



UTTARAKHAND ECONOMIC SURVEY

2020-21

VOLUME – II

DIRECTORATE OF ECONOMICS & STATISTICS

GOVERNMENT OF UTTARAKHAND

100/06, NESHVILLA ROAD, GATE NO. 4, DEHRADUN, UTTARAKHAND





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Preface

The Directorate of Economics and Statistics (DES), Department of Planning, Government of Uttarakhand brings out the fourth Economic Survey II of the State, Survey provides an overview of the performance of the State's economy 2019-20. The survey reflects the State economy over the year and reviews the progress of major development programmes and projects along with various sectors of the State Economy. The economic survey report emphasised the impact of COVID-19 pandemic on various key aspects of the State economy.

In the preparation of this year's report, a rapid survey was undertaken of a sample of residents working in multiple sectors, in each of the thirteen districts, to gather first-hand information on the impact of the pandemic on their livelihood, income, expenditure, education, assistance received as well as expectations about post pandemic recovery. The result of the survey are presented in this report.

The report addresses the requirement of systemic capacity development in the State, to better manage COVID-19 like pandemics. Priorities for the State are laid out in the report, to emerge from the COVID-19 calamity, stronger and prepared to fully utilise emerging opportunities that could lead to rapid growth of the economy and welfare of the residents.

It is expected that this report will provide a roadmap to policy makers and programme managers to fine tune policies and programme strategies to make them more responsive to emerging needs and providing the needed impetus for economic growth and at the same time bolster the State's endeavour to achieve the SDG goals stated in State Vision 2030.

I appreciate the efforts of Mr. Sushil Kumar Director, Directorate of Economics and Statistics and Dr. Manoj Kumar Pant Additional Chief Executive officer, Centre for Public Policy and Good Governance and the entire team of EHI International to make the report possible within a set period.

(Manisha Panwar)
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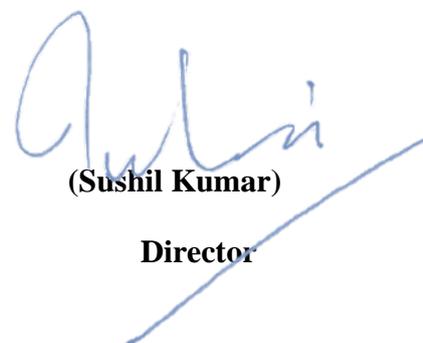
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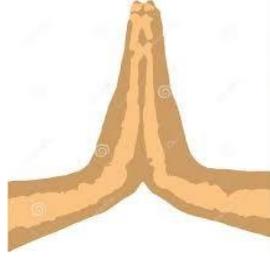
Foreword

This series of Economic Survey II is the fourth attempt of analysis of different sectors of the State economy. This fourth edition of Volume II of the Economic Survey of Uttarakhand focuses on the impact of COVID-19 pandemic on the State economy during FY 2020-21. An additional aspect of this report is the presentation of results of a rapid survey undertaken of a sample of residents working in multiple sectors, in each of the thirteen districts, to gather first-hand information on the impact of the pandemic on their livelihood, income, expenditure, education, assistance received as well as expectations about post pandemic recovery.

The report lays out important policy and programmatic issues and challenges faced by the State's economy. Policy outlook and programmatic priorities in view of the COVID-19 pandemic are discussed in this report with suggested roadmap for action.

I am also thankful to the CPPGG, Department of Planning team for their technical support particularly on the review of the draft report. I welcome the suggestions from the readers and researchers for further improvement of the report in future.


(Sushil Kumar)
Director



Acknowledgement

EHI International team expresses its gratitude to the Directorate of Economics and Statistics (DES), Planning Department, Government of Uttarakhand, Shrimati Manisha Panwar, IAS (Additional Chief Secretary, Planning), Shri. Sushil Kumar (Director, DES) and Dr Manoj Kumar Pant, (Joint Director, DES) and Nodal Officer SSS for allocating this important assignment to EHI International and for their invaluable guidance.

We express our deep appreciation for the immense support received from Shri Sushil Kumar and Dr Manoj Kumar Pant throughout the execution of the assignment and timely feedback on sections of the report, which was instrumental in its finalisation.

We received immense support from all State Departments whose officers were very forthcoming in sharing their insights as well as data to make this report richer in content. We are deeply obliged for this wholehearted support.

We are indebted to all the officials of the DES who have regularly helped by providing data and other material pertaining to specific areas of this report, especially Dr Dinesh Chandra Badoni, Deputy Director who was always forthcoming to guide the expert team and coordinate their interactions with government departments. We are equally indebted to Deputy Directors Shri Amit Punetha, Shri Manish Rana and others along with CPPGG Specialists Shri Karunakar Singh, Shri Nitesh Kaushik, Shri Ranjan Vohra, Shri Ajay Purohit and Shrimati Sharon Jacob for their guidance, support and valuable comments from time to time, which helped us immensely to finalise this report.

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Disclaimer

The views expressed and any errors herein are entirely those of the authors. The views expressed do not necessarily reflect those of and cannot be attributed to the study advisors, contacted individuals, institutions and organizations involved. The information contained herein has been obtained from various sources including the respective Uttarakhand Government Departments, discussions with stakeholders, a review of publications, and are to the best of our knowledge accurate. Despite all precautions taken to accurately reflect the information that was collected for this report, any errors pointed out subsequently by any party cannot lead to any liability on the part of the authors. The contents of this report may be used with necessary acknowledgement.

Abbreviations

| | | | |
|-------|---|---------|--|
| AHS | : Annual Health Survey | DBT | : Department of Bio-Technology |
| AI | : Artificial Intelligence | DC | : Data Centre |
| AIBP | : Accelerated Irrigation Benefit Programme | DDDM | : Data Driven Decision Making |
| AICTE | : All India Council for Technical Education | DEA | : Data Envelopment Analysis |
| AIDS | : Acquired Immune Deficiency Syndrome | DFI | : Doubling Farmers' Income |
| AIMA | : All India Management Association | DG | : Distributed Generation |
| AISHE | : All India Survey on Higher Education | DICs | : District Industries Centre |
| AL | : Agricultural Laborer | DIPP | : Department for Promotion of Industry and Internal Trade |
| AMRUT | : Atal Mission for Rejuvenation and Urban Transformation | DPIIT | : Department for Promotion of Industry & Internal Trade |
| AMUL | : Anand Milk Union Limited | DPR | : Detail Project Reports |
| ANC | : Antenatal Care | DRI | : Directorate of Revenue Intelligence |
| ANM | : Auxiliary Nurse Midwifery | DRIP | : Dam Rehabilitation & Implementation Project |
| APEDA | : Agricultural and Processed Food Products Export Development Authority | DST | : Department of Science and Technology |
| ASCAD | : Assistance to State for Control of Animal Diseases | DWSM | : District Water and Sanitation Mission |
| ASDP | : Agriculture State Domestic Product | EoDB | : Ease of Doing Business |
| ASHA | : Accredited Social Health Activist | E-NAM | : e-National Agricultural Market |
| ATMA | : Agriculture Technology Management Agency | FAO | : Food and Agriculture Organisation |
| AWC | : Anganwadi Center | FEE | : Foreign Exchange Earnings |
| AWW | : Anganwadi Worker | FICCI | : Federation of Indian Chambers of Commerce & Industry |
| AYUSH | : Ayurveda, Yoga, Unani, Sidha and Homoeopathy | FMCG | : Fast-Moving Consumer Goods |
| BRAP | : Business Reform Action Plan | FTA | : Foreign Tourist Arrivals |
| CAC | : Corporate Affairs Commission | FY | : Financial Year |
| CADWM | : Command Area Development and Water Management | GBPUA&T | : G.B. Pant University Of Agriculture And Technology |
| CAG | : Comptroller and Auditor General of India | GBI | : Generation Based Incentives |
| CAGR | : Compound Annual Growth Rate | GCA | : Gross Cropped Area |
| CATF | : Convergent Action Task Force | GDP | : Gross Domestic Product |
| CBDP | : Community-Based Disaster Preparedness | GER | : Gross Enrolment Ratio |
| CCA | : Consolidated Consent and Authorization | GFCF | : Gross Fixed Capital Formation |
| CDCA | : Cloud and Data Centre for Analytics | GIA | : Gross Irrigated Area |
| CDKN | : Climate and Development Knowledge Network | GIS | : Geographic Information Systems |
| CESS | : Civilian End Strength Study | GLOF | : Glacial Lake Outburst Floods |
| CETP | : Common effluent treatment plant | GSDP | : Gross State Domestic Product |
| CGST | : Central Goods and Service Tax | GSI | : Geological Survey of India |
| CGWA | : Central Ground Water Authority | GST | : Goods and Service Tax |
| CGWB | : Central Ground Water Board | HARC | : Himalayan Action Research Centre |
| CHC | : Community Health Centre | HERC | : Higher Education Reform Commission |
| CMRY | : Chief Minister's Rozgar Yojana | HIV | : Human Immunodeficiency Virus |
| CSC | : Common Service Centres | HSRC | : Himalayan State Regional Council |
| CTE | : Consent to Establish | IBEF | : India Brand Equity Foundation |
| CTO | : Consent to Operate | ICD | : Inland Customs Depots |
| CWMI | : Composite Water Management Index | ICD | : Inland container depots |
| | | ICDS | : Integrated Child Development Services |
| | | ICIMOD | : International Centre for Integrated Mountain Development |
| | | ICP | : Integrated Check Post |
| | | ICT | : Information and Communication Technology |

| | | | |
|-----------|---|----------|---|
| IDPH | : Integrated Development and Promotion of Handicraft | NDP | : Net Domestic Product |
| IFAD | : International Fund for Agricultural Development | NEDWO | : National Rural Drinking Water Programme |
| IFFCO | : Indian Farmers Fertiliser Cooperative Ltd. | NeGP | : National e-Governance Plan |
| IFFDC | : Indian Farm and Forestry Development Programme | NFDB | : National Fisheries Development Board |
| IGST | : Integrated Goods and Service Tax | NFHS | : National Family Health Survey |
| IHCAP | : Indian Himalayas Climate Adaptation Programme | NFSM | : National Food Security Mission |
| IIF | : Institute of International Finance | NHM | : National Health Mission |
| ILSP | : Integrated Livelihood Support Project | NIC | : National Information Centre |
| IMR | : Infant Mortality Rate | NMAET | : National Mission on Agriculture Extension & Technology |
| IOFS | : Integrated Organic farming System | NMSA | : National Mission for Sustainable Agriculture |
| IPCC | : Intergovernmental Panel on Climate Change | NPOF | : National Project on Organic Farming |
| IRENA | : International Renewable Energy Agency | NRW | : Non-Revenue Water |
| IT | : Information Technology | NSDP | : Net State Domestic Product |
| ITA | : International Tourist Arrivals | NSSO | : National Sample Survey Office |
| IWRM | : Integrated water Resources Management | NTFP | : Non-Timber Forest Product |
| Jn NURM | : Jawaharlal Nehru National Urban Renewal Mission | ODF | : Open Defecation-Free |
| KM | : Krishi Mitra | OTR | : Own Tax Revenue |
| KRIBHCO | : Krishak Bharti Fertiliser Cooperative Ltd. | PACS | : Primary Agricultural Credit Societies |
| KWA | : Kerala Water Authority | PIP | : Performance Improvement Plan |
| LCS | : Land Customs Station | PKVY | : Paramparagat Krishi Vikash Yojana |
| LPAI | : Land Port Authority of India | PMEGP | : Prime Minister Employment Guarantee Programme |
| LUP | : Land Use Planning | PMFBY | : Pradhan Mantri Fasal Bima Yojana |
| MJSA | : Mukhya Mantri Jal Swavlambhan Abhiyan | PM-KISAN | : Pradhan Mantri Kisan Samman Nidhi |
| MNC | : Multi-National Company | PMKSY | : Pradhan Mantri Krishi Sinchayee Yojana |
| MNRE | : Ministry of New & Renewable Energy | PNC | : Post Natal Care |
| MNREGA | : Mahatma Gandhi National Rural Employment Gurantee Act | PRASAD | : Pilgrimage Rejuvenation and Spiritual Augmentation Drive |
| MMP | : Mission Mode Projects | PSA | : Priority Sector Advances |
| MoCA | : Ministry of Civil Aviation | PV | : Photovoltaic |
| MoU | : Memorandum of Understanding | PWD | : Public Works Department |
| MOOC | : Massive Open Online Course | QIP | : Quality Improvement Plans |
| MRO | : Maintenance, Repair and Operation | RAFTAAR | : Remunerative Approaches for Agriculture and Allied Sectors Rejuvenation |
| MSME/ MSE | : Micro Small Medium Enterprise | RAD | : Rainfed Area Development |
| MUDRA | : Micro Units Development and Refinance Agency Bank | RASS | : Remote Air Service Subsidy |
| MVDA | : Mountain valley Development Association | RBI | : Reserve Bank of India |
| MVS | : Multi-Village Scheme | RCS | : Regional Connectivity Scheme |
| NAARM | : National Academy of Agricultural Research Management | RES | : Renewable Energy Sources |
| NABARD | : National Bank for Agriculture and Rural Development | RKVY | : Rashtriya Krishi Vikas Yojana |
| NAPCC | : National Action Plan on Climate Change | RRB | : Regional Rural Bank |
| NBA | : Nirmal Bharat Abiyan | RWSS | : Rural Water Supply, Sanitation |
| NBSS | : National Bureau of Soil Survey | SAME | : Sub Mission on Agricultural Extension |
| NCDC | : National Cooperative Development Corporation | SBCC | : Social Behavioural Change Communication |
| | | SBCCTF | : Social Behavioural Change Communication Task Force |
| | | SBM | : Swachh Bharat Mission |
| | | SCCC | : State Climate Change Centre |
| | | SDC | : State Data Centre |
| | | SDG | : Sustainable Development Goal |
| | | SDRA | : State Disaster Relief Authority |

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|----------|---|--------|--|
| SGDP | : State Gross Domestic Product | UBI | : Unique Business Identifier |
| SGST | : State Goods and Service Tax | UCADA | : Uttarakhand Civil Aviation Development Authority |
| SHC | : Sub Health Centre | UCOST | : Uttarakhand State Council for Science & Technology |
| SHG | : Self Help Group | UDAN | : Ude Desh ka Aam Naagrik |
| SHPRTF | : State Health Policy Review Task Force | UEPPCB | : Uttarakhand Environment Protection & Pollution Control Board |
| SMAM | : Sub Mission on Agricultural Mechanization | UFD | : Uttarakhand Fisheries Department |
| SMDPTF | : Tasks Force to Review the State Disaster Preparedness for Medical Disasters | UHHDC | : Uttarakhand Handloom and Handicraft Development Council |
| SME | : Small and Medium Enterprises | UJN | : Uttarakhand Peyjal Nigam |
| SMSP | : Sub Mission for Seed Planting Material | UJS | : Uttarakhand Jal Sansthan |
| SOP | : Standard Operating Procedure | UJVNL | : Uttarakhand Jal Vidyut Nigam Ltd |
| SPV | : Solar Photovoltaic | UKSERC | : Uttarakhand Science Education & Research Centre |
| SQITF | : State Quality Improvement Task Force | UNDP | : United Nations Development Programme |
| SSDTF | : State Health Sector Skill Development Task Force | UNWTO | : United Nations World Tourism Organization |
| SSNAP | : Stocktaking for Sub-National Adaptation Planning | UOCB | : Uttarakhand Organic Commodity Board |
| STIP | : State Technology Improvement Plan | UPJN | : Uttarakhand Peyjal Sansadhan Vikas evam Nirmaan Nigam |
| STSG | : Standard Treatment And Safety Guidelines | URWSSP | : Uttarakhand Rural Water Supply & Sanitation Project |
| STITF | : Technology Integration Plan In The State Health System | USRLM | : Uttarakhand State Rural Livelihood Mission |
| SWAN | : State Wide Data Network | UWMRA | : Uttarakhand Water Management and Regulation Act |
| SWAYAM | : Study Webs of Active-Learning for Young Aspiring Minds | UWSSC | : User Water & Sanitation Committee |
| SWCS | : Single Window Clearance System | U5MR | : Under 5 Mortality Rate |
| SWOT | : Strengths, Weaknesses, Opportunities And Threats | VAT | : Value Added Tax |
| SWSM | : State Water and Sanitation Mission | VCSG | : Description Veer Chandra Singh Garhwali |
| SVS | : Single Village scheme | VGf | : Viability Gap Funding |
| TA | : Teaching Assistants | VKC | : Village Knowledge Centre |
| TFPI | : Total Factor Productivity Index | VPKAS | : Vivekananda Parvatiya Krishi Anusandhan Sansthan |
| TFR | : Total Fertility Rate | WDR | : World Development Report |
| TPS | : Transaction Processing Systems | WSS | : Water Supply and Sanitation |
| TS-iPASS | : Telangana State Industrial Project Approval and Self-Certification System | WIFS | : Weekly Iron and Folic Acid Supplementation |
| TTR | : Total Tax Revenue | WTTC | : World Travel and Tourism Council |
| TUF | : Technology Upgradation Fund Scheme | WUA | : Water User Board |
| TW | : Total Worker | WWF | : World Wide Fund for Nature |
| UAPCC | : Uttarakhand Action Plan on Climate Change | | |

UTTARAKHAND ECONOMIC SURVEY 2020-21

Executive Summary

The second volume of Uttarakhand Economic Survey 2020-21 has in its focus the impact of COVID-19 pandemic on the economy of Uttarakhand. It examines the measures taken by Uttarakhand government and the supporting measures of Government of India, to mitigate the impact of the pandemic on the people of the State and its various sectors and sub-sectors. The report is organised in ten chapters, each covering an important aspect and offering solutions and direction for policy and programmatic measures for quick V shaped recovery and to put the State economy back on the path of rapid growth.

This report in the first chapter, presents the results of a rapid survey undertaken covering all districts of the State to get a first-hand understanding of the impact of the pandemic on various population segments.

1. IMPACT OF COVID-19 ON UTTARAKHAND ECONOMY – STUDY RESULTS

- 1 Last year saw the entire world and its economy being affected by COVID-19 pandemic. India and Uttarakhand experienced the effects in an unprecedented hard manner. The necessary lockdown starting in March 2020 resulted in the sudden economic downturn and changes in economic variables across all sectors of the State economy. State government's response to these changes has been centred on immediate relief to the affected population, efforts to prevent irreversible harm to the State economy and to lay the foundations of rapid recovery. Uttarakhand has been taking consistent measures in making structural changes to expedite a V shaped recovery.
- 2 This chapter provides an overview of COVID-19 and its effect on the Uttarakhand economy during the last year. It assesses impact of COVID - 19 across multiple verticals of the State's economy, through an empirical study among State residents. The survey results and the inferences show that proactive steps and policies of the State Government have led to several structural changes in different sectors, signalling a positive road to recovery. Economic resilience of the State supported by its agriculture sector and pharma industry, allowed the State to soften the impact of external shocks arising due to the pandemic.
- 3 This along with consistent efforts of the State Government and continuing support of central government are very much required for V shaped recovery and long term and sustained development.
- 3 At the end of 2020-21, the study respondents were optimistic about their economic prospects and most expected to recover in terms of their income and livelihoods fully.
- 4 The study and the underlying trends project that Uttarakhand will make a V shape recovery from the hard-hitting economic shock created by the global pandemic.
- 5 The speed of this recovery depends on the speed of the vaccination drive and on the ability of the State to recognise and convert new opportunities into reality. The government needs to hedge through the pandemic, especially in view of the 2nd COVID-19 wave, by undertaking multi sectoral structural reforms. These will create new demand, give a kick start to the growth drivers and lend flexibility and resilience to supply chains, providing a solid basis for growth and development in Uttarakhand.

2. MACRO ECONOMIC AGGREGATES:

2.1 Fiscal Indicators:

Due to the pandemic, it is expected the fiscal deficit to increase due to rise in government spending. It is important to note that Uttarakhand had prepared the budget at the start of the pandemic. Uttarakhand's fiscal deficit was 2.6% of GSDP in 2020-21BE, but with revision post the lockdown, the deficit is revised to 4.45%

2.2 Goods and Services Tax:

The GST collections started to weaken in March 2020 and declined significantly in April 2020. Comparing April 2019 and 2020, the GST collections declined by almost 84 per cent. During the financial year 2020-21, up to December 2020, the State's tax Department had collected a tax of Rs.8,628.01 crore (CGST+IGST+SGST+CESS). However, this is 21 percent lesser than the tax collected for the same period in the financial year 2019-20 with tax collection (CGST+IGST+SGST+CESS) of Rs.10,989.88 crore. This fall in the GST revenue is largely due to Covid-19 pandemic.

The situation improved with the unlocking of the economy. From August onwards, the 2020 GST collections exceeded 2019 GST collections.

2.3 Non-GST Revenue

State excise as a percentage of own tax revenue declined to 14.21 percent in 2018-19. The increase of State excise as a percentage of own tax revenue to 23.68 percent in 2019-20 comes as a respite.

Stamps and Registration Fees as a percentage of OTR had fallen sharply to 5.02 % of the OTR in 2018-19. However, increase of stamps and registration fee as a percentage of own tax revenue to 9.31% in 2019-20 is a significant improvement.

