 15.5 | 2.1 | 2.6 | 26.3 | 4.1 | 49.5 |

Source: UKHDR Survey, 2017

## Annexure Fact Sheet

| | UKHDR Survey 2017 | Vision 2030 |
|---|---|---|
| Almora | | |
| • Population below state poverty line (%) | 38.2 | Reduce to at least 5.63% |
| • Unemployment rate 15+ years (%) | 3.6 | <4.2% |
| • Share (%) of regular employment | 22.5 | >19.9% |
| • Per capita GDP growth (%) | 6.5 | >7.1% |
| • Institutional delivery (%) (Total) | 73.8 | 100 |
| • Literacy rate of youth 15-29 years (%) | 99.2 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 99.0 | 100 |
| • Households with access to piped water supply (%) | 64.1 | 100 |
| • rural household using safe drinking water (%) | 73.1 | 100 |
| • Households with electricity (%) (Rural) | 98.3 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 55.3 | 0 |
| Bageshwar | | |
| • Population below state poverty line (%) | 13.7 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 2.3 | <4.2% |
| • Share (%) of regular employment | 21.0 | >19.9% |
| • Per capita GDP growth (%) | 6.5 | >7.1% |
| • Institutional delivery (%) (Total) | 79.1 | 100 |
| • Literacy rate of youth 15-29 years (%) | 99.8 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 99.7 | 100 |
| • Households with access to piped water supply (%) | 69.2 | 100 |
| • rural household using safe drinking water (%) | 71.4 | 100 |
| • Households with electricity (%) (Rural) | 99.1 | 100 |
| • Households with electricity (%) (Urban) | 99.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 47.3 | 0 |
| Chamoli | | |
| • Population below state poverty line (%) | 36.7 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 4.2 | <4.2% |
| • Share (%) of regular employment | 14.4 | >19.9% |
| • Per capita GDP growth (%) | 6.2 | >7.1% |
| • Institutional delivery (%) (Total) | 47.9 | 100 |
| • Literacy rate of youth 15-29 years (%) | 99.2 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 99.2 | 100 |
| • Households with access to piped water supply (%) | 79.5 | 100 |
| • rural household using safe drinking water (%) | 78.5 | 100 |
| • Households with electricity (%) (Rural) | 98.0 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 51.5 | 0 |
| Champawat | | |
| • Population below state poverty line (%) | 40.6 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 3.4 | <4.2% |

| | UKHDR Survey 2017 | Vision 2030 |
|---|---|---|
| • Share (%) of regular employment | 14.9 | >19.9% |
| • Per capita GDP growth (%) | 5.8 | >7.1% |
| • Institutional delivery (%) (Total) | 61.9 | 100 |
| • Literacy rate of youth 15-29 years (%) | 98.0 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 97.5 | 100 |
| • Households with access to piped water supply (%) | 58.5 | 100 |
| • rural household using safe drinking water (%) | 66.8 | 100 |
| • Households with electricity (%) (Rural) | 93.7 | 100 |
| • Households with electricity (%) (Urban) | 98.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 64.5 | 0 |
| Dehradun | | |
| • Population below state poverty line (%) | 7.3 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 5.9 | <4.2% |
| • Share (%) of regular employment | 38.4 | >19.9% |
| • Per capita GDP growth (%) | 7.6 | >7.1% |
| • Institutional delivery (%) (Total) | 80.4 | 100 |
| • Literacy rate of youth 15-29 years (%) | 97.5 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 96.8 | 100 |
| • Households with access to piped water supply (%) | 88.1 | 100 |
| • rural household using safe drinking water (%) | 93.7 | 100 |
| • Households with electricity (%) (Rural) | 99.7 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 46.7 | 0 |
| Pauri Garhwal | | |
| • Population below state poverty line (%) | 17.1 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 4.5 | <4.2% |
| • Share (%) of regular employment | 35.8 | >19.9% |
| • Per capita GDP growth (%) | 7.0 | >7.1% |
| • Institutional delivery (%) (Total) | 74.4 | 100 |
| • Literacy rate of youth 15-29 years (%) | 98.4 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 97.5 | 100 |
| • Households with access to piped water supply (%) | 83.3 | 100 |
| • rural household using safe drinking water (%) | 84.5 | 100 |
| • Households with electricity (%) (Rural) | 99.5 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 51.1 | 0 |
| Haridwar | | |
| • Population below state poverty line (%) | 17.9 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 5.1 | <4.2% |
| • Share (%) of regular employment | 29.2 | >19.9% |
| • Per capita GDP growth (%) | 7.3 | >7.1% |
| • Institutional delivery (%) (Total) | 73.7 | 100 |
| • Literacy rate of youth 15-29 years (%) | 95.8 | 100 |