The State may take measures such as setting up of independent evaluation boards for land property, and one-time settlement scheme for settling pending under-valuation, in order to garner more revenue from this source (RBI,

September 2019)

2.4 Tax Sharing with Centre:

The 15th Finance Commission recommended a 0.45% share for Uttarakhand in the centre's tax revenue for 2020-21. This a marginal increase from the earlier 0.44% share recommended by the 14th FC for the period 2015-20.

The 15th Finance Commission also recommended certain grants-in-aid for various purposes for the year 2020-21. These grants include Rs 852 crore, for Urban Local Bodies and Rs 937 crore as grant for calamity relief. Moreover, Uttarakhand was also to receive Rs 5,076 crore grant for eliminating revenue deficit.

Against this backdrop, it is important to ensure tax buoyancy. It is in fact a key, not only for own tax revenues of the State but also for the tax devolution from the Centre.

The *Super Model* Developed by The Committee of Experts from IIT, ISI, And IIS predicted that the pandemic would end in February 2021, but by mid-February, the second wave of the disease emerged and since then has affected around 9 lakh people. The second wave has again forced the State government to put travelling restrictions. The number of active cases will increase exponentially if proper sanitization and physical distancing practices are not followed.

With easing of the lockdown last year, many migrants who had returned home went back to the states where they worked. The recent surge in active cases and lockdown have once again pushed the workers to migrate back to their home state. Uttarakhand must take necessary policy steps like providing jobs, quick credit disbursal, etc., to absorb the returning migrants. This in turn will help the economy to make a V-shaped recovery faster than expected.

3. FISCAL DEVELOPMENTS

After going through one of the worst health and economic crises that the entire world, including our country had ever witnessed, the State was slowly gaining momentum with decline in the number of new Covid-19 infections and the roll out of vaccine across the nation, and providing new hope of economic revival. This hope disappeared with the advent of the second wave of the pandemic. The State again stares at alarmingly growing number of infections, while uncertainty on the economic front looms large.

The Aatma Nirbhar Package by the Government of India is a sincere policy effort to pull the economy out of the crisis and the State has also made use of the provisions under the scheme. However, the main concern at this point is that there is still a large scope to address the more pressing problem of the day, i.e., the revival of aggregate demand in the economy, when faced with renewal of lockdowns.

Thus, it would be prudent at this point of time, to make use of the fiscal policy to take on the economic slowdown, by boosting sector specific public investments and expenditure in a time bound manner. There are arguments that an expansionary fiscal policy would widen the fiscal deficit and could also cause inflation, and eventually result in a bigger problem of a slowing growth and high inflation. In this context, it is to be noted that expansionary fiscal policy could be inflationary at a time when the capacity utilization has reached an optimal level. But the present State suggests a large-scale underutilized

capacity in the economy. Hence, the Government expenditure would only create more employment and generate more income in the hands of the people, which would be used further for consumption. Due to the multiplier effect, the economy would revive. In the later stage, business confidence would improve and further improve tax revenues and the fiscal situation would be set right. Along with other efforts that the State has put in, it is time to spend, and spending it right is more important than the spending itself.

Increased capital expenditure and use of MGNREGA funds to create much needed infrastructure to boost drip irrigation, water harvesting, warehouses and cold storages for agricultural produce, MSME clusters for agro-processing and building robust supply chains, would create valuable assets in the State to support rapid growth and prosperity for a majority of the population of the State.

Enhancing tourism infrastructure in popular destinations, developing new tourism destinations and products would give a booster shot to the State economy post-pandemic, to cater to the tremendous pent-up demand for tourism. Investments in much needed industrial infrastructure clusters and supply chains linked to agro produce and setting up of plug and play MSME parks to promote private investment in high tech, would not only create infrastructure but also generate large scale employment and help the economy to bounce back.

4. TOURISM

The COVID-19 pandemic severely impacted the tourism sector of the State, which is a mainstay for the residents, offering employment and income to hundreds of thousands of families. Uttarakhand Finance Department estimated Uttarakhand's revenue loss to be about Rs 7000-8000 crores due to lockdown restrictions. In terms of employment, an estimated 2.5 lakh people engaged in the hotel industry had lost their jobs by the end of June 2020. Amongst other

tourism sector stakeholders, travel agents, transporters, tour operators, eateries, and homestay owners were severely impacted. A drop of 90-95% in number of tourists was experienced in 2020 as compared to 2019.

However, with the gradual unlock measures adopted by the State government from August 2020, a return of tourists was witnessed till March 2021 with most tourist destinations reporting a healthy flow of arrivals. The State government

aggressively promoted the multiple destinations in the State and offered several tourism products and attractions. The restoration of tourism sector witnessed in the third and fourth quarters of 2020-21 was short-lived with the advent of the second wave of COVID-19 infections starting in mid-March.

The experience of the dramatic revival of tourism in the State during the October 2020 to February 2021 is a pointer to the potential of revival, restoration and resurgence of tourism in the State post the ebbing of the second wave. Travel and tourism have emerged as favoured avenues leading to transformation, mainly centred on improving health and well-being.

Uttarakhand needs to formulate revival and growth strategies and firm up plans supported by resources to give a kick start to the sector in a planned way as soon as the current wave subsides. That would be the right time to ignite

the tourism industry with attractive products and offers as people confined in their homes would wish to travel with a vengeance.

To accommodate the 'new normal', reforms are the first steps, and recovery would follow reforms as people are concerned about the recent travelling where they prioritise cleanliness and hygiene in light of COVID-19. Once the businesses can deliver what the customers are seeking, rapid recovery and growth would be possible.

Uttarakhand can gain immensely by observing the wellness momentum and utilising its assets and resources that make it a spiritual centre of India and the world. Usage of technology would be an add-on advantage to the State; developing an understanding of changed travel behaviour, and tourist motivation would facilitate Uttarakhand's tourism industry's smooth restart and become a flag bearer in this revival.

5. INDUSTRIAL SECTOR

It is a fact that despite the challenges for industrial growth, the State has been persistent in policy measures to trek the reform path in the segments related to Micro, Small, Medium Enterprises (MSME), Ease of Doing Business, and overall growth of the industry. Policy initiatives are underway to clear the hurdles on the path towards industrial growth by promoting a conducive market environment and these have been yielding results on the ground.

In FY 2018-19, Rs. 1536.47 crore worth capital investment was made, while it touched Rs. 1731.15 crore in FY 2019-2020. During FY 2020-21 (up to Nov 2020), capital investment of Rs. 572.18 crore has been made. In 2018-19, large, medium, small, micro industries generated employment for 20,894 people, while in 2019-2020 this number increased to 28,700. During FY 2020-21 (up to Nov 2020), the number was 13,655.

During FY 2019-2020, investments worth Rs.873.160 crore were made in 4153 MSME units and employment opportunities for 25,510 people were provided.

1022 fresh investment proposals were received by the State in 2020-21 (till Feb 2021) as compared to 1602 in 2019-20, with projected 25,145 employment opportunities (44,046 in 2019-20) and Rs. 4,053.55 cr financial outlay (Rs.11,793.82 cr in 2019-20).

To translate the Atma Nirbhar Bharat Abhiyan into a reality, the next generation of reforms relating to minimizing regulatory burden on businesses and citizens are being taken up by the State in mission mode. Making Government to Business and Government to Citizen Interfaces online, transparent and time bound are among the key priorities of the Government.

Govt. of Uttarakhand has setup a six-member committee (RCB Committee) on 17th October 2020 to look at ways to reduce, minimize and rationalize compliance burden of State Acts and Regulations on the industry and service sectors.

The unprecedented health emergency in the form of the Covid-19 pandemic and the resultant lockdowns, depleted a large percentage of State's employment and industrial output. Although the

State has been pro-active in dealing with the crisis and in the initial stages could protect many lives, it is equally necessary to take policy decisions that restore business confidence.

The State, in tandem with the Union Government has been putting in efforts to revive the industrial sector, which would bear fruit in the near term. Along with the measures that support self-reliance, measures related to liquidity, employee retention, measures that promote businesses to

avail emerging opportunities and measures that could make State's industrial sector ready for the Post Covid-19 world, are the need of the hour.

Strong and sustained policy direction and change in the way government does its business of facilitating the revival of industry and nurturing it back to good health, will determine the future of its large industrial base and put it on the growth path in the post COVID-19 world.

6. FARM SECTOR

Although the State experienced rapid industrialisation and surge in the contribution of the secondary and tertiary sectors to the Gross State Domestic Product (GSDP), agriculture remains the mainstay-providing livelihood directly or indirectly to an overwhelming share of the population. The share of agriculture, forestry and fishing in GSDP has declined from 11.5 percent in 2011-12 to 7.9 percent in 2020-21 (based on advance estimates). On the positive side, the sector seems to be reverting from the downward trend witnessed in the last few years. The composition of the sector reveals that crops and horticulture account for 50 percent of the sector in 2020-21, a fall from 57 percent observed in 2011-12. The share of animal husbandry or livestock, on the contrary rose from 22 percent in 2011-12 to 30 percent in 2020-21. Forestry and logging have witnessed a marginal decline whereas fishing and aquaculture have increased by a small margin.

Keeping in view the trends in both area and production under foodgrains in Uttarakhand during the past Rabi seasons, it is expected that area will increase by almost 3 percent and production by almost 6 percent in 2021. The target area and production figures reported by the Agriculture Directorate for the year 2020-21 seems to be an underestimation because the area and production data reported for Rabi 2020 have surpassed the targets for 2021. The total area under foodgrains in Rabi 2020 was 3,59,410 thousand hectares and production was 9,56,320 thousand tonnes. The yield of foodgrains for the

year 2019-20 was 2325 kg. per hectare for India and 2317 kg. per hectares for Uttarakhand. The current yield figure, a marked improvement from 1697 kg. per hectares in 2004-05, is close to the national average indicating that policy changes may have contributed to the growth momentum. Focussed attention to the problems specific to hill agriculture, therefore may contribute to expansion of area under cultivation and attention to use of improved cultivation methods would generate better yields.

Beneficiaries under crop insurance schemes in Uttarakhand have increased, under Pradhan Mantri Fasal Bima Yojana (PMFBY). In Rabi FY 2016-17, 1.378 lakh farmers were provided insurance covering an area of 0.749 lakh hectares. In the Kharif 2016-17 number of farmers insured was 1.752 lakh and area insured was 1.01082 lakh hectares. This grew to Kharif 2020-21, 18.731 lakh farmers covering 16.987 lakh hectares.

The State agriculture departments and the Planning Department has been focussing on enhancing agricultural credit at the district level. At the end of December 2020, the total number of Kisan Credit Cards distributed was 6,05,595.

From December to March 2020-21, 9,09,397 farmers benefitted from Pradhan Mantri Kisan Samman Nidhi Yojana. 1957 farmers are benefitting in the State under Pradhan Mantri Kisan Maandhan Yojana.

The situation with regard to future growth of the primary sector in the State looks promising.

7. HEALTH SECTOR

The State of Uttarakhand, much like its national and international counterparts continues to grapple with the Covid19 virus. A year ago, when the first case was reported in the State, it had limited knowledge about this novel coronavirus as well as limited resources at its disposal. But concerted and strategic efforts by the State government ensured that the State machinery was prepared to safeguard its people against this ravaging pandemic. The healthcare sector of the State has been tirelessly committed to serve from the front, beginning last year and till date.

However, the healthcare system is stressed and key areas of concern, especially the lack of an adequate and well-trained healthcare workforce, have been exposed. In the face of adversity, the State rose up to the challenge and gradually geared up its physical and human infrastructure in response to the growing medical needs of the population.

The fiscal commitment of the State also reflected a renewed perspective to the healthcare sector as

being the foundation of State's preparedness to the pandemic. In a year's time, the State has ramped up its health facilities across all districts of the State, expanded its health workforce who are the frontline warriors safeguarding the citizens, and exploited the technological capability to put in place a transparent and rich health information network.

As a result, a healthy recovery rate of 93.29 per cent has been achieved and efforts continue to minimize deaths and slow the spread of the virus. But the limited workforce and the health inequity across the districts of the State put constraints on time-bound scaling up of response efforts of the State.

The Chapter lays out the key principles of an ideal healthcare system and identifies key challenges on four fronts – financial, workforce crisis, health information and governance – to recommend the policy directions the State must consider for establishing a robust healthcare system that can battle any future pandemic also with resilience.

8. EDUCATION SECTOR

The COVID-19 pandemic brought unprecedented health and socioeconomic challenge for India, particularly for a small and hilly State like Uttarakhand, for the entire period of 2020-2021. Now with the second wave of the pandemic underway, it appears that this may extend well into 2021-22. Like all other sectors, it has severely impacted the entire education sector, especially its school education programmes across the State. While the Government took all necessary steps to reconstruct the educational delivery mechanism through ICT assisted systems and application, it was nevertheless a very challenging task with low penetration of broadband and smartphones in the State at the grassroots level. The cost and affordability issues of both infrastructure, data, connectivity and access to hand-held devices indicated ushering in a new kind of "digital divide" within the society. The emergency led us to identify new areas of

innovation in educational delivery, pedagogy, and technological tools that will stay with us in years to come.

The State may draw from the post-COVID action framework developed by the International Commission on the Futures of Education and see that the sustainable Development Goals in tandem with Uttarakhand's vision are aligned with a set of strategic actions in the education sector.

These new challenges, innovative mitigation, and emerging opportunities are highlighted in our review of Uttarakhand's education sector in this year's report.

9. ENVIRONMENT AND SOLID WASTE MANAGEMENT

The COVID-19 induced lockdown leading to shut down of polluting business activities was expected to reduce the greenhouse gas (GHG) emission. The reduced vehicular traffic in particular, may have resulted in substantial lower air pollutants. The tourism and manufacturing sectors in the State suffered economically, however, there are some positives for the environment. It is reported that the availability of water has increased; wildlife is flourishing, among others but at the same time, organic waste has increased, there is more generation of non-recyclable waste, and difficulty in waste management.

Solid waste management has become a major environmental issue in India. Uttarakhand, placed in an extremely fragile ecological zone, is currently reeling under enormous quantity of waste being generated by its towns and cities, which are also urbanizing at a rapid pace added with extra pressure from floating population due to tourism, one of the most critical sectors of the State economy.

This chapter while highlighting the positives on the environment in the State, focusses on the problems related to solid waste management. Given the underlying causal factors of the problem, adequate sanitation measures are important to minimise the sources of infection. A list of programmes and initiatives for enhancing efficiency in SWM services in the State are described and few successful schemes and initiatives undertaken by other Indian States discussed to check their feasibility. The chapter elaborates allocation and disbursement of funds and highlight the major achievements of the State in the Swachh Sarvekshan. With special reference to COVID -19, the problems and

challenges faced by the urban local bodies in the State are analysed to prepare a road map for the hill State.

ULBs in Uttarakhand are plagued by problems like budget constraints, manpower shortage, lack of technical expertise, inadequate political legitimacy which makes it difficult for them to execute their routine civic tasks. Most of the districts in the State are hilly and are highly neglected in terms of solid waste management as most of the facilities are available in the plain cities like in Dehradun, Haridwar and Haldwani. The hilly terrains make waste management significantly difficult however, such reasons should not hinder development of waste infrastructures in the hilly areas as these are home to a large floating population generating waste in enormous quantities which should be addressed on an urgent basis.

Most of the ULBs in the State do not comply with the MSW Rules, 2016. Although it has been professed that door-to-door collection of solid waste is practiced in all the wards but the segregation of waste at source is not carried out in all wards. Appropriate technology is often not adopted for disposal and processing of wastes owing to limited number of treatment plants. The solid waste is collected partially, transported in open vehicles and dumped without segregation. Moreover, only 37 percent of the collected solid waste was processed in Uttarakhand in 2018-19.

With limited financial resources, technical capacities and land availability, urban local bodies in the State are constantly striving to meet this challenge. Hence, far sighted policies are required to meet the burgeoning challenge of solid waste management in the State.

10. PREPARING FOR THE FUTURE

The COVID-19 pandemic is a brutal shock to the world, exposing several gaps in the governance systems of the economy, in allocation of resources for various sectors, preparedness for such disasters and ability to manage when faced with unexpected calamities. Uttarakhand is faced with similar challenges and is struggling to cope with the limited means at its disposal to kick start the sputtering State economy, which demands huge infusion of funds and superhuman efforts on the part of the government acting collectively with the society.

While several measures are being taken in a patchwork fashion to mitigate the impact of the pandemic on different sectors of the economy and the affected people, what is required is to pause and consider whether this is the opportunity for Uttarakhand to consider what kind of an economy does the State require, which leverages its resources and people's abilities, enhances the quality of life of all its citizens and supports achievement of collectively agreed goals.

A comprehensive and strategic review is called for not just of what needs to be done to get the economy running again in the same old fashion but how the State economy should be redesigned to become more equitable and sensitive to the environment,

The underlying systems of the State economy need to become agile and highly responsive to emerging challenges and opportunities and acquire the ability to rework policies and systems to achieve what the State has set out to achieve, instead of becoming hostage to existing systems, which are no longer effective or do not support the State's endeavours and goals.

State institutions require to transform themselves to lead this change process and acquire the necessary skill sets amongst their teams to manage the critical process. They should be able to retain unwavering focus that all policies and activities are socially and environmentally conscious in keeping with State's unique geography, culture and people. The State institutions should be able to develop

management tools and content, with strong local context and specific to the requirements of the State and its 13 unique Districts. The institutions need to realign and become adept at convergent planning, cohesive action and minimising wastage of resources, with interests of the people of the State always at the centre of all thoughts and actions. Abilities to gather real time data and evidence-based decision making should become the guide all State institutions.

Strategies, plans and actions for redesigning and reconstructing various sectors of the State economy should be socially conscious. We must design our plans right now when we are in the thick of the crisis.

Social businesses, such as cooperatives, farmers' and homestay owners and craftsmen and weavers' federations require to be strengthened, and supply chains built and made resilient to future disasters and calamities. Promoting investment in social business requires a strong policy mandate and resolute action to make it a reality in the State and become a beacon for the country.

There is a risk that with the advent of vaccines and perceived diminishing of the threat to people's health, accompanied with slight uplift of the economy, short-term measures would again rise to the top of the action lists with adverse environmental consequences. Such short-term measures could be such as - encouraging higher production of materials and goods which are a threat to the environment instead of encouraging recycling and optimal use, easing environmental safeguards and oversight and consciously or unconsciously encouraging use of fossil fuels at the cost of renewable energy.

Chapter 01

Impact of COVID-19 on Uttarakhand Economy

Abstract

Last year saw the entire world and its economy being affected by COVID-19 pandemic. India and Uttarakhand experienced the effects in an unprecedented hard manner. The necessary lockdown starting in March 2020 resulted in the sudden economic downturn and changes in economic variables across all sectors of the State economy. Our responses to these changes have been centered on efforts to prevent irreversible harm to the State economy and to ensure a rapid recovery. Uttarakhand has been taking consistent measures in making structural changes to expedite a V shape recovery.

This chapter provides an overview of COVID-19 and its effect on the Uttarakhand economy during the last year. It assesses impact of COVID - 19 across multiple verticals of the State's economy, through an empirical study (hereinafter referred as rapid survey) among State residents. The survey results and the inferences show that proactive steps and policies of the State Government have led to several structural changes in different sectors, signalling a positive road to recovery. Economic resilience of the State supported by its agriculture sector and pharma industry, allowed the State to soften the impact of external shocks arising due to the pandemic. Consistent efforts of the State Government will go a long way to ensure long term and sustainable development in the State.

i. COVID 19: AN UNCHARTED CRISIS

The entire world witnessed and endured more than a yearlong hardship caused by the SARS-COV-2, more popularly known as the COVID 19. This virus which was first identified in the Wuhan city of China in December 2019, spread quickly in the early months of 2020. This forced the WHO to declare it a pandemic by early March. India reported its first case on January 30, 2020. Within no time, the trends and the patterns across the world showed signs of exponential spread of the virus. The government of India was quick to respond to these alarming signs.

Even when the initial case load was limited to 500 cases in India, government of India took the much-needed step of a national lock down on 23rd March to delay the spread and transmission of COVID 19 to flatten the curve and provide buffer for health infrastructure to prepare for the pandemic.

ii. COVID-19: AN UNKNOWN PANDEMIC FOR UTTARAKHAND

In Uttarakhand, the first case of COVID 19 was detected on 15 March 2020. The government was quick to respond and adopted a multi-pronged strategy of constant active surveillance, early detection, isolation (both institutional and self-isolation) and early case management, followed by active contact tracing and subsequent isolation and testing. This coupled with strict enforcement of very stringent lockdown, both inter district and intra district reduced the initial onslaught of the virus. The movement of all activities except for essential services was stopped.

These efforts were in parallel supported with measures to improve health care infrastructure. Hospitals across the State were designated as COVID treatment facilities, capacities of testing infrastructure were augmented. After the extension of lockdown on 14 April 2020, specific areas were dedicated as hotspots and within hotspots, containment zones were demarcated

where the prevalence intensity of the virus was the highest. This was done by following the green zone, orange, and the red zone (each specifying and indicating the increase in the intensity and severity of the lockdown). The lockdown was further extended nationally for another two weeks along with relaxation in the non-hotspot areas. This was done because the health infrastructure was more prepared.

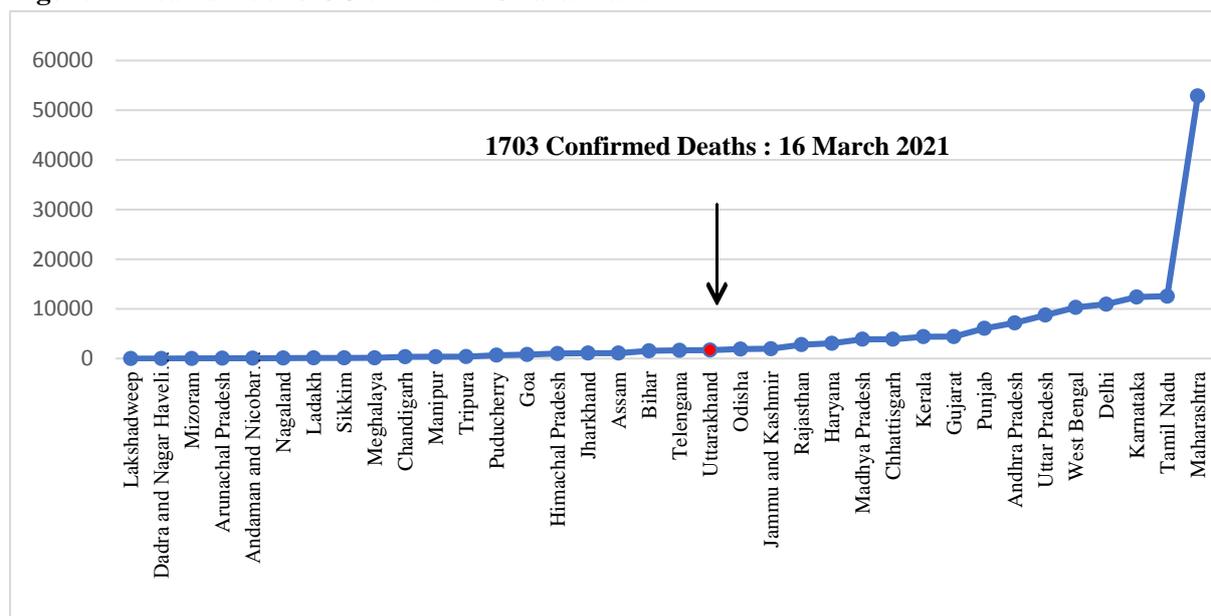
The government of Uttarakhand began to open the economy since 1st June 2020 in accordance with recommendations of the Government of India. However, the virus continued to spread. The impact of social distancing and various IEC programme of the government kept the incidence of cases low at **0.95%** (total confirmed cases – 95,494: 2011 census population 10, 086, 292). Moreover, number of confirmed deaths were 1703 (as of 16 March 2021), which is 17th in position among all States (*Fig.1*). This is slightly

higher in comparison to the ratio of population of each State.

The number of deaths and cases have sharply increased with the 2nd COVID-19 wave. Having opened the economic activities, eased travel restrictions and approval to social gatherings, although with limited numbers has encouraged the rise and spread of COVID-19 since March 2021. Mutations of the virus, which have been reported to be much more infectious, has resulted in a steep increase in infected cases and loss of lives, putting extreme strain on the health infrastructure in the State.

Despite these numbers the State, has shown resilience to meet the challenge in dealing with the pandemic and its performance in terms of Case Fatality Rate (CFR) was better during 2020-21 than several States with more advanced and developed public health infrastructure.

Figure 1: Deaths Due to COVID 19 in Uttarakhand



MITIGATING UNIQUE CHALLENGES TO LIMIT FATALITIES DURING COVID-19

The topography of Uttarakhand presents a unique challenge in providing universal and necessary health care services in response to the pandemic, especially in the hilly regions. Despite the constant efforts made by the government to provide adequate primary, secondary, and tertiary care in the hilly region, the health infrastructure in these regions lacked the capacity to effectively reach all the remote and inaccessible habitations. In these circumstances, the strict nature of the lockdown and promotion of personal safety measures such as frequent washing of hands, use of masks and maintenance of physical distancing in public spaces became and remain the most effective strategies to flatten the curve.

FLATTENING THE CURVE: ITS' MEANING FOR UTTARAKHAND

The curve gives an indication of the projected number of people who will contract the disease in a particular set of population. The shape of the curve varies according to the rate at which the infection spreads in that set of population. The spread of the disease depends on the RO number. The RO number of COVID >1 meant that that for each infection, there were more than one additional infection. The effort is to reduce the RO number below 1 to reduce the spread of the pandemic.

It is well accepted fact that for any infectious disease, the spread of the disease reaches a peak, after which spread of the disease reduces. However, if the peak is reached quicker than anticipated, the overload on the health care infrastructure leads to higher fatalities.

This is more so true for Uttarakhand where there are limited hospitals beds and ventilators per 1000 population. The State adopted and built on the 5T response approach (test, trace, treat, teamwork and track). Despite constraints, Uttarakhand was able to minimise case fatalities by ensuring diligent implementation of this approach.

iii. EFFECT OF LOCKDOWN ON THE UTTARAKHAND ECONOMY

The sudden and strict lockdowns led to the contraction of the economy across the entire country and by natural extension the State of Uttarakhand. These were unprecedented measures to contain an unprecedented pandemic. The impact of the lockdowns and sudden closure of the economy was felt on all sectors of the economy.

It was a black swan event for the economy. The government of Uttarakhand followed the *barbell strategy in finance, through strict lockdowns at first risking the economy to stall and thereafter modulating opening up of restrictions in a step-by-step manner, watchful of the impact on the virus spread*. The policy makers had to make a tough choice of preferring lives over livelihood, with the understanding that with support, the economy would be able to recover but if lives are lost, these could not be recovered. Therefore, saving lives became a priority.

The strict lockdown did three important things. *First*, it reduced the spread of the virus. *Second*, it gave enough time for the health infrastructure to prepare itself for the pandemic. *Third*, it reduced the daily burden on health infrastructure, which could provide necessary care to patients.

The short-term trade-off for lives versus livelihood when faced with limited information on the nature of the pandemic and the course it

would take, was the correct course of action.

iv. LOCKDOWN AND INITIAL EFFECT ON THE STATE ECONOMY

Despite the correctness of the lockdown measures, there has been a reduction and downturn in the economy, as was expected. Measures taken to contain the spread of SARS COV-19 had the following impact on Uttarakhand economy.

These measures had the following impact:

1. The sudden lockdown greatly affected livelihood across all sectors. The sudden shock in both demand and supply effected the livelihood of a large section of people.
2. Supply chains were severely affected, severely restricting the distribution of goods and services in remote areas of the State.
3. Loss of livelihood, uncertainty about the future and lack of support from employers, led to inter and intra State forced migration. Villages were swamped with individuals who returned home to hedge against the uncertain future.
4. The tourism and hospitality sector experienced severe supply bottleneck, cancellation of bookings and the spectre of continuing operational costs. Several local businesses went under and closed shop.
5. The flow of money in the economy reduced to a large extent. People and businesses

mitigated these losses by reducing expenditure and utilising their savings. The circular interplay led to a widespread downturn in the economy.

6. The loss of income, and restrained livelihood along with the network effect of the spread of disease forced the education system to shift to complete online teaching and learning mode. Though this transition had its own advantages, yet it exposed several fault lines in relation to access and availability of online educational resources across districts and social and economic groups in the State.
7. The return of migrant workers put an additional strain on the already strained resources. The fear of spread of the disease caused discriminatory treatment meted out to the returning population.
8. The strict lockdown and ubiquitous fake news on social media caused social, religious, and economic fractures. Enforcement of restrictions on free movement at some places caused law and order problems.
9. Consumption fell drastically due to demand and supply side restraint, further pulling down GST collections in the State.
10. Several infrastructure projects and other businesses (except pharma) reduced their output, this led to reduction in the pace of investment and development in the State.
11. Though the output of agricultural and horticulture growth continued, the related logistical, market, and labour related challenges slowed the growth potential.

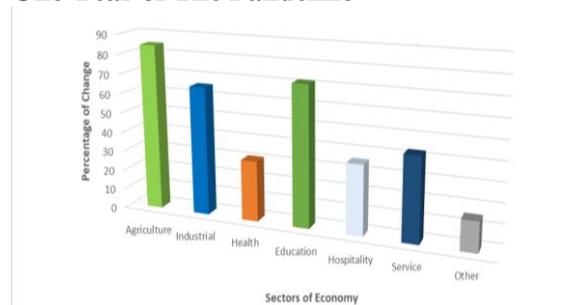
These were some of the many effects that the State of Uttarakhand experienced in the first quarter of FY 2020-21. However, one year into the pandemic, it is important to measure and assess the impact on various sectors of the State economy. A rapid survey was undertaken to obtain a first-hand understanding of the nature and extent of the impact. A sample of 1300 respondents from all 13 districts was covered using structured questionnaires through telephonic interviews. The results of the survey

are analysed in this chapter.

v. COVID-19 AND IMPACT ON LIVELIHOOD IN UTTARAKHAND

It is quite evident that the government and the policy makers in the beginning had to make a hard choice of choosing lives over livelihood. Over time, as the lockdown began to ease and economic activity restarted across various sectors, individuals began to regain their livelihood.

Figure 2: Improvements in Livelihood After One Year of The Pandemic

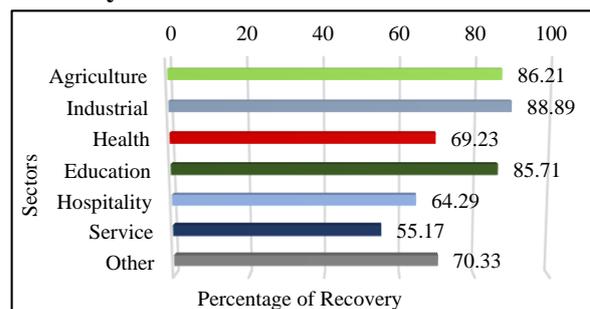


a) Impact On Livelihoods In Various Sectors

Maximum recovery was reported to have been made by individuals employed in the agriculture sector followed by individuals in the education sector **Fig,2**.

The reported improvements were in line with the study respondents' perception of the sectors that would recover. This is in line with the *Thaller and Sunstein nudge effect theory* wherein improvements in the market are largely dependent on the perception of the participants. **Fig:3**, gives an insight into the perceived recovery made by various sectors. This corresponds correctly with the improvements made in each sector.

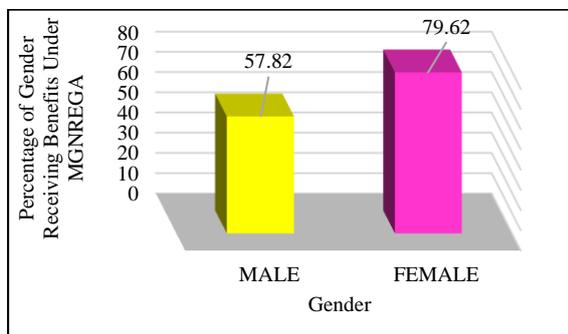
Figure 3: People's Perception of Livelihood Recovery in Various Sectors



b) Livelihoods And Recovery

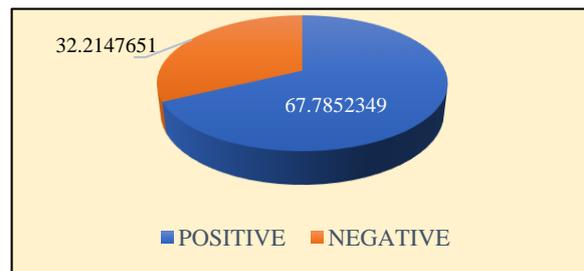
For individuals who were at the bottom of the pyramid, impact of the pandemic had a negative multiplier effect. Several individuals who were just above the poverty line were pushed below the poverty line. For these individuals there were several schemes that ensured their sustenance during this time. Government ensured that funds for essential activities were available despite a sharp contraction in revenue. Initial approach was to provide a buffer for the poor and a section of society to tide over the distress caused by the pandemic. This was done through several schemes and methods. A direct benefit transfer made to widows, pensioners, and additional funds through MGNREGA. **Fig: 4** gives an insight on individuals who benefited under MGNREGA. MGNREGA, PMGKY and other schemes ensured that individuals at the bottom of the pyramid were able to navigate through the rough times during the pandemic.

Figure 4: Respondents Benefited Under MGNREGA



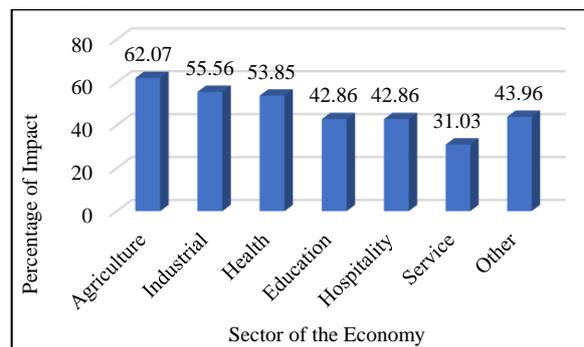
In addition, food security was provided through Central Government scheme like PMGKY (Pradhan Mantri Garib Kalyan Yojana). Non-availability of capital for expenditure for food items was mitigated through the food subsidy provided under the Free Ration Scheme through the PDS network. This provided succour to the people in need to manage basic requirements during the pandemic. **Fig: 5** indicate the perception of food subsidy.

Figure 5: Perception of Food Subsidy During COVID-19 Pandemic



In addition to multitude of central and State government schemes, one flagship scheme i.e. the Mukhya Mantri Swarojgar Yojna (MSY) requires special mention. This scheme was launched with a special objective and incentive to promote self-employment. The scheme envisions an incremental value addition to ensure growth of small business and to promote the aspiration of Atma Nirbhar Bharat. **Fig: 6** indicates the positive response of individuals to the MSY Scheme.

Figure 6: Positive Impact of MSY in Various Sectors



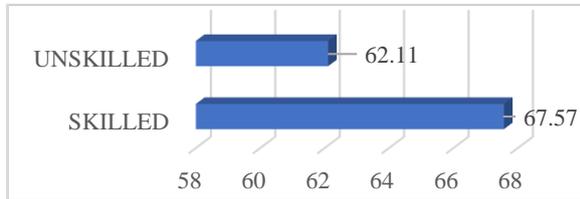
The efforts that were made through the MSY were complimented with the emerging trend in increasing awareness among individuals to enhance their skills either institutionally or through use of available technology platforms. Any increase in the skills set of workers has a direct impact in recovery of the economy along with potential of sustained growth and development.

c) Interrelationship of Skills And Livelihoods

The survey gives an interesting insight into the aspirations of individuals of the State. **Fig: 7** shows that skilled individuals expressed more positive aspirations than the unskilled ones. However, unlike traditional wisdom, the

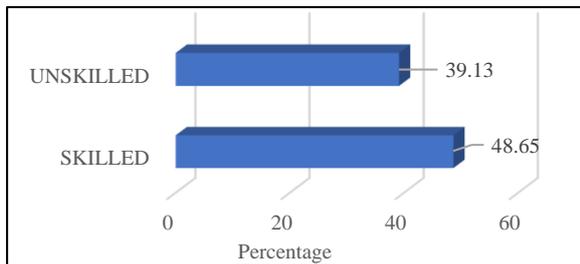
percentage gap between them is marginal. This are strong indicators to show that both skilled and unskilled demography are looking forward to improving their livelihood.

Figure 7: Future Aspirations of Skilled Vs Unskilled



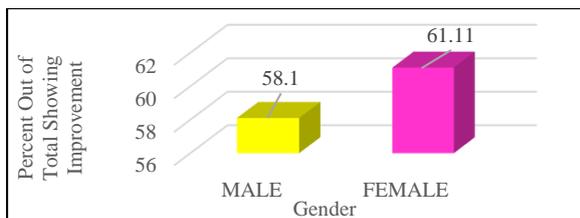
Moreover, both skilled and unskilled workforce indicate some positive impact of the livelihood program. **Fig:8** indicates the same. However, the percent impact is reported to be below 50 %, thereby indicating that a gap that needs to be bridged by making the skilling programmes more relevant to the available job opportunities and aspirations of the people.

Figure 8: Impact of Livelihood Programmes on Skilled and Unskilled During the Pandemic



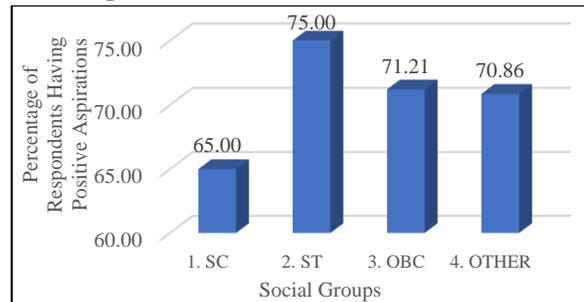
It is observed that females improved their skills set marginally more than males, during a year into the pandemic. (**Fig:9**) This reflects a strong aspiration among women to upskill themselves. If this trend continues, the State economy will greatly benefit from the empowerment of women and their wider participation in the workforce accompanied by improvement and enhancement of quality of life of the people of Uttarakhand.

Figure 9: Improvement in Skill Set During the Pandemic



The desire to upskill was also strongly observed among backward classes. **Fig:10** shows their positive future aspiration trend in utilizing skills for livelihood. The study respondents from scheduled tribes (ST) outperformed individuals from other groups. This is indicative of the positive steps in the direction of constitutional equality.

Figure 10: Social Groups' Aspirations of Utilising Skills for Livelihood



The desire to upskill themselves is strongly correlated with the positive aspirations that various social group have expressed towards future improvement in their livelihood and economic status. **Fig: 11** and **Fig: 12** read together reflect these trends.

Figure 11: Social Groups Livelihood Positive Aspirations

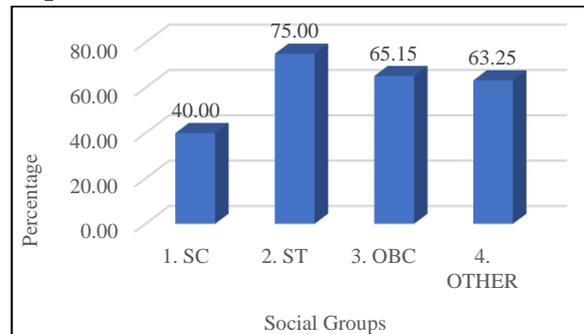
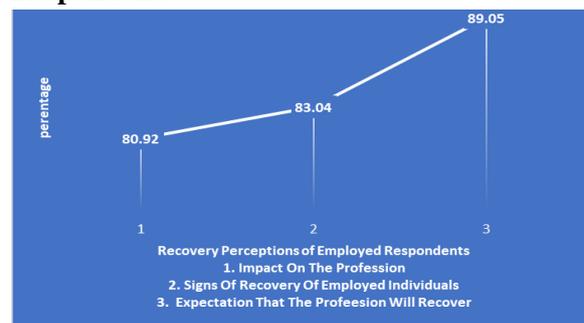
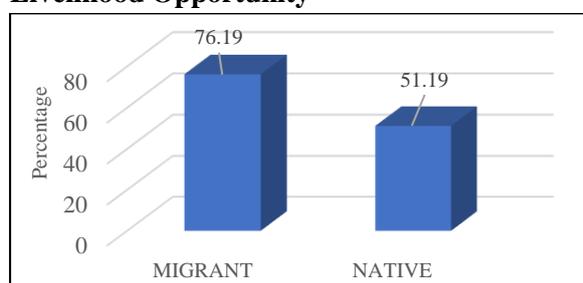


Figure 12: Recovery Perception of Employed Respondents



Similar trends appear among respondents who continued to be employed during the pandemic year under review. **Fig :12** uses the *difference in difference technique* to show the upward trend in actual recovery, positive signs of recovery and expected signs of recovery as reported by respondents who continued to be employed during the pandemic. These are strong indicators that individuals who continued to be employed or secured employment, have positive aspirations and resilience towards recovery in the overall livelihood scenario.

Figure 13: Ability of Migration to see More Livelihood Opportunity



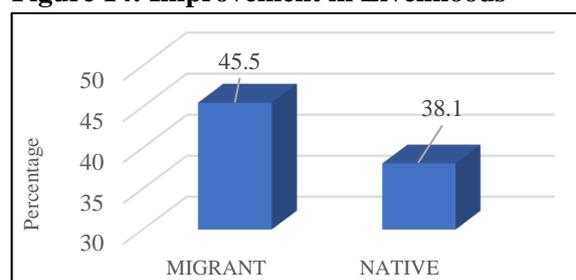
d) Livelihoods and Migrants

Abhijeet Banerjee in his book *Good Economics for Hard Times* suggests that individuals who migrate have an innate ability to change the status quo. These individuals if nurtured properly have the capacity to aspire and build a unique future. The pandemic presented a unique opportunity to the State due to reverse migration. The government took various steps from creating a record of returning migrants and then providing them with multiple opportunities of skills development and livelihood. The study indicates and confirms (**Fig: 13**) that the migrants have an innate tendency to create more opportunity. This has casual and actual relationship with improvement in status of livelihoods and economy of the State.