| | UKHDR Survey 2017 | Vision 2030 |
|---|---|---|
| • Literacy rate of youth 15-29 years (women) (%) | 94.5 | 100 |
| • Households with access to piped water supply (%) | 61.7 | 100 |
| • rural household using safe drinking water (%) | 99.8 | 100 |
| • Households with electricity (%) (Rural) | 97.6 | 100 |
| • Households with electricity (%) (Urban) | 98.3 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 49.7 | 0 |
| Nainital | | |
| • Population below state poverty line (%) | 16.5 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 3.9 | <4.2% |
| • Share (%) of regular employment | 33.7 | >19.9% |
| • Per capita GDP growth (%) | 6.8 | >7.1% |
| • Institutional delivery (%) (Total) | 83.6 | 100 |
| • Literacy rate of youth 15-29 years (%) | 96.6 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 95.7 | 100 |
| • Households with access to piped water supply (%) | 89.3 | 100 |
| • rural household using safe drinking water (%) | 87.8 | 100 |
| • Households with electricity (%) (Rural) | 98.3 | 100 |
| • Households with electricity (%) (Urban) | 99.6 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 44.2 | 0 |
| Pithoragarh | | |
| • Population below state poverty line (%) | 15.7 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 1.7 | <4.2% |
| • Share (%) of regular employment | 13.9 | >19.9% |
| • Per capita GDP growth (%) | 6.7 | >7.1% |
| • Institutional delivery (%) (Total) | 66.2 | 100 |
| • Literacy rate of youth 15-29 years (%) | 99.0 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 98.8 | 100 |
| • Households with access to piped water supply (%) | 87.1 | 100 |
| • rural household using safe drinking water (%) | 89.5 | 100 |
| • Households with electricity (%) (Rural) | 99.3 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 43.8 | 0 |
| Rudraprayag | | |
| • Population below state poverty line (%) | 23.1 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 1.8 | <4.2% |
| • Share (%) of regular employment | 15.5 | >19.9% |
| • Per capita GDP growth (%) | 6.5 | >7.1% |
| • Institutional delivery (%) (Total) | 81.2 | 100 |
| • Literacy rate of youth 15-29 years (%) | 99.0 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 98.7 | 100 |
| • Households with access to piped water supply (%) | 72.3 | 100 |
| • rural household using safe drinking water (%) | 69.5 | 100 |
| • Households with electricity (%) (Rural) | 97.6 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 55.0 | 0 |

| | UKHDR Survey 2017 | Vision 2030 |
|---|---|---|
| TehriGarhwal | | |
| • Population below state poverty line (%) | 17.9 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 4.6 | <4.2% |
| • Share (%) of regular employment | 39.2 | >19.9% |
| • Per capita GDP growth (%) | 7.0 | >7.1% |
| • Institutional delivery (%) (Total) | 71.3 | 100 |
| • Literacy rate of youth 15-29 years (%) | 98.6 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 98.5 | 100 |
| • Households with access to piped water supply (%) | 68.7 | 100 |
| • rural household using safe drinking water (%) | 72.0 | 100 |
| • Households with electricity (%) (Rural) | 98.3 | 100 |
| • Households with electricity (%) (Urban) | 100.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 54.2 | 0 |
| Udham Singh Nagar | | |
| • Population below state poverty line (%) | 24.4 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 4.2 | <4.2% |
| • Share (%) of regular employment | 26.9 | >19.9% |
| • Per capita GDP growth (%) | 6.5 | >7.1% |
| • Institutional delivery (%) (Total) | 87 | 100 |
| • Literacy rate of youth 15-29 years (%) | 94.4 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 93.6 | 100 |
| • Households with access to piped water supply (%) | 32.3 | 100 |
| • rural household using safe drinking water (%) | 97.8 | 100 |
| • Households with electricity (%) (Rural) | 98.1 | 100 |
| • Households with electricity (%) (Urban) | 99.6 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 45.4 | 0 |
| Uttarkashi | | |
| • Population below state poverty line (%) | 13.2 | Reduce to at least 5.63% |
| • Unemployment 15+ years (%) | 1 | <4.2% |
| • Share (%) of regular employment | 24.1 | >19.9% |
| • Per capita GDP growth (%) | 6.1 | >7.1% |
| • Institutional delivery (%) | 77.6 | 100 |
| • Literacy rate of youth 15-29 years (%) | 97.8 | 100 |
| • Literacy rate of youth 15-29 years (women) (%) | 96.3 | 100 |
| • Households with access to piped water supply (%) | 78.1 | 100 |
| • rural household using safe drinking water (%) | 82.9 | 100 |
| • Households with electricity (%) (Rural) | 96.0 | 100 |
| • Households with electricity (%) (Urban) | 99.0 | 100 |
| • Percentage share of Antyodaya and BPL households in the total households | 54.2 | 0 |

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