Fig: 14 indicates that there is a substantial difference in the ability of the migrants to make continuous and consistent efforts to improve their livelihoods. These results strongly indicate that the State needs to make greater efforts to facilitate migrants to continue to stay in Uttarakhand by supporting them as they search and find new opportunities.

It is quite evident that there are enough signals that livelihoods in various sectors and of different individuals that were severely impacted at the beginning of the pandemic are returning to pre-COVID level at the end of FY 2020-21. The pandemic has at the same time opened new opportunities of livelihoods across various sectors of the economy. The challenge is to recognise and support this transition by growing number of State residents.

Figure 14: Improvement in Livelihoods



vi. COVID-19 AND ITS IMPACT ON EDUCATION SECTOR

Education forms the central pillar in the growth and development of any State. The sudden onslaught of COVID-19 led to a complete shift in methods, mode, and ways of imparting and receiving education. At the beginning of the pandemic there were serious doubts on the ability of the education system to sustain using online mode as for many years, online education was perceived as a complementary mode of education and played a subsidiary role to physical, classroom-based learning.

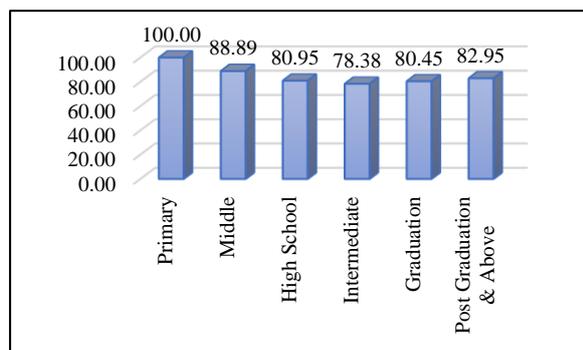
There was a general resistance to acceptance of the capacity and scope of online education. The pandemic forced everyone to make a paradigm shift. With ban on physical movement, digital medium of education was considered as the medium of education. The progress that Digital India had made in laying the digital infrastructure, became the engine that has driven education for more than a year. New methods and new pedagogic tools were introduced. People were able to access information and content across State and national boundaries. The geographical barrier to learning was overcome and this has resulted in increasing the quality of education.

However, there were several new challenges that emerged in Uttarakhand:

1. Access to internet infrastructure in hilly region
2. Access to mobile/computer/laptop infrastructure
3. Lack of network connectivity in remote areas
4. Inability of users to use these technical tools

In addition to the learning challenges of online education, there are several challenges that arose due to the lack of movement and physical interaction of children. Central Government Schemes like Manodarpan were introduced to meet these challenges.

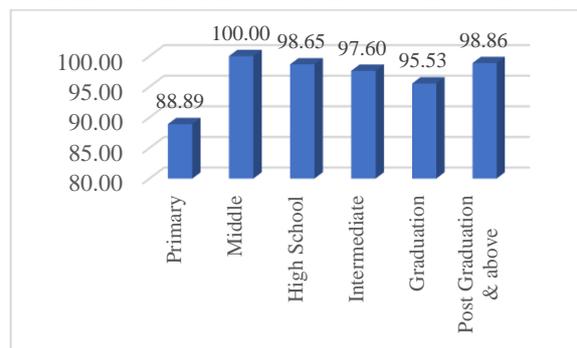
Figure 15: Receptivity of Digital Tools for Education



Despite these challenges, online education has emerged as an acceptable and recognized mode of teaching. The study indicates that a high percentage of individuals across all levels of education accepted digital tools as an acceptable tool for education. **Fig: 15** gives a clearer perspective on receptivity of digital tools for education.

The reception of digital tools had a direct correlation with the impact of digital tools in ensuring continuance of education at various levels. This data is presented in **Fig:16**.

Figure 16: Impact of Digital Tools on Continuation of Education at Various Levels

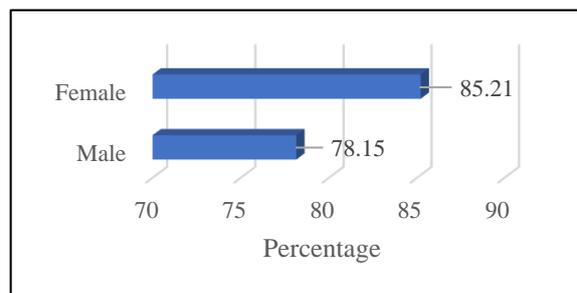


The high acceptance and subsequent conversion into actual learning and continuation of classes, is a clear indication that online education will continue to exist and prosper in Uttarakhand.

a. Online Education and Transcending Gender Barriers

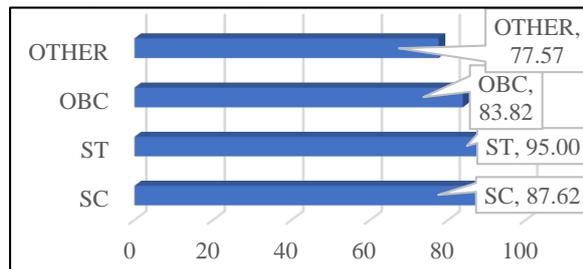
Travelling physical distance to learn has been a barrier for girl child education. The transition of learning to online mode allowed females to receive better quality and quantity of education. The access barrier has been reduced for females. **Fig: 17** shows that female showed greater improvement due to the increase in online education.

Figure 17: Impact of Online Teaching in Improving Access & Quality of Education



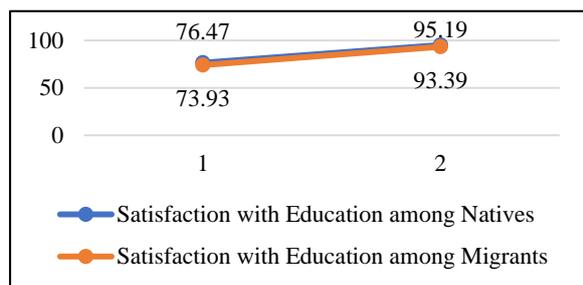
In addition to increase in access for females, the study indicates that all social groups have shown improvement in the quality of learning and the respondents from ST communities reported greater improvement than other social groups. **Fig:18** gives a clearer indication in the improvement made in education due to better quality of learning.

Figure 18: Improvements in Education Across Social Sectors Due to the Increase in the Quality of Learning



Reports of improvement in quality of education are supported by the reported increase in satisfaction with the quality of education among the surveyed native and migrant respondents. **Fig:19** shows that there has been a consistent improvement in satisfaction among native and migrants.

Figure 19: Satisfaction with Quality of Education among Migrants and Natives

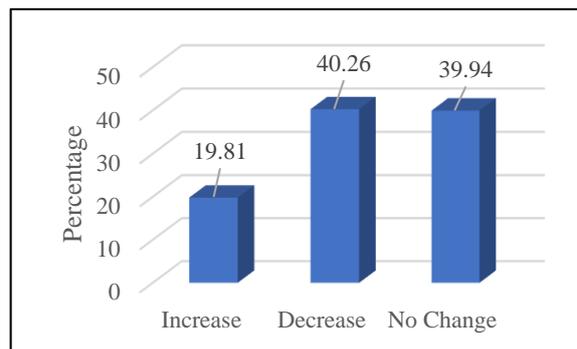


Thus, though the pandemic has created multitude of challenges in educational sector, yet it also created new opportunities, eradicated certain barriers in providing equitable education and fulfilling the SDG4 goal.

vii. COVID-19 IMPACT ON AGRICULTURE

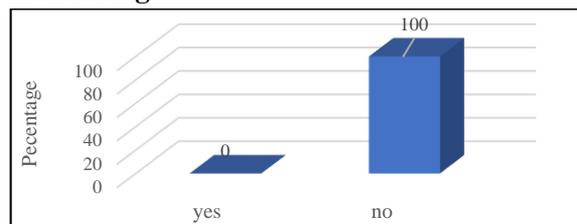
The agriculture sector is the only sector that has seen consistent growth even during the lockdown. It forms an important pillar in of Uttarakhand economy. Respondents of the study indicated that there is a direct correlation between the inflow of labour and cost of labour during the sowing season. Unlike majority of the other States, the supply of labour was high in Uttarakhand. Abundant labour availability provided a unique opportunity for the revival of farms that had been neglected in the past due to migration. **FIG:20** indicates this trend.

Figure 20: Change in Labour Cost



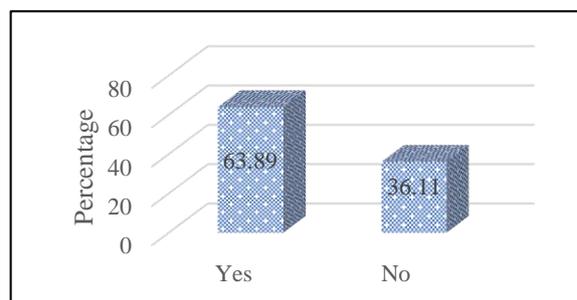
This is consistent with the fact that there was no shortage in supply of labour. **Fig. 21** reflects this trend. This not only indicates that there was adequate human capital in Uttarakhand during the pandemic, but also supports the data signalling growth in the agriculture sector.

Figure 21: Problem In Getting Labour During Harvesting



Another study finding indicates that in the past one-year, the economic strain on persons employed in agriculture sector of the State was reduced, as there was reported decrease in outstanding debt among the respondents during the last one year. **Fig: 22** indicates this trend.

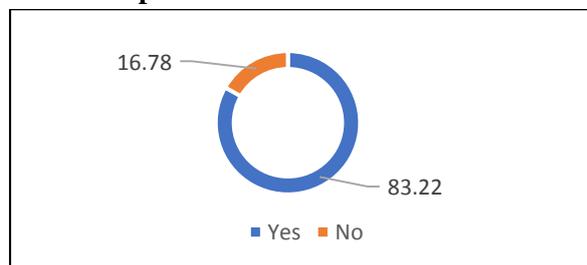
Figure 22: Debt Decrease During COVID-19



Another factor that has contributed to the growth of agriculture sector was the benefit that individuals continue to draw from direct benefit transfer under PM-KISAN. The money received allowed easing of economic strain for farmers of Uttarakhand. The study results indicate that

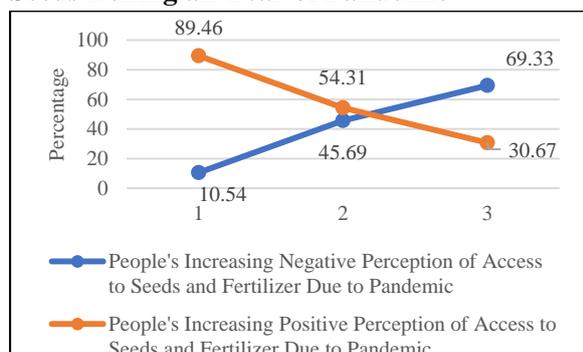
majority of people have a positive opinion about direct cash transfer. **Fig :23** indicates the same.

Figure 23: Percentage of People Having a Positive Opinion about Direct Cash Transfer



Despite all the growth in the agriculture sector, there were reported bottlenecks in access to fertilizer and seeds during the pandemic. **Fig:24** indicates these trends.

Figure 24: Change in Access to Fertilizer, Seeds During an Year of Pandemic



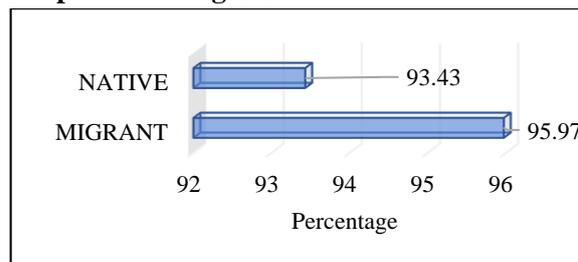
Thus, agriculture has shown most resilience and growth among all the sectors. Going forward there is a need to remove this bottle neck and continue the growth that agriculture sector has seen during the past one year of the pandemic. This would require removing supply side restraint and increase demand along with creating robust and resilient backward and forward linkages such as cold storages, warehouses, district/regional markets for agricultural produce, transparent prices, reliable transportation, establishing agricultural processing units, agro-industries and marketing networks.

viii. IMPACT OF COVID-19 ON THE HEALTH SECTOR

The health sector has provided great service under immense strain and at risk to the workforce in order to provide critical lifesaving support to the State's residents, in the past one year. Despite

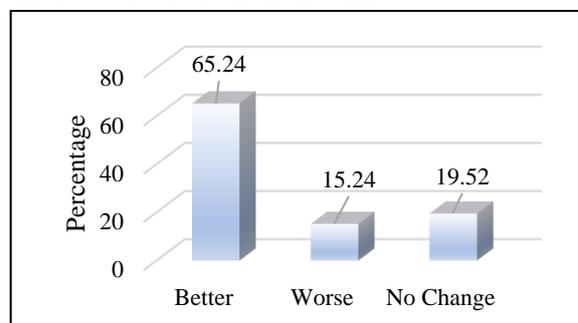
the challenges faced during the year, there has been a consistent addition to the health care infrastructure in the State. The study results show that more than 90% of the respondents perceive that there has been improvement in the health care response in a year of the pandemic. **Fig 25** gives an impression of the same.

Figure 25: Respondents Who Reported Improvement in Government's Healthcare Response During COVID-19



The study findings indicate that there has been improvement in the status of health of individuals during the past year of the pandemic. Most people perceived that there has been an improvement in their health. **Fig: 26** indicates this trend.

Figure 26: Status of Health of Respondents in the Past Year of the Pandemic



This could be because individuals became more aware and vigilant about their health, adopted better household level care and health seeking practices and were able to make better choices for improving their health.

Outside, health infrastructure, one of the central tenets of ensuring access to healthcare services is the availability of health insurance cover. The study indicates that there has been an increase in registrations under Atal Ayushman Uttarakhand Yojana (AAUY). **Figures: 27, 28 & 29** indicate the results of the study.

Figure 27: Insurance under AAUY Before COVID

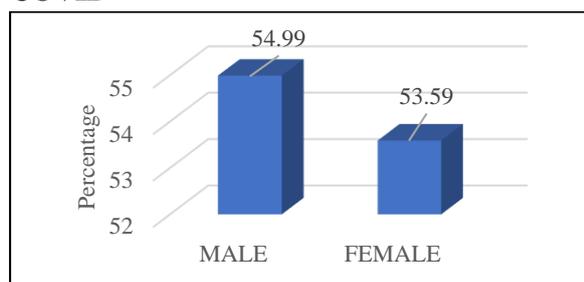


Figure 28: Number Insured under AAUY after the Pandemic

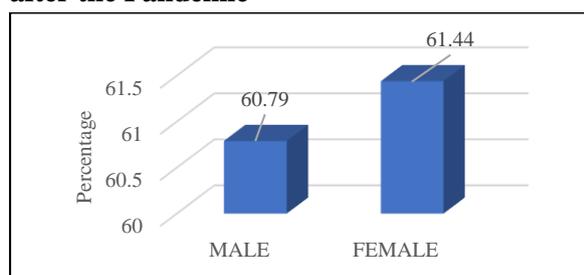
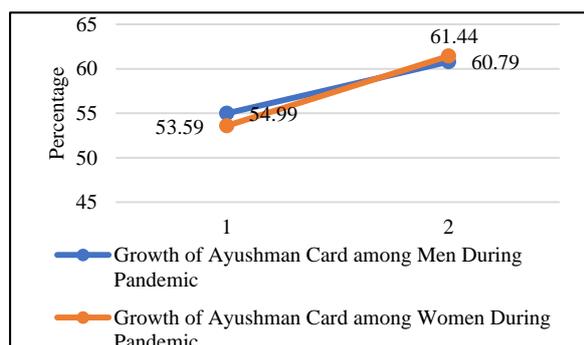


Figure 29: Growth of Ayushman Card During the Pandemic

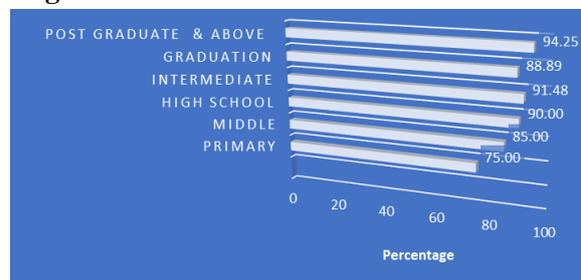


Investment made in the health infrastructure of the State during last one year of the pandemic, will go a long way in reviving the State economy. In the short run, vaccination will have a direct impact on opening of the economy and giving the necessary boost to all sectors. This was briefly evident with the abatement of the first wave since December 2020 and till March 2021, before curbs imposed from April onwards.

Though there has been a consistent increase in AAUY registrations among both men and women during the pandemic, the marginal addition of percentage of females registering under AAUY is a good indicator, reflecting consistent improvement gender equity. This will result in better access to quality healthcare system and will also have a multiplier effect on the entire

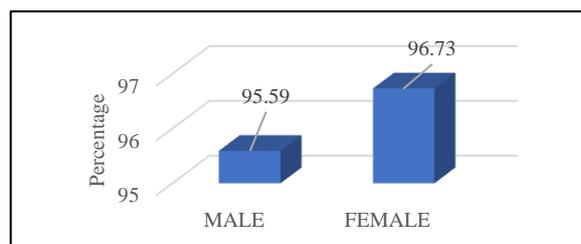
population of State. The study results show that persons with higher education are more willing to accept insurance. **Figure 30** reflects this trend.

Figure 30: Education Factor in AAUY Registration



Despite the importance of insurance is beneficial in addressing the pandemic, the most effective way to end the pandemic and to ensure great economic recovery is through vaccination. Vaccination in India and in Uttarakhand has already begun. But one of the deterrent policy makers experience is the fear around vaccination. However, the individual survey indicates that 90 % of the people are positive about the ability of the vaccine to end the pandemic. **Fig: 31** indicates the trend. The positive perceptions are very high. Marginally higher percentage of female respondents are positive about the vaccination programme.

Figure 31: Perception about Positive Impact of COVID Vaccination

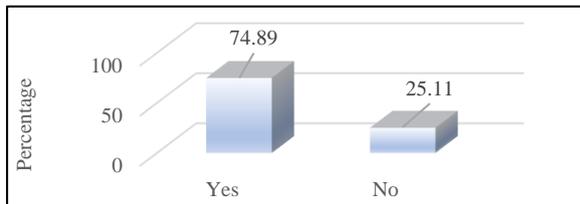


ix. COVID-19 AND ITS IMPACT ON TOURISM

Tourism sector plays a central role in the economy of Uttarakhand and this sector has been the worst affected by the pandemic. The lockdown and fear of transmission of COVID-19 dried up all demand for tourism and related activities in the sector. However, study results indicate that 80% of the respondents perceive that there have been additions made in the tourism

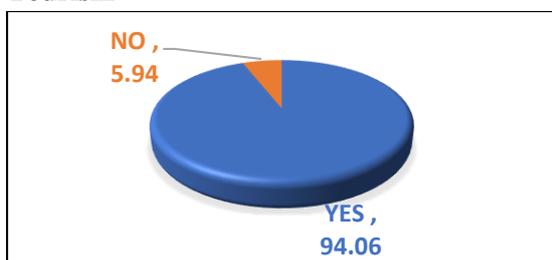
infrastructure during the last financial year for the benefit of tourism industry. **Fig: 32** indicates this. This is consistent with the efforts that the government of Uttarakhand has been making to augment tourism infrastructure in the State.

Figure 32: Perception of Increase in Tourism Infrastructure



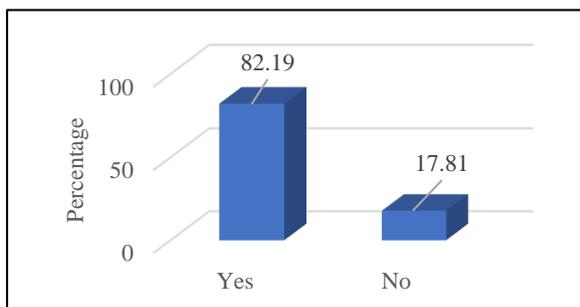
With the reopening of the economy, a step-by-step recovery is being made and there is general perception amongst the respondents (94%) that the tourism sector will see a boost, due to pent up demand, as people would want to travel more after extended period of lockdown and confinement in their homes - **Fig: 33**.

Figure 33: Perception Of Pentup Demand For Tourism



Revival of tourism sector in the State is imminent. Study results indicate the same. **Fig: 34** shows that 84% respondents expect early recovery in the sector. This is confirmed by trends seen in the recent past. However, renewed travel restrictions starting in April 2021 are bound to again adversely impact the sector as a whole.

Figure 34: Recovery Expectation in Tourism

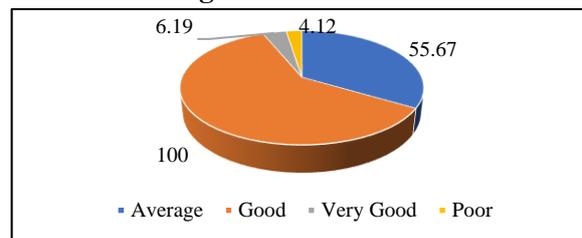


Though there is no denial that the tourism industry has seen the worst recession in recent history, the underlying parameters are strong indicating that tourism sector can rightfully expect a V shaped recovery with the impact of universal vaccination drive underway and consequent removal of restrictions on travel.

x. COVID-19 IMPACT ON THE INDUSTRIAL SECTOR

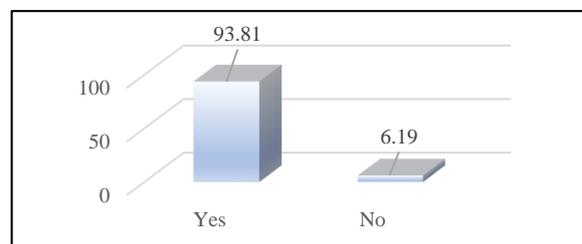
The pandemic and the resultant lockdown had a severe dampening impact on the industrial sector in the State. Restrictions on the movement of goods and people limited industrial activities and outputs, straining the finances of companies. However, in the past financial year there have been efforts made through Atma Nirbhar Package to mitigate impact to an extent. The study results show that respondents perceive the Atma Nirbhar Package to have provided good support. **Fig:35**.

Figure 35: People's Perception of Atma Nirbhar Package



Moreover, the study results indicate that people perceive that there will be quick recovery to the pre COVID levels - **Fig: 36**.

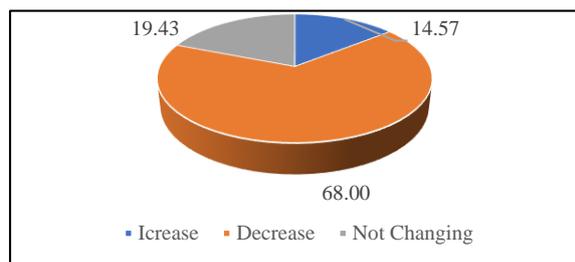
Figure 36: People's Perception of Recovery of Business to Pre COVID Level



xi. COVID-19 IMPACT ON INCOME

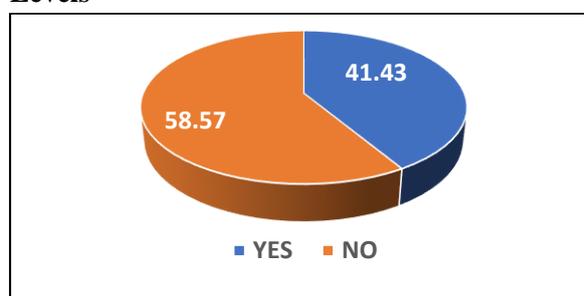
There is no denial of the fact that the sudden and much needed lockdown led to decrease in income across the board. The study results indicate that 68% respondents experience decrease in income in the past year - **Figure: 37**

Figure 37: Change in Income of the Family During COVID



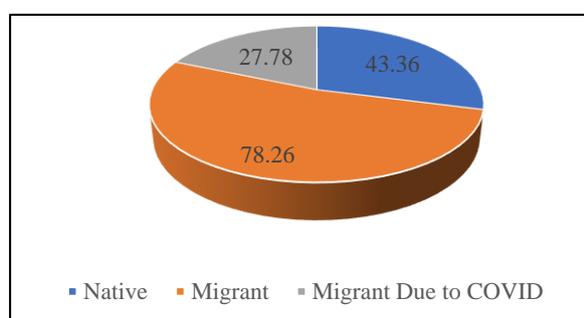
However, despite the losses, study results show that nearly 60% of the respondents are of the opinion that incomes have returned to pre-COVID levels – **Figure. 38**.

Figure 38: Return of Incomes To Pre COVID Levels



The study results indicate that majority of migrants (78%) who returned to the State and continued to stay, have experienced return of their incomes to pre-covid level and are satisfied with this status. Nearly 28% migrants who returned due to COVID Stated that they were satisfied with income levels while 43% natives felt satisfied with their incomes - **Figure: 39**.

Figure 39: Return of Family Income According to People’s Satisfaction



With improvement in incomes, consumption is bound to increase leading to revival of the economy. With the second wave and the widely expected third wave of infections and till the

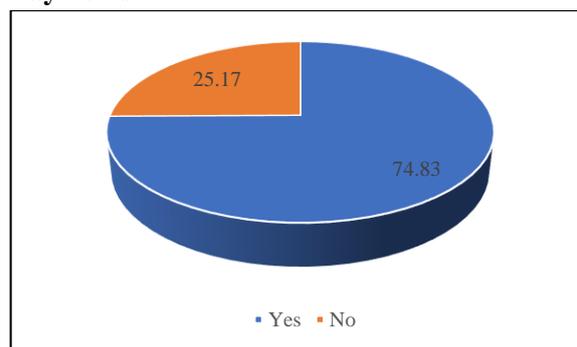
vaccination impact is felt on the ground, income levels are at risk of receding in the coming months.

xii. COVID-19 IMPACT ON EXPENDITURE

During the lockdown 50% people reported that they had cut down their expenditure due to reduced incomes and uncertainty. More than 40% reported that their expenditure increased during the pandemic, while only 9% reported that there was no change in their expenditure levels - **Fig: 40**.

However, the bottlenecks created due to restriction opened new door for change in expenditure behaviour. There was a consistent rise in the number of online payments with nearly 75% respondents stating that they had used this mode of payment - **Figure:41**.

Figure 41: Change in Perception of Online Payments



xiii. COVID-19 IMPACT ON NEW INVESTMENTS

Though there was a certain halt in investment activities during last financial year, investments by have reportedly restarted and this will have a cascading effect on the development of the State economy. **Table - 1** (Overall State) and **Table - 2** (District Figures) provide an overview of the proposed investments and the expected employment opportunities.

Table No 1: Total (Large + MSME + ITI + CAF (Direct Investment)) Status

| Project Type | Ongoing Projects | Proposed Investment INR (In Cr) | Proposed Employment |
|--|------------------|---------------------------------|---------------------|
| Large Projects (MoU Signed with Investor) | 141 | 15689.88 | 50794 |
| MSME Projects | 297 | 1239.99 | 12140 |
| Grounded ITI | 3 | 895 | 375 |
| Large Projects (Direct Investment recorded through Single Window)* | 84 | 8121.47 | 10644 |
| Grand Total | 525 | 25946.34 | 73953 |

**This relates to large projects which have presence across the State of Uttarakhand*

The Proposed Investments resulting from MoUs for MSME projects, Large Projects and projects through Single Window system are illustrated in the table below.

Table No 2

| District Name | Proposed Investments | | Proposed Investments | | Proposed Investments | | Total Proposed Investment (INR Cr) |
|--------------------|----------------------|--------------|----------------------|--------------|----------------------|--------------|------------------------------------|
| | MSME Projects | | Large Projects | | Single Window | | |
| | Prop. Inv. (in Cr) | Prop. Emp | Prop. Inv. (in Cr) | Prop. Emp. | Prop. Inv. (in Cr) | Prop. Emp | |
| Almora | 23.85 | 144 | - | - | 88.02 | 31 | 111.87 |
| Bageshwar | 7.75 | 53 | - | - | 12.94 | 13 | 20.69 |
| Chamoli | 72.96 | 329 | 54.19 | 96 | - | - | 127.15 |
| Champawat | 19.73 | 156 | - | - | - | - | 19.73 |
| Dehradun | 162.56 | 2885 | 1378 | 5035 | 2170.35 | 989 | 3710.91 |
| Haridwar | 358.06 | 3736 | 3339.59 | 23222 | 1145.82 | 4956 | 4843.47 |
| Nainital | 46.75 | 302 | 300 | 550 | 54.09 | 73 | 400.84 |
| Pauri | 112.95 | 1403 | 6 | 270 | 150 | 338 | 269.40 |
| Pithoragarh | 12.53 | 107 | 26 | 106 | 210.47 | 20 | 249 |
| Rudraprayag | 14.17 | 149 | - | - | 1487.44 | 104 | 1501.61 |
| Tehri | 167.18 | 884 | - | - | 416.77 | 561 | 583.95 |
| USN | 237.43 | 1932 | 3586.10 | 10015 | 1728.69 | 3495 | 5552.22 |
| Uttarkashi | 4.08 | 60 | - | - | 656.43 | 64 | 660.51 |
| Entire State * | NA | NA | 7000 | 11500 | NA | NA | 7000 |
| Grand Total | 1239.99 | 12140 | 15689.88 | 50794 | 8121.47 | 10644 | 25051.34 |

**This relates to large projects which have presence across the State*

WAY FORWARD

The study and the underlying trends project that Uttarakhand will make a V shape recovery from the hard-hitting economic shock created by the global pandemic. The speed of this recovery depends on the speed of the vaccination drive and on the ability of the State to recognise and convert new opportunities into reality. The government needs to hedge through the pandemic, especially in light of the 2nd COVID-19 wave while ensuring multi sectoral structural reforms which will lend flexibility and resilience to supply chains and will also create new demand, which hopefully in quick time will lead to growth and development in Uttarakhand.

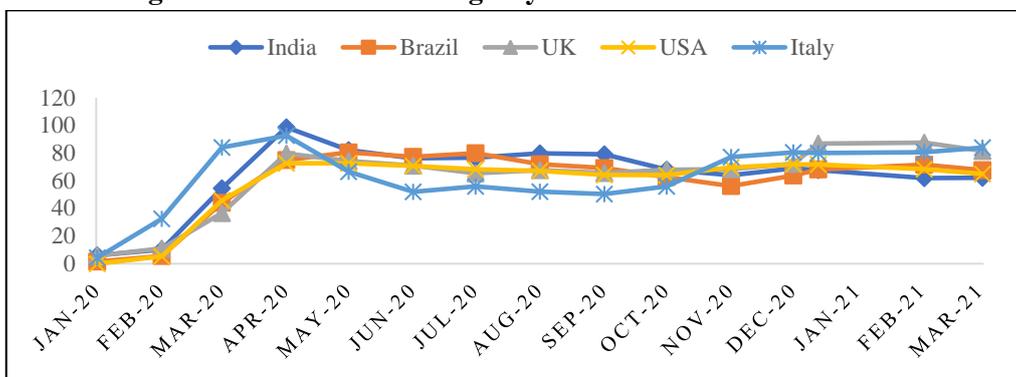
Chapter 2: Macro-Economic Aggregates

2.1 Introduction

The financial year 2020-21 is hit by the COVID-19 pandemic and the stringent containment measures affected all the activities in the economy. The strictness of the government policies can be assessed by looking at the *COVID 19 Stringency Index* prepared by *Oxford Coronavirus Government Response Tracker*

(OxCGRT). From Fig. 1, it is evident that among the countries where higher number of COVID-19 cases have been reported, India has the highest stringency index value (close to 100 in April 2020). Phase-by-phase different economic activities have been allowed, which is marked by declining stringency index value.

Figure. 1: COVID 19: Stringency Index For Selected Countries

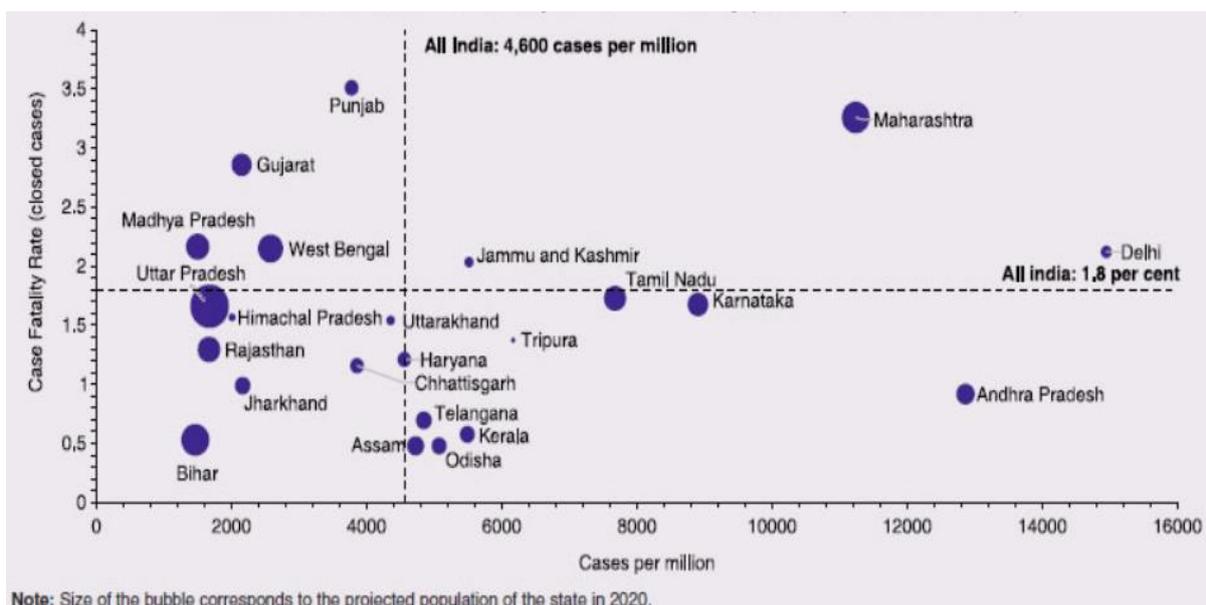


Source: Author's own calculation using OxGRT database

The impact of the pandemic varies across the States (Fig. 2). A few States like Maharashtra, Tamil Nadu, Karnataka, and Kerala have been hit

hard by the pandemic. On the other hand, the severity of the pandemic was low in States like Uttarakhand, Tripura, and Himachal Pradesh.

Figure. 2: State-Wise COVID-19 Spread and Mortality (as on 30th Sept. 2020).

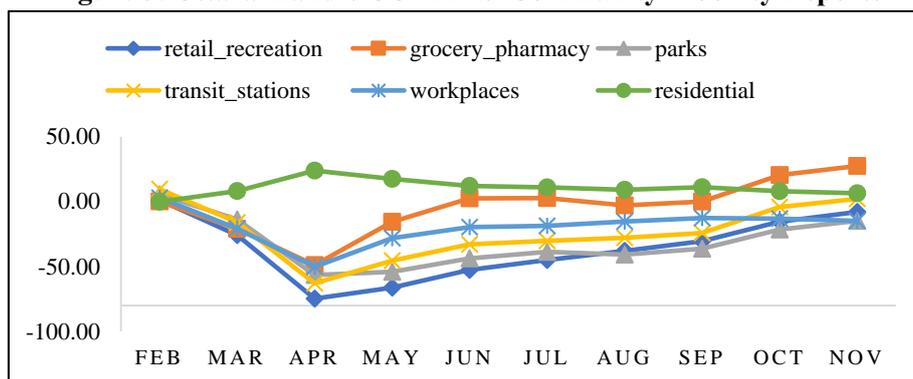


Source: RBI report on COVID-19 Pandemic and Spatial Dimensions in India

The stringent measures used to restrict the spread of the virus has impacted the daily activities and human movements. The effectiveness of the measures can be seen from the *COVID-19 Community Mobility Reports* provided by Google. The report provides percentage change in six discrete categories – *retail and recreation, parks, groceries and pharmacy, workplaces, residential, and transit hubs* – compared to baseline days (from 3rd January to 6th February

2020). The movements in the five categories, except residential, have been severely affected in the months of March and April (Fig. 3). It is evident that due to lockdown the communities transitioned to residential areas. Overtime, mobility has improved with the opening of activities in the State but in categories like retail and recreation, parks, and workplaces, the movement is still below the baseline period.

Figure 3: Uttarakhand’s COVID 19 Community Mobility Reports



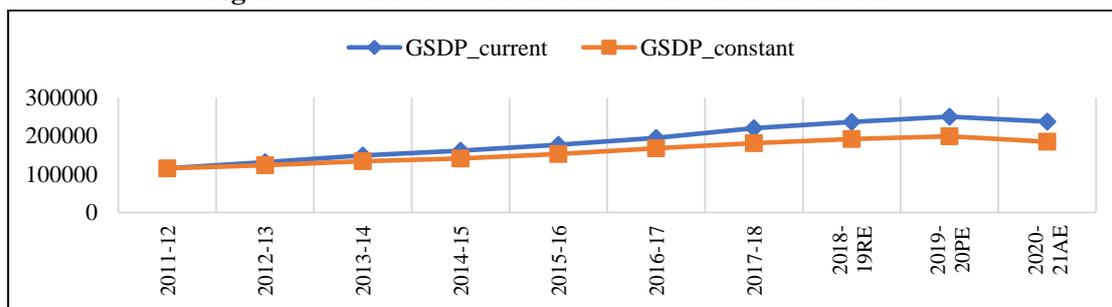
Source: Author’s own calculation using region-wise Google Mobility Reports

2.2 Gross State Domestic Product (GSDP):

One of the important measures of the State’s performance is GSDP at current and constant prices. The advance estimates of GSDP at current

prices for the year 2020-21 is ₹2,37,747 crores and GSDP for the year 2020-21 at constant 2011-12 prices is ₹1,84,982 crores (Fig. 4).

Figure 4: GSDP At Current And Constant 2011-12 Prices



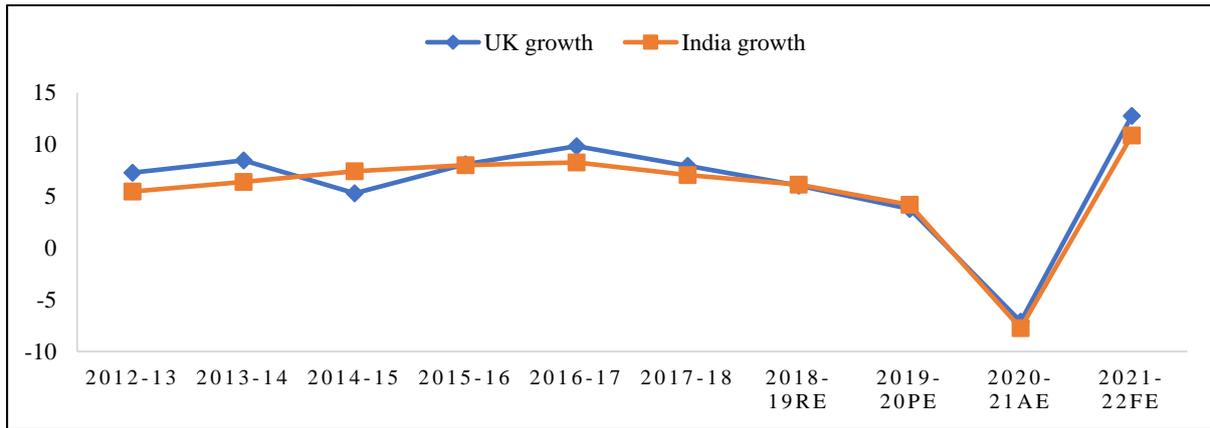
Source: Department of Economics and Statistics, Government of Uttarakhand

Since most macroeconomic data are available at a lag, it is critical to predict the impact of the pandemic on the growth rate of GSDP. At the national level, the real GDP growth declined by 7.7 percent in 2020-21 and is projected to grow at 11 per cent in 2021-22¹. This may be revised considering the second wave of the pandemic underway. At the State level, the growth rate for

the year 2020-21 declined by 7.11 per cent in Uttarakhand (Fig. 5). The State’s economic growth follows a V-shaped recovery, similar to the Indian economy. Using linear forecasting technique, the State is forecasted to grow at 12.7 per cent in the financial year 2021-22 which is slightly above the predicted national growth rate.

¹ As reported in the Economic Survey 2020-21.

Figure 5: GSDP Growth Rate At 2011-12 Prices



Source: Department of Economics and Statistics, Government of Uttarakhand

2.2.1 Reasons For Predicting a V-Shaped Recovery:

There is no doubt that the pandemic has hit the economy hard and with the advent of second wave, the impact is likely to be prolonged. But there are different parameters which suggest a V-shaped recovery in the long-run. There are two sources of economic growth – *capital accumulation and technology*.

i. Capital Accumulation: The growth in capital stock increases production with given levels of other inputs like labour and technology. With increase in production, investment in the next period rises which further increases capital accumulation. Thus, capital accumulation

allows developing countries to break the vicious cycle of poverty and leads them on a path of growth. Countries like Singapore have achieved miraculous growth through capital accumulation from the 1970s to mid 1990s. Since at the State level the capital stock for all the sectors cannot be observed, researchers have used Gross Fixed Capital Formation (GFCF) at the public sector level to look at the trends in capital accumulation. This measure includes four asset categories namely *building sector, machinery and equipment, cultivable biological resources, and intellectual property products*.

Figure 6: GFCF Public Sector

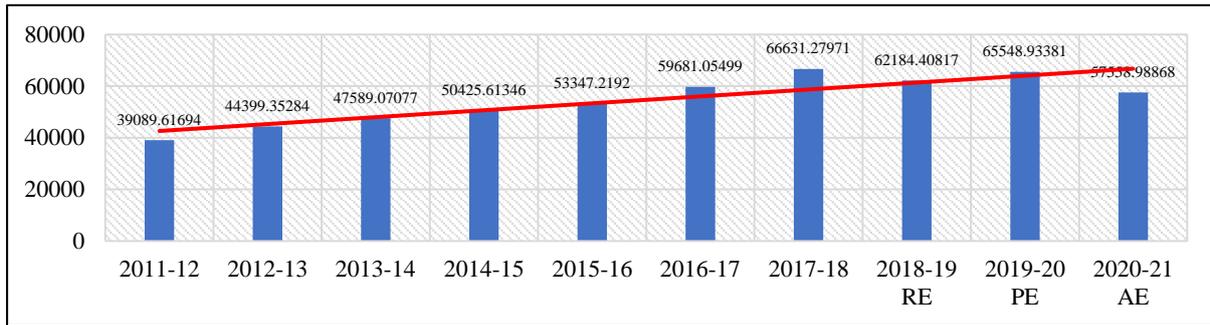


Source: Department of Economics and Statistics, Government of Uttarakhand

As it is evident from the above figure, the capital stock shows an upward trend since 2011-12. One of the limitations is that the data is not updated regularly. One way to overcome this limitation is to follow the method used extensively in the empirical research papers to calculate the State-level capital stock from net State domestic product (NSDP). The national level GFCF is

multiplied with the State’s share of national net domestic product (NDP) to arrive at the State capital formation. From Fig.7 below the rising tendency of the aggregate capital stock is observed. This way of calculating GFCF assumes same functional production technology and price of capital, which is not ideal, but still this gives a clearer picture of rising capital stock over time.

Figure. 7: UK GFCF Using NSDP at 2011-12 Prices

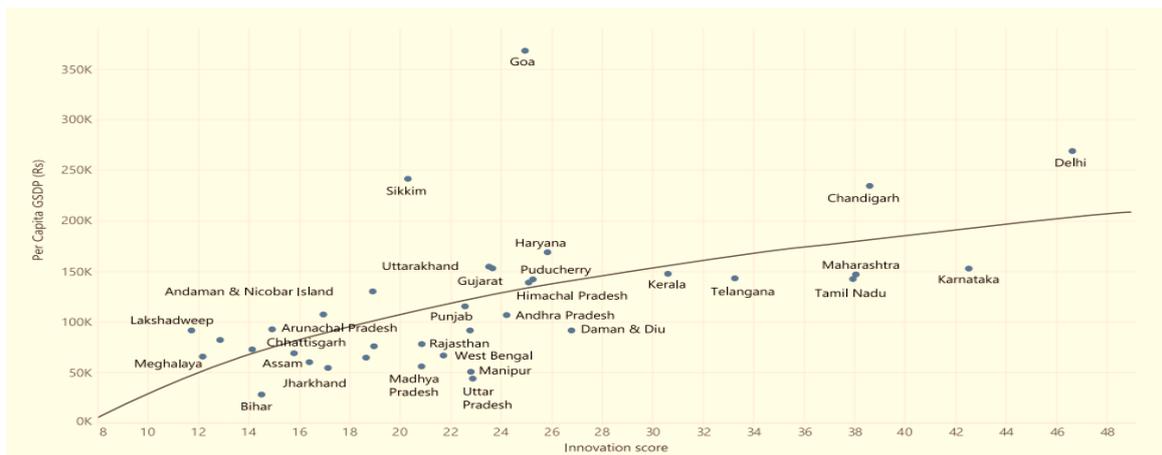


Source: Author's own calculations

ii. Innovation Growth: In economics, production is a function of capital (K) and labour (L). But, slowly over time researchers have identified technology (A) as a critical input in production. Technology comprises of *research and development (R&D), and human capital*. Economic incentives like profit-maximization, allow firms to innovate i.e. introduce new technologies or improve the quality of the existing technologies in the market. Thus, innovation is one of the driving engines for improvement in productivity and enhancing a country's economic growth. From Fig. 8 below, it is easy to observe the positive relationship between per capita

GSDP and innovation scores i.e., higher growth implies more innovation and vice versa. Uttarakhand has a better innovation score than other States like Punjab, Uttar Pradesh, West Bengal, Rajasthan, Chhattisgarh, and Jharkhand. Uttarakhand's innovation performance as a hill State is better in the sub-components like *human capital and safety and legal environment*. The State requires to further improve in areas like *investment (especially in FDI inflows and venture capital deals), business environment (especially in incubator centres), and knowledge diffusion (especially in ICT exports)*.

Figure 8: Correlation Between GSDP And Innovation Scores



Source: India Innovation Report 2020, NITI AAYOG

2.2.2 Inflation:

Inflation is defined as the increase in the general price level in an economy. It has an impact on most of the macroeconomic variables like GSDP, savings, investment, etc., so it is critical to implement necessary policies to stabilize price

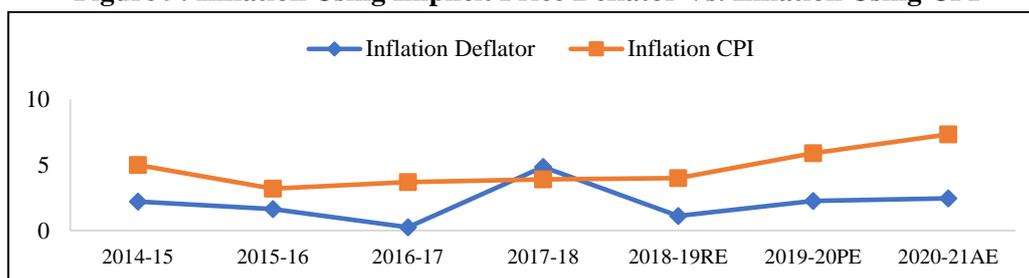
levels in the economy. The consumer price index (CPI) and the implicit price deflator are the two popular measures of inflation. The former measure is based on the basket of goods and services purchased by consumers both at the rural

and urban areas. The implicit price deflator is a broader measure which includes prices of goods and services purchased by consumers, businesses, government, and foreigners. Both the measures furnish vital information regarding change in prices over time and the choice between them is circumstantial and depends on the type of inference that needs to be drawn. Out of the two measures, researchers prefer the implicit price deflator, as it accounts for prices of all the economic activities. But the CPI is

published more frequently and provides the policymakers with the information required to take action.

The implicit price deflator is measured using Net State Domestic Product (NSDP) deflator. From Fig. 9, implicit price deflator is fluctuating more than the inflation calculated using CPI, but both the measures indicate rising prices in the State in the last three years.

Figure 9: Inflation Using Implicit Price Deflator Vs. Inflation Using CPI

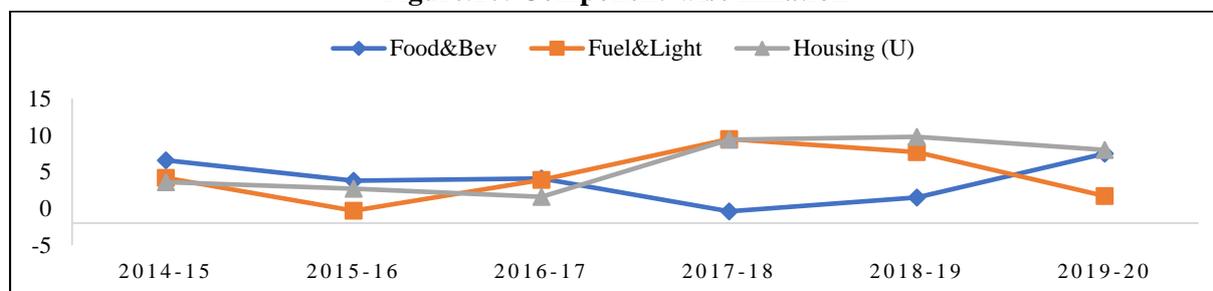


Source: Author's own calculations, RBI data, Department of Economics and Statistics, Government of Uttarakhand

Due to lack of data, it is not possible to understand the factors or components driving the rise in prices in the State. Looking at the component-wise inflation (Fig. 10), it seems that

in the last few years, *food and beverage* and *housing (urban)* prices are the driving factors behind rising price levels in the State.

Figure.10: Component-wise Inflation



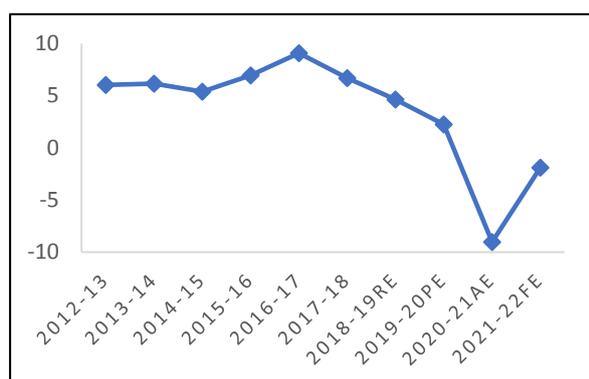
Source: Author's own calculations using RBI data

2.2.3 Per-Capita Income:

The standard of living of the economy is measured by per-capita income (measured by per-capita net State domestic product (PCNSDP)). The PCNSDP at constant 2011-12 prices for Uttarakhand shows an increasing trend higher than the national level. From 2011-12 to 2018-19RE, the State's per-capita income was growing on average at 6.4 percent. Due to the pandemic, there is large-scale reverse migration. Many people in the economy have either lost or

left their current jobs and returned to the State and many of them are seeking work within the State. This will lower the per capita income in the short-run but will add much required skilled and semi-skilled human capital which when combined with the improvement in the situation in the State economy, the economy would be expected to make a V-shaped recovery. The above logic holds true with the data. The advance estimate of per-capita income is predicted to fall by 9 per cent in the year 2020-21 but is expected make a V-shaped recovery by 2021-22 forecasted value.

Figure 11: Per-Capita NSDP at 2011-12 Prices

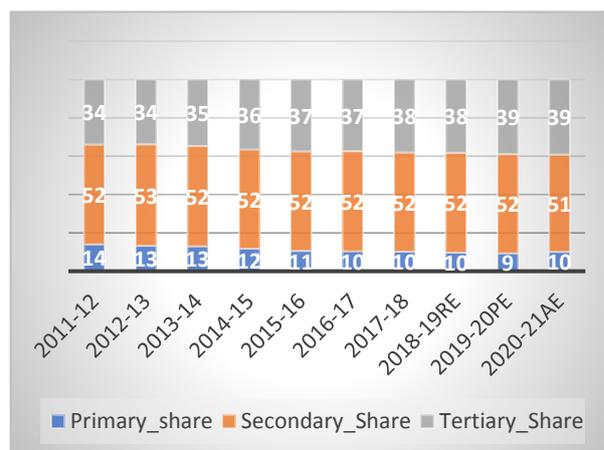


Source: Department of Economics and Statistics, Government of Uttarakhand

2.3 Sectoral Composition:

Uttarakhand economy is undergoing structural changes, which is evident from the rising contribution of the secondary and tertiary sectors in the gross value added (GVA) at 2011-12 prices. The percentage of primary sector has been continuously declining from 14 per cent in 2011-12 to 10 per cent in 2020-21 (AE). The share of secondary sector is stable at 52 per cent while the share of tertiary sector has been increasing from 34 per cent in 2011-12 to 39 per cent in 2020-21 (AE).

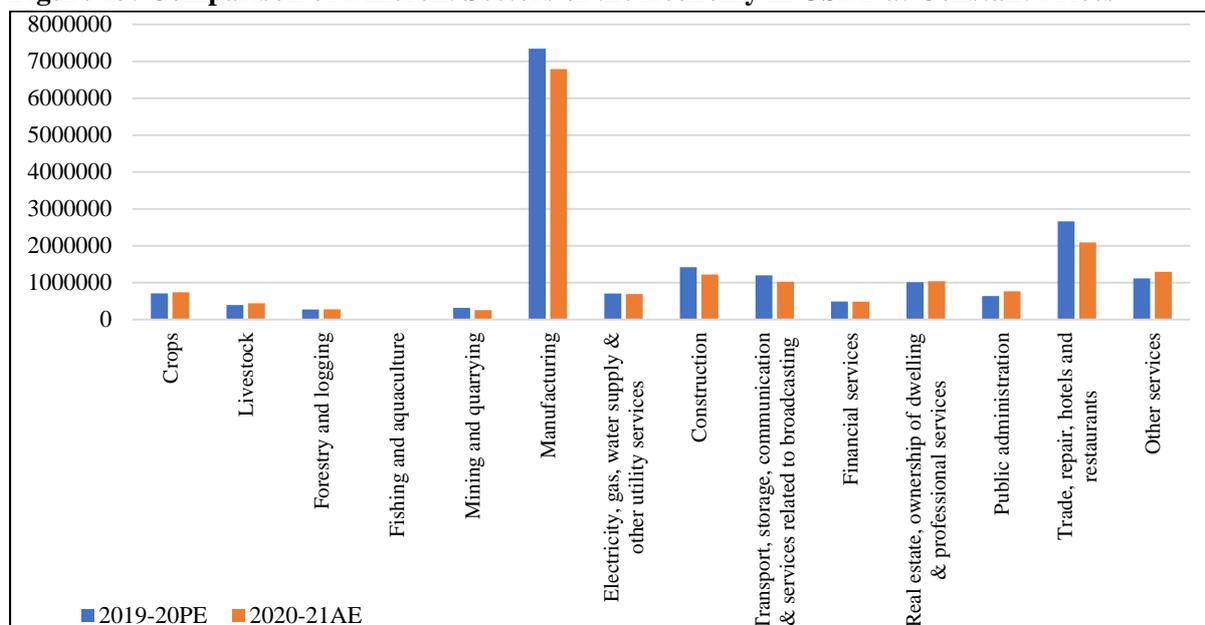
Figure 12: Share of Sectors in Gross Value Added at 2011-12 prices



Source: Department of Economics & Statistics, Govt. of Uttarakhand

There is no evidence of a big slump in the production of different sectors in the economy. The restrictions in the movement for a couple of months have negatively affected the production of some of the sectors like manufacturing, construction, hotels and restaurants, and transport. Sectors like crops and livestock have increased production compared to last year (see Fig.13).

Figure 13: Comparison of Different Sectors of the Economy in GSDP at Constant Prices

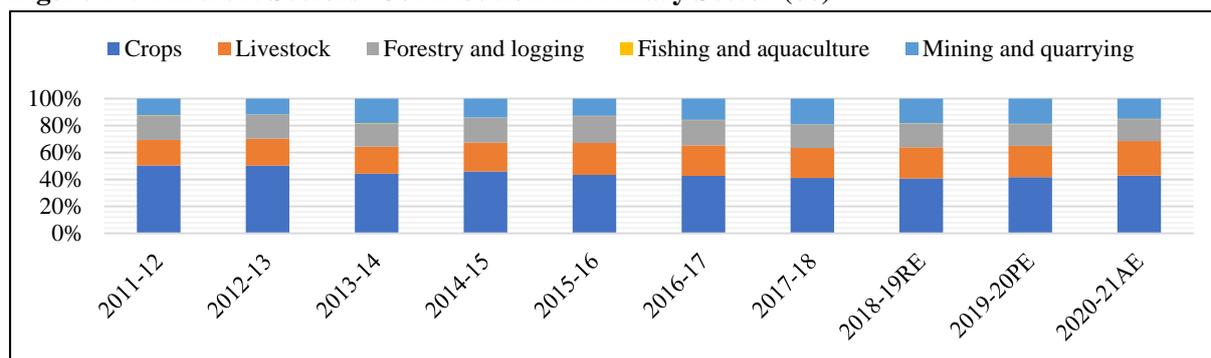


2.3.1 Primary Sector's Contribution:

Influx of migrants can be one of the factors responsible for increased production in crops and

livestock production, which has led to slight improvement in the State's primary sector contribution (see fig.14).

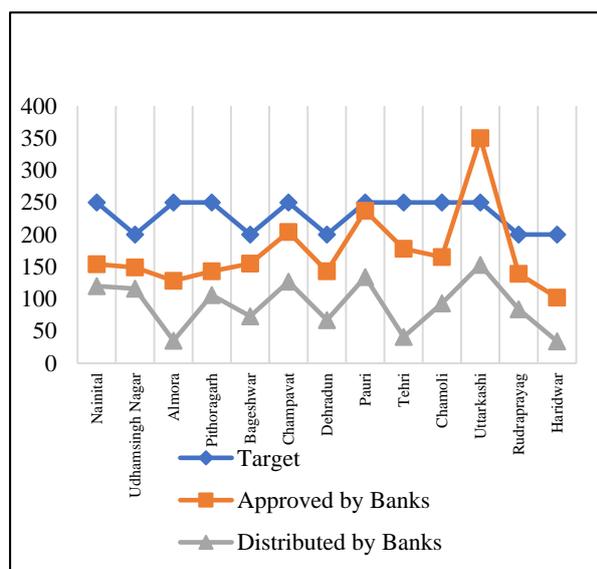
Figure 14: Different Sectors' Contribution in Primary Sector (%)



Source: Department of Economics and Statistics, Government of Uttarakhand

According to the data released by the Uttarakhand migration commission, about 3.57 lakh residents had returned to Uttarakhand since the lockdown in March 2020. To retain the migrants and encourage self-employment, the Chief Minister had announced Mukhyamantri Swarajgar Yojna (MSY). This scheme allows people to take easy loans from nationalized banks, rural banks, and cooperative banks. The district-wise progress suggests that for all the 13 districts, the approved and distributed loans are below the target level (see Fig.15). The State government must take steps to hasten the loan disbursal process, especially in view of more in migration due to the second wave of the pandemic.

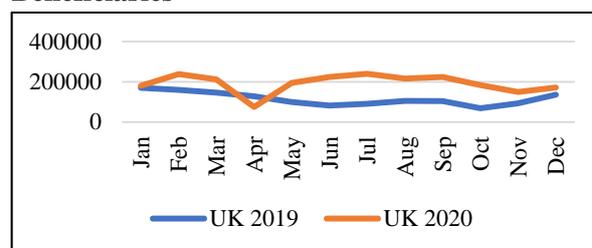
Figure 15: District-wise MSY Progress (As Of 31st December 2020)



Source: Department of Economics and Statistics, Government of Uttarakhand

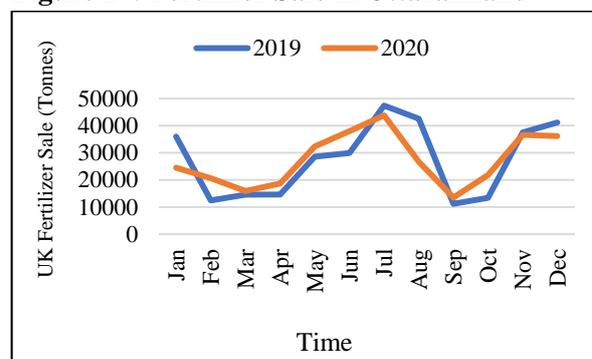
With the easing of lockdown, around 29 per cent of the total returnees have moved to other States seeking work. Out of 71 per cent returnees staying back, 33 per cent have taken up agriculture, 38 per cent turned to animal husbandry, and 17 per cent enrolled under MGNREGA scheme. From June 2020 (coinciding with sowing of Kharif crops) onwards the number of beneficiaries in comparison to 2019 have gone up. More number of migrants, after serving quarantine, were seeking jobs and were able to get work through MGNREGA (see Fig.16).

Figure 16: Comparison of MGNREGA Beneficiaries



Source: India Pulse@ISB

Figure 17: Fertilizer Sale in Uttarakhand



Source: India Pulse@ISB

The fertilizer sales (in tonnes) during the lockdown was significantly higher compared to the previous year for the similar time period. There was drop in the sales in August and September 2020, but it picked up again from October (Fig.17).

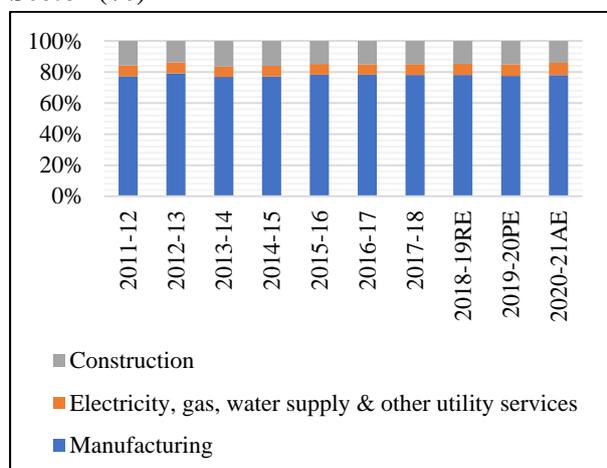
2.3.2 Secondary Sector's Contribution:

More than 50 per cent of the State's GSDP comes from the secondary sector. The manufacturing sector's share in the secondary sector is around 78 per cent.

Due to the pandemic, there is a slight decrease in the manufacturing output but occurrence of several positive events will help the sector to increase production in the next few years.

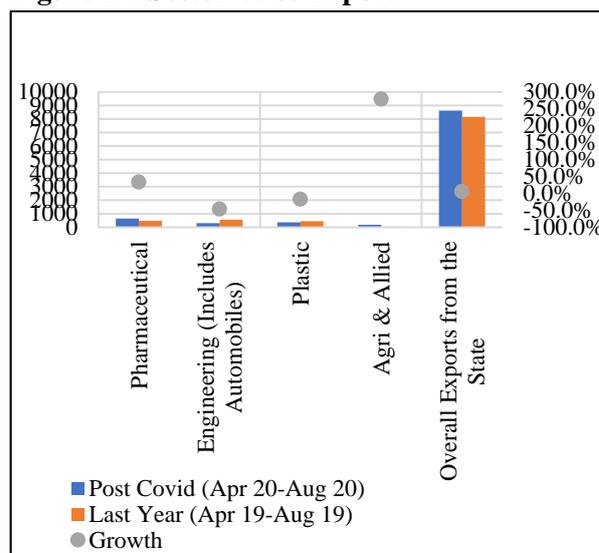
- i. One of the important events was the "Investor's summit- destination Uttarakhand" held on 7-8th October 2018. A total of 601 MoUs were signed with the proposed total investment value of Rs. 1,24,366 crores in different sectors like energy, healthcare, manufacturing, and tourism.
- ii. Another event is the progress made in export and import area. The State is ranked first among the hill States in the export preparedness index (EPI). The State has also emerged as a major hub in the automobile and pharma sector. Even during the pandemic, the pharmaceutical sector has registered a 33 per cent growth (see Fig.19).

Figure 18: Sectoral Composition of Secondary Sector (%)



Source: Department of Economics and Statistics, Government of Uttarakhand

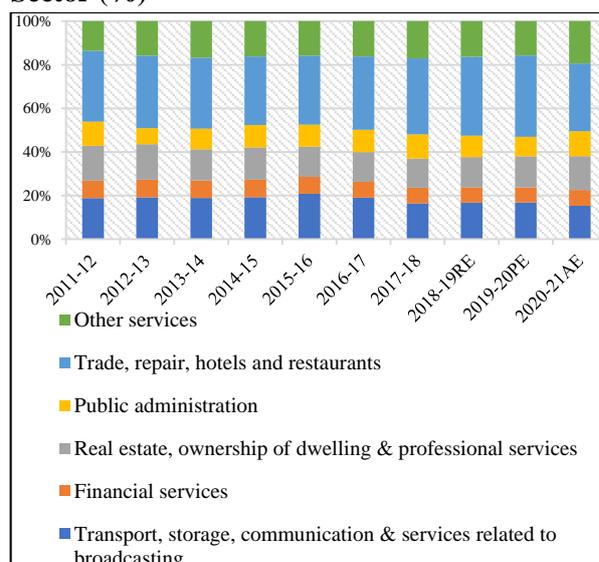
Figure 19: Sector-Wise Export



Source: Department of Economics and Statistics, Government of Uttarakhand

2.3.3 Tertiary Sector's Contribution:

Figure 20: Sectoral Composition of Tertiary Sector (%)



Source: Department of Economics and Statistics, Government of Uttarakhand

The tertiary sector contributes around 39 per cent to the overall production in the State. The sub-sector *trade, repair, hotels and restaurants* is the major driver (contributes around 37 per cent in the financial year 2019-20PE) behind the rising share of the tertiary sector. Due to pandemic the share of tourism has reduced to 31 per cent in 2020-21AE. Around 2.5 lakh people depend on tourism for their livelihood, but the travel restrictions have severely affected this industry.

To boost tourism, the State govt. rolled out ‘Tourist Incentive Coupon’ Plan where up to Rs. 3,000 discounts were offered to those who stayed in the hotels/homestays for a minimum of three days. The other major sub-sector is *transport*,

storage, communication, & services related broadcasting which contributes around 17 per cent to tertiary sector in 2019-20PE. It’s share reduced to 15 per cent in 2020-21AE.

How Vulnerable is Uttarakhand to Pandemic Shocks?

For Uttarakhand, more than half of the GDP comes from secondary sector and manufacturing contributes around 72 per cent of secondary sector. From Fig 21, it is clear that any shock in manufacturing and/or services will have an adverse impact. The pandemic and the stringent nationwide lockdown have affected the service industry like hotels and restaurants more than agriculture or manufacturing sectors. In the manufacturing sector there has been product diversification like pharma industry increased production of hand-sanitizers. It is also comforting that the State’s gross fiscal deficit (GFD) as percentage of GDP is well below 3 per cent.

Figure 21: Intensity of Inter-State Variations in Impact of COVID 19

| | GVA Shock Intensity (Measured as share in GSVA) | | | | | Employment shock Intensity | Share in Total MSMEs | Fiscal shock Intensity | COVID-19 | |
|-------------------|--|--------|---------------|--------------|----------|----------------------------|----------------------|------------------------|--|----------------------------------|
| | Agriculture | Mining | Manufacturing | Construction | Services | | | | Informal Workers Share in Non-Agricultural Sector* (%) | Gross Fiscal Deficit as % of GDP |
| | FY 2019-20 | | | | | FY 2018-19 | FY 2015-16 | FY 2019-20 (RE) | Jan | Jan |
| Andhra Pradesh | 30.9 | 3.5 | 10.8 | 8.5 | 43.5 | 50.5 | 5.3 | 4.2 | 8.9 | 7.1 |
| Assam | 16.6 | 14.0 | 16.3 | 9.7 | 41.1 | 31.1 | 1.9 | 3.1 | 2.2 | 1.1 |
| Bihar | 18.7 | 0.9 | 8.7 | 10.0 | 60.2 | 17.0 | 5.4 | 9.5 | 2.6 | 1.4 |
| Chhattisgarh | 16.8 | 11.7 | 15.3 | 10.1 | 37.0 | 38.3 | 1.3 | 6.4 | 2.9 | 3.5 |
| Gujarat | 12.6 | 4.5 | 38.0 | 5.6 | 35.9 | 42.4 | 5.2 | 2.1 | 2.5 | 4.4 |
| Haryana | 16.6 | 0.2 | 23.8 | 7.7 | 50.6 | 46.9 | 1.5 | 2.8 | 2.7 | 3.0 |
| Himachal Pradesh | 12.6 | 0.4 | 30.9 | 8.5 | 40.5 | 29.7 | 0.6 | 6.4 | 0.6 | 1.0 |
| Jammu & Kashmir | 15.0 | 0.2 | 9.4 | 8.3 | 57.1 | 35.8 | 1.1 | | 1.2 | 1.9 |
| Jharkhand | 12.6 | 8.9 | 22.5 | 8.8 | 45.8 | 38.7 | 2.5 | 2.4 | 1.2 | 1.0 |
| Karnataka | 8.7 | 0.7 | 18.7 | 6.1 | 64.4 | 28.0 | 6.0 | 2.3 | 9.3 | 12.2 |
| Kerala | 8.8 | 0.5 | 13.2 | 13.7 | 62.6 | 33.4 | 3.8 | 3.0 | 8.4 | 3.4 |
| Madhya Pradesh | 31.8 | 3.1 | 11.7 | 8.6 | 41.0 | 45.2 | 4.2 | 3.6 | 2.5 | 3.7 |
| Maharashtra | 9.4 | 3.7 | 23.0 | 5.7 | 55.9 | 29.7 | 7.5 | 2.1 | 19.8 | 50.3 |
| Odisha | 14.1 | 11.8 | 22.3 | 7.5 | 41.1 | 40.1 | 3.1 | 3.4 | 3.3 | 2.0 |
| Punjab | 24.3 | 0.4 | 14.5 | 6.3 | 50.7 | 61.9 | 2.3 | 3.0 | 1.7 | 5.5 |
| Rajasthan | 25.2 | 9.0 | 12.2 | 7.7 | 44.1 | 53.7 | 4.2 | 3.2 | 3.1 | 2.7 |
| Tamil Nadu | 10.9 | 0.5 | 25.1 | 11.5 | 51.1 | 33.8 | 7.8 | 3.0 | 8.3 | 12.3 |
| Telangana | 12.9 | 3.1 | 13.0 | 4.4 | 65.3 | 49.5 | 4.1 | 2.3 | 2.9 | 1.6 |
| Uttar Pradesh | 20.9 | 1.7 | 16.4 | 10.8 | 48.7 | 44.4 | 14.2 | 2.8 | 6.0 | 8.6 |
| Uttarakhand | 7.9 | 1.9 | 40.3 | 7.9 | 38.4 | 31.1 | 0.7 | 2.2 | 0.9 | 1.6 |
| West Bengal | 19.9 | 1.2 | 14.6 | 8.9 | 53.3 | 39.6 | 14.0 | | 5.6 | 10.0 |
| Arunachal Pradesh | 27.7 | 3.3 | 4.1 | 11.5 | 44.3 | 14.3 | 0.0 | 4.1 | 0.2 | 0.1 |

2.4 Banking Sector:

Financial services play an important part in the economy. It consists of different activities such as banking, investment, and insurance. The banking sector acts as an intermediary between the savers and lenders. These activities increase the investment level in the economy which further raise economic growth and welfare. At this critical point in time when the pandemic has affected all areas of life, it is essential to have an efficient banking sector.

Table 1 provides the key indicators of all the scheduled commercial banks as of December 2020. There are around 2386 branches in the State i.e., an increase of 0.8 per cent from March 2020. The total advances have experienced a rising trend in the last couple of years. From March 2020 to December 2020, there is 5.8 per cent increase in total advances.

The credit to deposit ratio for the State has decreased during the pandemic. Assuming other factors remains constant, a falling ratio imply excess liquidity because of higher deposits and fewer credit market alternatives. Higher deposits with the banking system will drive down the

nominal interest rate which will lower the purchasing power of the depositors after adjusting for the inflation rate.

The shares of priority sector and agricultural advances out of total advances have declined since March 2019. As the pandemic has badly hit the unorganized sector, a lower credit disbursal will have an adverse impact on the section in this sector. Also, with rising non-performing assets (NPAs), the public sector banks are sceptical to lending and are focusing more on promising projects. The shares of micro and small enterprise (MSE), women, and weaker sections advances out of total advances have increased in the last nine months.

The sectorial profile of credit deployment for the year 2020-21 show that banks have achieved 51 per cent of total credit. In most of the areas, banks have failed to reach the target loan advances. Only in the non-farm sector, the banks achieved 86 per cent while in other areas like crop loan, term loan, and other priority sectors the achievement is less than 40 per cent. The State government must take necessary policy measures to ensure that needy people are able to access credit (see Table 2).

Table No. 1: Key Indicators (All Scheduled Commercial Banks including RRBs in UK), as on Dec 2020 (Rs. crores)

| Sl. No. | PARTICULARS | AS ON MAR 2018 | AS ON MAR 2019 | AS ON MAR 2020 | AS ON DEC 2020 | RBI REMARKS |
|---------|--|----------------|----------------|----------------|----------------|-------------|
| 1 | DEPOSITS @ | 116457 | 129251 | 141234 | 152833 | |
| | * | 7194 | 12794 | 11983 | 11599 | |
| | ** | 6.58 | 10.99 | 9.27 | 8.21 | |
| 2 | ADVANCES INCLUDING INVESTMENT | 64769 | 75465 | 75813 | 82405 | |
| 3 | CREDIT+INVESTMENT TO DEPOSIT RATIO | 55.62 | 58.39 | 53.68 | 53.92 | |
| 4 | ADVANCES (WITHIN STATE) (CS) | 51423 | 59694 | 62397 | 66177 | |
| | ADVANCES (FROM OUTSIDE STATE) (CU) | 9355 | 10818 | 10501 | 11100 | |
| | RIDF | 5963 | 6729 | 7393 | 7662 | |
| | TOTAL ADVANCES (CS+CU+RDIF) | 66740 | 77242 | 80291 | 84939 | |
| | * | 6189 | 10502 | 3049 | 4648 | |
| | ** | 10.22 | 15.74 | 3.95 | 5.79 | |
| 5 | C.D. RATIO (%): WHOLE STATE | 57.31 | 59.76 | 56.85 | 55.58 | 60% |
| | RURAL | 69.00 | 68.00 | 63.00 | 62.00 | |
| | SEMI-URBAN | 50.00 | 55.00 | 53.00 | 53.00 | |
| | URBAN | 54.00 | 57.00 | 55.00 | 53.00 | |
| 6 | PRIORITY SECTOR ADVANCES (PSA) | 30826 | 35168 | 31874 | 35378 | |
| 7 | SHARE OF PSA IN TOTAL ADVANCES (%) | 59.95 | 58.91 | 51.08 | 53.46 | 40% |
| 8 | AGRICULTURE ADVANCES | 11081 | 11316 | 10686 | 11202 | |
| 9 | SHARE OF AGRICULTURE ADV. IN TOTAL ADV. (%) | 21.55 | 18.96 | 17.13 | 16.93 | 18% |

| | | | | | | |
|----|---|--------------|--------------|--------------|--------------|------------|
| 10 | MICRO & SMALL ENTERPRISES (MSE) ADV. | 12618 | 16304 | 14675 | 16707 | |
| 11 | SHARE OF MSE ADV. IN TOTAL ADV. (%) | 24.54 | 27.31 | 23.52 | 25.25 | |
| 12 | ADVANCES TO WEAKER SECTION | 9310 | 9077 | 7767 | 8039 | |
| 13 | SHARE OF WEAKER SECTION ADV. IN TOTAL ADV. (%) | 18.10 | 15.21 | 12.45 | 13.51 | 10% |
| 14 | DIR ADVANCES | 82.36 | 18.19 | 6.63 | 5.38 | |
| 15 | SHARE OF DRI ADV. IN TOTAL ADV. (%) | 0.16 | 0.03 | 0.01 | 0.01 | 1% |
| 16 | ADVANCES TO WOMEN | 3348 | 4421 | 4810 | 7090 | |
| 17 | SHARE OF WOMEN ADV. IN TOTAL ADV. (%) | 6.51 | 7.41 | 7.71 | 10.71 | 5% |
| 18 | ADVANCES TO MINORITIES | 4917 | 5635 | 6734 | 6311 | |
| 19 | SHARE OF MINORITIES ADV. IN TOTAL ADV. (%) | 9.56 | 9.44 | 10.79 | 9.54 | |
| 20 | BRANCH NETWORK (In Nos.) | | | | | |
| | A. RURAL | 1127 | 1133 | 1144 | 1141 | |
| | B. SEMI URBAN | 606 | 609 | 593 | 572 | |
| | C. URBAN/METRO | 572 | 609 | 629 | 673 | |
| | TOTAL NUMBER OF BRANCHES | 2305 | 2351 | 2366 | 2386 | |

* GROWTH DURING THE YEAR

** % GROWTH DURING THE YEAR

CS CREDIT AS PER PLACE OF SANCTION @

Source: 76th SLBC Book

Table No. 2: Sectorial Profile of Credit Deployment (2020-21), Amount (in Rs. Lakhs)

| Sector | Outlay | Achievement | Percentage |
|------------------------------|------------------|------------------|------------|
| Crop Loan (a) | 7,95,163 | 3,07,309 | 39% |
| Term Loan (b) | 5,27,068 | 1,80,221 | 34% |
| Farm Sector (a)+(b) | 13,22,232 | 4,87,530 | 37% |
| Non-Farm Sector | 8,85,051 | 7,60,306 | 86% |
| Other Priority Sector | 3,72,107 | 79,943 | 21% |
| Total | 25,79,390 | 13,27,779 | 51% |

Source: 76th SLBC Book

2.6 ROAD AHEAD:

The *Super Model* Developed by The Committee of Experts from IIT, ISI, And IIS predicted that the pandemic would end in February 2021, but by mid-February, the second wave of the disease emerged and since then has affected around 9 lakh people. The second wave has again forced the state governments to put travelling restrictions. The number of active cases will increase exponentially if proper sanitization and social distancing practices are not followed. With rising cases, the threat of complete lockdown cannot be ruled out.

With easing of the lockdown last year, many migrants who had returned home went back to the states where they worked. The recent surge in active cases and lockdown have once again pushed the workers to migrate back to their home state. Uttarakhand must take necessary policy steps like providing jobs, quick credit disbursal, etc., to absorb the returning migrants. This in turn will help the economy to make a V-shaped recovery faster than expected.

Chapter-03

A Review of Fiscal Developments

Abstract

As on 04 January 2021, total number of registered dealers in the State were 1, 81,820. During the financial year 2020-21, up to December 2020, the State's tax Department had collected a tax of Rs.8628.01 crore (CGST+IGST+SGST+CESS). However, this is 21% lesser than the tax collected for the same period in the financial year 2019-20, when tax collection (CGST+IGST+SGST+CESS) was Rs.10989.88 crore. This fall in the GST revenue is largely due to Covid-19 pandemic.

State's Total Tax Revenue witnessed an increasing trend up to 2018-19, as the collections rose from Rs. 1393.23 crores in 2002-03 to Rs. 20199.68 crores in 2018-19. However, it fell to Rs. 18414.99 crores during 2019-20. Uttarakhand's OTR has been growing in absolute terms between 2002-03 and 2019-20. The State's OTR jumped from ₹1079.11 crores during 2002-03 to Rs.18414.99 crore in 2019-20. However, this growth as a percentage of Total Tax Revenue is not consistent for the same period. OTR as a percentage of TTR was 63.75% during 2015-16. It declined to 62.96% during 2016-17 and further dipped to 58.93% 2017-18. It improved during 2018-19 by touching 60.33 % and again increased to 62.52% in 2019-20.

On the fiscal front, the fiscal deficit, which was 3.46% of GSDP in 2015-16 reduced to 2.8% in 2016-17. The fiscal deficit increased to 3.45% in 2017-18 and further rose to 3.78 % of GSDP in 2018-19. However, it fell to 2.49% during the financial year 2019-20 and it is in the limits of Fiscal responsibility and Budget Management (FRBM) Act, 2003. It is to be noted in this context that the capital expenditure fell to Rs. 14635.99 in 2019-20 from Rs. 16598.04 crores in 2018-19. Thus, a fall in the fiscal deficit of the State is largely seen as a result of fall in the capital expenditure.

After going through one of the worst health and economic crises that the entire world, including our country had ever witnessed, the State was slowly gaining momentum with decline in the number of new Covid-19 infections and the roll out of vaccine across the nation, and providing new hope of economic revival. This hope disappeared with the advent of the second wave of the pandemic. The State again stares at alarmingly growing number of infections and uncertainty on the economic front looms large.

The Aatma Nirbhar Package by the Government of India is a sincere policy effort to pull the economy out of the crisis and the State has also made use of the provisions under the scheme. However, the main concern at this point is that despite a huge package, there is a still large scope to address the more pressing problem of the day, i.e., the revival of aggregate demand in the economy, when faced with renewal of lockdowns.

Thus, it would be prudent at this point of time, to make use of the fiscal policy to take on the economic slowdown, by boosting sector specific public investments and expenditure in a time bound manner. On the other hand, there are arguments that an expansionary fiscal policy would widen the fiscal deficit and could also cause inflation, and eventually result in a bigger problem of a slowing growth and high inflation. In this context, it is to be noted that expansionary fiscal policy could be inflationary at a time when the capacity utilization has reached an optimal level. But the present State suggests a large scale underutilized capacity in the economy. Hence, the Government expenditure would only create more employment and generate more income in the hands of the people, which would be used further for consumption. Due to the multiplier effect, the economy would revive. In the later stage, business confidence would improve and further improve tax revenues and the fiscal situation would be set right.

Hence there is no need to worry if the fiscal deficit figures are high. They are the price that we would be paying today, for a better tomorrow. Along with other efforts that the State has put in, it is time to spend, and spending it right is more important than the spending itself.

Section-I

The State's Performance on the front of GST-

The Goods and Services Tax (GST) was rolled out in July, 2017, thereby subsuming a number of State taxes under its umbrella. These subsumed taxes included central sales tax, State VAT, purchase tax, luxury tax, entry tax (all forms), entertainment tax (not levied by local governments), tax on advertisements, taxes on lotteries, betting and gambling and State surcharges and cesses so far as they relate to supply of goods and services. Uttarakhand was the fifth State in the country, to pass the State GST Bill, after Telangana, Bihar, Rajasthan and Jharkhand. An analysis of the State's experience with GST since its introduction would help understand the shortcomings and areas with scope for improvement, which could be helpful in further policy making.

Registration:

During the period between 01 July 2017 and 04 January 2021, a total of 1, 18,147 dealers were registered, whereas 63,673 registered dealers migrated from VAT into the new system. Thus, up to 04 January 2021, total number of registered dealers in the State reached 1,81,820.

Table No. 3.1 Number of Businessmen Registered in GST

| Number of Businessmen Registered in GST (Data as of 31st December 2020) | | |
|---|-------------------------------------|---------------|
| Sr. No. | Dealers | Number |
| 1 | Number of Migrated Dealers (State) | 51,541 |
| 2 | Number of Migrated Dealers (Centre) | 12,132 |
| 2 | New Registration (State) | 48,021 |
| 3 | New Registration (Centre) | 70,126 |
| 4 | Total Dealers (State+Centre) | 1,81,820 |
| 5 | Composition Dealer (State) | 22,557 |

| | | |
|---|-----------------------------|--------|
| 6 | Composition Dealer (Centre) | 14,350 |
| 7 | Total Composition Dealer | 36,907 |

Source: Department of Economics and Statistics, Government of Uttarakhand

GST Mitra:

Uttarakhand is a mountainous State having tough terrains. Due to this peculiarity, approaching people and creating awareness among small taxpayers of the State is an arduous task. For overcoming this problem, a unique concept of GST Mitra has been devised.

Dealer Insurance Scheme:

In the general interest of dealers, an insurance scheme has been made applicable for a period of one year beginning from 19.11.2020 to 18.11.2021. The scheme covers all the dealers registered with the State tax Department and in case of death of any registered dealer, a claim of ₹ 5 Lakhs will be provided immediately.

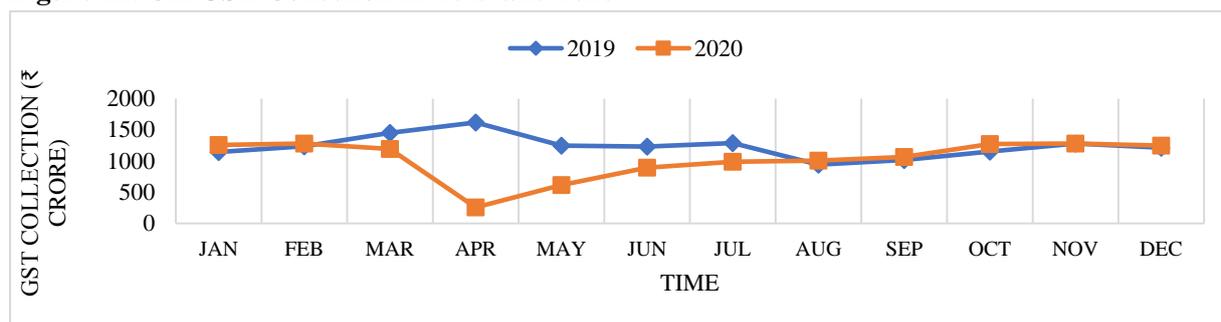
24X7 Help Desk Service:

A 24X7 help desk service is established at the State Tax headquarters as well as in the State Tax offices at Haridwar and Rudrapur for redressal of any difficulty in relation to the provisions of GST, especially regarding the preparation of e-way bills.

Collection:

During the financial year 2020-21, up to December 2020, the State's tax Department had collected a tax of Rs.8,628.01 crore (CGST+IGST+SGST+CESS). However, this is 21% lesser than the tax collected for the same period in the financial year 2019-20 with tax collection (CGST+IGST+SGST+CESS) of Rs.10,989.88 crore. This fall in the GST revenue is largely due to Covid-19 pandemic. The details of the Tax Collection (CGST + IGST + SGST + CESS) by Uttarakhand State Tax Department are provided in Table 3.2.

Figure 22: UK GST Collection In 2019 and 2020



Source: India Pulse @ISB

Table No. 3.2: Details of the Tax Collection (CGST+IGST+SGST+CESS) by Uttarakhand State Tax Department During FYs 2019-20 and 2020-21 (Rs.in crores)

| Month | CGST | | | IGST | | | SGST | | | CESS | | | Total | | |
|--------------|---------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|---------------|--------------|-------------|-----------------|----------------|-------------|
| | 2019-20 | 2020-21 | %+/- | 2019-20 | 2020-21 | %+/- | 2019-20 | 2020-21 | %+/- | 2019-20 | 2020-21 | %+/- | 2019-20 | 2020-21 | %+/- |
| April | 218.80 | 49.79 | -77% | 1004.96 | 141.63 | -86% | 369.64 | 61.95 | -83% | 23.89 | 3.26 | -86% | 1617.29 | 256.63 | -84% |
| May | 192.42 | 144.84 | -25% | 694.98 | 299.19 | -57% | 345.22 | 170.00 | -51% | 15.09 | 0.56 | -96% | 1247.71 | 614.59 | -51% |
| June | 191.21 | 184.09 | -4% | 669.50 | 469.81 | -30% | 350.15 | 238.62 | -32% | 20.75 | 2.42 | -88% | 1231.61 | 894.94 | -27% |
| July | 194.08 | 190.62 | -2% | 736.23 | 543.15 | -26% | 339.75 | 247.03 | -27% | 18.84 | 7.01 | -63% | 1288.90 | 987.81 | -23% |
| August | 187.71 | 184.60 | -2% | 423.05 | 564.19 | 33% | 316.23 | 249.44 | -21% | 14.10 | 7.52 | -47% | 941.09 | 1005.75 | 7% |
| September | 185.89 | 205.63 | 11% | 533.98 | 572.43 | 7% | 286.29 | 276.95 | -3% | 10.48 | 9.73 | -7% | 1016.64 | 1064.74 | 5% |
| October | 204.31 | 228.93 | 12% | 620.92 | 696.33 | 12% | 316.07 | 335.97 | 6% | 12.03 | 11.02 | -8% | 1153.33 | 1272.25 | 10% |
| November | 228.97 | 204.49 | -11% | 680.44 | 748.02 | 10% | 356.18 | 323.76 | -9% | 14.61 | 9.24 | -37% | 1280.2 | 1285.5 | 0.41% |
| December | 230.01 | 209.08 | -9% | 638.86 | 690.11 | 8% | 330.15 | 337.54 | 2% | 14.09 | 9.07 | -36% | 1213.11 | 1245.80 | 3% |
| Total | 1833.4 | 1602.07 | -13% | 6002.92 | 4724.86 | -21% | 3009.68 | 2241.26 | -26% | 143.88 | 59.83 | -58% | 10989.88 | 8628.01 | -21% |

Source: Department of Economics and Statistics, Government of Uttarakhand

2.5.1 GST Collection:

One of the major sources of State government's revenue is tax collections. The pandemic and national lockdown has a significant impact on the GST collections. This forced the State governments to look for other revenue earning measures like opening of liquor shops, and pan and gutka shops during the first few phases of unlock. The GST collections started to weaken in March 2020 and declined significantly in April 2020. Comparing April 2019 and 2020, the GST collections declined by almost 84 per cent. The

situation improved with the unlocking of the economy. From August onwards, the 2020 GST collections exceeded 2019 GST collections.

Revenue Projections for Future:

There is an assurance for five years from the Union Government to all State governments to provide a compensation equivalent to 14 per cent annual growth in revenues. Given this backdrop, the details of the assured revenue and the revenue projections for the forthcoming years are mentioned in the following table.

Table No. 3.3. Assured Revenue & Revenue Projections for Forthcoming Years (Rs. In Crores)

| S.N. | Financial Year | Assured Revenue (Under GST) | Achieved/ Projected GST (Without Compensation) | Achieved/ Projected Non-GST | Total Projected Tax | Projected Growth (If GST Was Not Implemented) |
|------|----------------|-----------------------------|--|-----------------------------|----------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 = (3 + 5) or (4+5) | 7 |
| a. | 2020-21 | 9,552 | 4101 | 1758 | 11310 (3+5) | 14851 |
| b. | 2021-22 | 10,890 | 5236 | 2602 | 13492 (3+5) | 17784 |

| | | | | | | |
|----|--------------------|-------------|-------------|-------------|--------------------|-------|
| c. | 2022-23 (3 months) | 3104 | 1398 | 725 | 3,829 (3+5) | 21296 |
| | 2022-23 (9 months) | - | 4192 | 2174 | 6,366 (4+5) | |
| | 2022-23 | 3104 | 5590 | 2899 | 10,195 | |
| d. | 2023-24 | - | 5968 | 3230 | 9198 (4+5) | 25502 |
| e. | 2024-25 | - | 6372 | 3598 | 9970 (4+5) | 30539 |

Source: Department of Economics and Statistics, Government of Uttarakhand

Section-II

Analysis of Non-GST Revenue Growth

Dynamics & Fiscal Profile

As discussed in the earlier section, there is clarity about the expected GST revenues, since the State Government is assured of 14% revenue growth for 5 years, as far as taxes subsumed under GST, according to GST law. It is in this context there is

a need to look at the Non-GST Own Tax Revenue (OTR) growth in the years to come. This section lays emphasis on the growth and the magnitude of the Non-GST OTR of Uttarakhand State. An attempt is made to understand the trend of Non-GST tax revenues in the OTR of Uttarakhand. The details of the total tax revenues (TTR), OTR and Non-GST OTR of Uttarakhand is provided in Table 3.4.

Table No. 3.4: Total Tax Revenues (TTR), OTR and Non-GST OTR of Uttarakhand

| Year | Total Tax Revenue (TTR) | Own Tax Revenue (OTR) | OTR as % of TTR | Major Non-GST Revenues | | | |
|-----------|-------------------------|-----------------------|-----------------|------------------------|--------------------|------------------------------|------------------------------------|
| | | | | State Excise | State Excise % OTR | Stamps and Registration Fees | Stamps and Registration Fees % OTR |
| 2002-2003 | 1393.23 | 1079.11 | 77.45 | 245.86 | 24.12 | 123.35 | 12.10 |
| 2003-2004 | 1660.99 | 1227.76 | 73.92 | 273.37 | 22.27 | 168.94 | 13.76 |
| 2004-2005 | 1964.32 | 1444.34 | 73.53 | 292.01 | 20.22 | 207.80 | 14.39 |
| 2005-2006 | 2794.51 | 1784.68 | 63.86 | 292.75 | 16.40 | 333.39 | 18.68 |
| 2006-2007 | 3645.61 | 2513.78 | 68.95 | 372.91 | 14.83 | 546.32 | 21.73 |
| 2007-2008 | 4166.45 | 2738.70 | 65.73 | 441.56 | 16.12 | 424.27 | 15.49 |
| 2008-2009 | 4551.50 | 3044.91 | 66.90 | 528.35 | 17.35 | 357.46 | 11.74 |
| 2009-2010 | 5109.05 | 3559.04 | 69.66 | 704.64 | 19.80 | 398.70 | 11.20 |
| 2010-2011 | 6865.55 | 4405.48 | 64.17 | 755.92 | 17.16 | 439.50 | 9.99 |
| 2011-2012 | 8481.66 | 5615.62 | 66.21 | 843.65 | 15.03 | 524.05 | 9.34 |
| 2012-2013 | 9687.13 | 6414.25 | 66.22 | 1117.92 | 17.43 | 648.40 | 10.10 |
| 2013-2014 | 10928.72 | 7355.34 | 67.30 | 1269.29 | 17.26 | 686.71 | 9.34 |
| 2014-2015 | 12130.77 | 8338.47 | 68.74 | 1486.66 | 17.83 | 714.06 | 8.56 |

| | | | | | | | |
|-----------|----------|----------|-------|---------|-------|---------|------|
| 2015-2016 | 14710.98 | 9377.79 | 63.75 | 1735.39 | 18.50 | 870.67 | 9.28 |
| 2016-2017 | 17308.88 | 10897.31 | 62.96 | 1905.54 | 17.49 | 777.58 | 7.12 |
| 2017-2018 | 17249.84 | 10164.93 | 58.93 | 2261.68 | 22.25 | 882.26 | 8.68 |
| 2018-19 | 20199.68 | 12188.09 | 60.33 | 2871.07 | 14.21 | 1015.43 | 5.02 |
| 2019-20 | 18414.99 | 11513.45 | 62.52 | 2726.90 | 23.68 | 1071.75 | 9.31 |

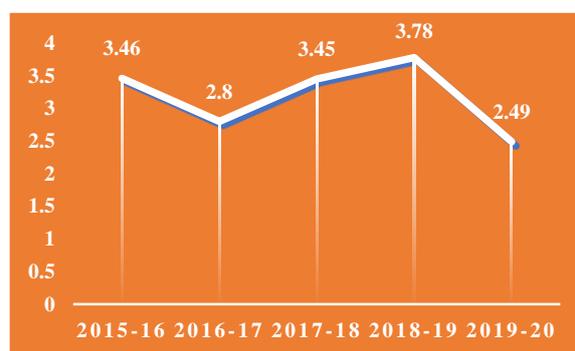
Sources: i) Budget Documents, Government of Uttarakhand; ii) Department of Excise Duty, Government of Uttarakhand iii) Department of Stamps and Registration, Government of Uttarakhand

The above table suggests that the State's TTR has witnessed an increasing trend up to 2018-19, as the collections rose from Rs. 1,393.23 crores in 2002-03 to ₹ 20,199.68 crores in 2018-19. However, it fell to Rs. 18,414.99 crores during 2019-20. Uttarakhand's OTR has been growing in absolute terms between 2002-03 and 2019-20. The State's OTR jumped from ₹1079.11 crores during 2002-03 to Rs.11,513.45 crore in 2019-20. However, this growth as a percentage of Total Tax Revenue is not consistent for the same period. OTR as a percentage of TTR was 63.75% during 2015-16. It declined to 62.96% during 2016-17 and further dipped to 58.93% 2017-18. It improved during 2018-19 by touching 60.33 % and again increased to 62.52 % in 2019-20.

Trends in the Non-GST Revenues:

Major Non-GST Revenues of the State, consisting of State Excise and Stamps and Registration fees have been analysed from 2002-03 to 2019-20. Although the revenue from the State excise has gone up from 17.83% of OTR in 2014-15 to 18.50% in 2015-16, it fell to 17.49% in 2016-17. Later, there is an improvement in the State excise as a percentage of OTR, as it increased to 22.25% during 2017-18. However, as suggested by Figure 1, the State excise as a percentage of own tax revenue declined to 14.21 percent in 2018-19. The increase of State excise as a percentage of own tax revenue to 23.68 percent in 2019-20 comes as a respite.

Figure 1: State Excise as Percentage of OTR

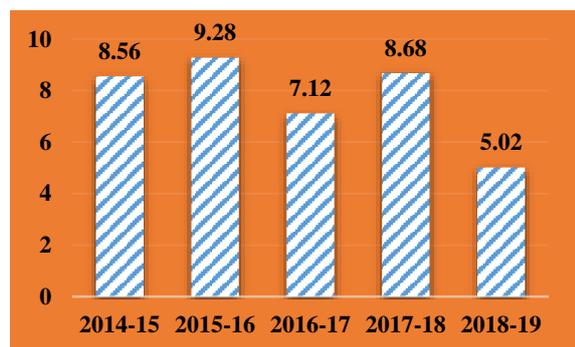


Source: Department of Excise Duty, Government of Uttarakhand

Stamps and Registration Fees:

Stamps and Registration Fees as a percentage of OTR witnessed an increasing trend from 2002-03 to 2006-07. It rose from 12.10 % to 21.73% during this period. Except during 2012-13 and 2015-16, it registered a declining trend from 2007-08 and continued this trend till 2016-17, to touch 7.12 %. But in 2017-18, the State earned stamps and registration fees of Rs. 882.26 crore and the Stamps and Registration Fees as a percentage of OTR improved to 8.68 %. It again fell sharply to 5.02 % of the OTR in 2018-19, which is in fact the lowest since the inception of the State, as depicted in the figure 2. However, the increase of Stamps and registration fee as a percentage of own tax revenue to 9.31 percent in 2019-20 depicted a significant improvement.

Figure 2: Stamps and Registration Fees % OTR



Source: Department of Stamps and Registration, Government of Uttarakhand

ANALYSIS OF FISCAL INDICATORS OF THE STATE

2.5 Fiscal Developments:

Similar to the financial services, the fiscal policy also plays an important role in the economy. The fiscal policy consists of several tools like budget, taxation, and government spending/purchase which affect investment, consumption, and disposable income. As the year was not normal, the government spending was expected to rise which would eventually put pressure on fiscal deficit and other macroeconomic variables. Rising fiscal deficit is often seen as bad for the economy. If rising capital expenditure like infrastructure is the reason behind increasing

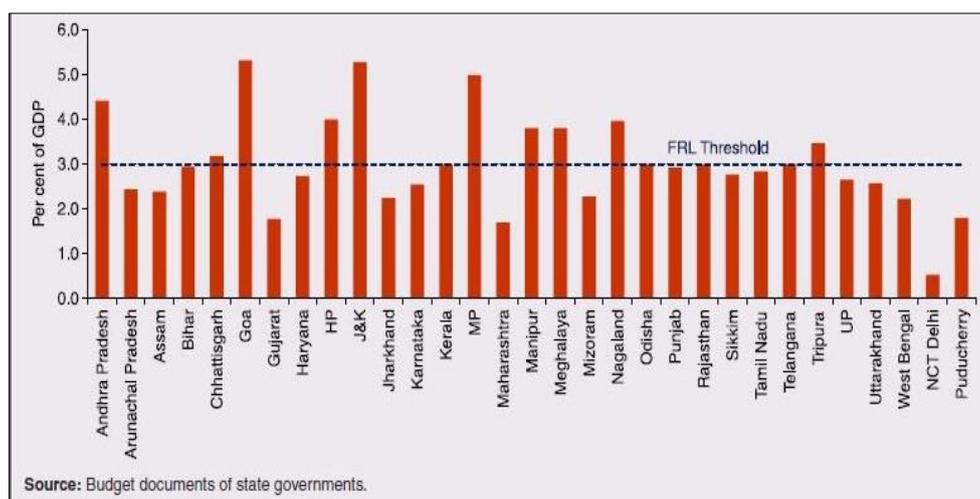
deficit, then the economy will benefit in the long-run.

The total expenditure of the State for 2021-22BE is at Rs. 57,400 crores and for 2020-21RE stood at Rs. 51,343 crores which are 10 per cent and 8 per cent increase from the financial year 2019-20 respectively. Increasing government spending without rising revenue will create a budget deficit situation. The State budget for the year 2020-21 had estimated a revenue surplus of Rs. 50 crores but due to the pandemic the estimate was revised to Rs. 3,080 crores of revenue deficit. The State government must adopt necessary policy measures to improve tax collections or improve the quality of fiscal deficit.

2.5.2 Fiscal Deficit:

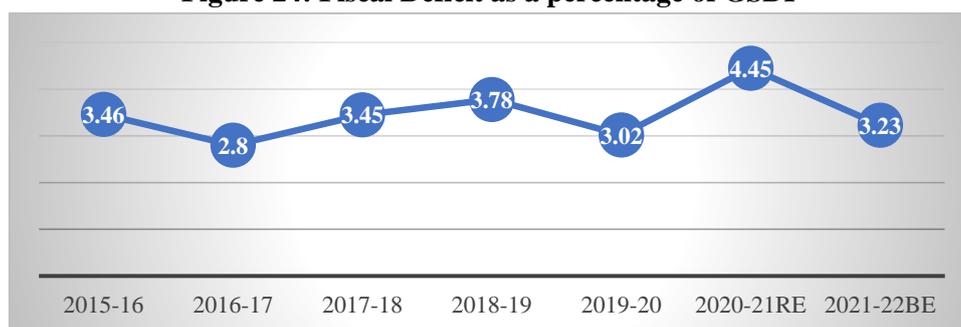
Due to the pandemic, it is expected the fiscal deficit to increase due to rise in government spending. Almost half of the States have reported gross fiscal deficit-GSDP ratio to be at or more than 3 per cent. It is important to note that in Fig.23 below there are some States which have prepared the budget at the start of the pandemic. For these States, the revision number will be on the higher side. For instance, Uttarakhand's fiscal deficit was 2.6 per cent of GSDP in 2020-21BE. But, with the revision the deficit has increased to 4.45 per cent (see Fig.24).

Figure 23: State-Wise Gross Fiscal Deficit (per cent of GDP) in 2020-21 BE



Source: RBI report on fiscal position of State Government

Figure 24: Fiscal Deficit as a percentage of GSDP



Source: UK ES 2019-20 and PRS India

Looking at the COVID -19 situation, the central government has allowed the States to raise their fiscal deficits up to 5 per cent of GSDP in 2020-21. The 15th Finance Commission also recommends achievement of fiscal deficit target of 3 per cent by 2026. Several factors like future lockdowns, different variants of the virus, etc., will determine the stress on State finances which will make any future predictions difficult.

Capital Expenditure

Capital expenditure fell to Rs. 14635.99 in 2019-20 from Rs. 16598.04 crores in 2018-19. Thus, a fall in the fiscal deficit of the State is largely seen as a result of fall in the capital expenditure. Capital expenditure includes expenditure affecting the assets and liabilities of the State like capital outlay, i.e. expenditure which leads to creation of assets (such as roads, bridges and buildings), and also the repayment and grant of loans by the State government. It is pertinent to note that a fall in the capital expenditure could reduce the funds available for creation of assets, which would have long term macroeconomic consequences. In fact, at a time when the Covid-19 induced pandemic had resulted in loss of livelihoods, a further increase in the capital expenditure could boost the employment prospects and help to revive economy to a large extent. Instead of reducing the capital expenditure, efforts need to be made to reduce the revenue expenditure which could lead to a healthy deficit.

Table No. 3.4: Revenue and Capital Expenditure of Uttarakhand (Rs. In crores)

| | 2015-2016 | 2016-2017 | 2017-2018 | 2018-19 | 2019-20 |
|---------------------|-----------|-----------|-----------|----------|----------|
| Revenue Expenditure | 23086.44 | 25271.50 | 29082.65 | 32196.02 | 32858.80 |
| Capital Expenditure | 6497.33 | 10337.94 | 13642.82 | 16598.04 | 14635.99 |

Source: Directorate of Budget, Government of Uttarakhand

The table above suggests that the capital expenditure component of the State is relatively lesser than the revenue expenditure, over a period of time. As a result, there would be lesser resources available for development expenditure. This calls for a significant reduction in the revenue expenditure and an increase in the capital expenditure at the same time. This would improve the quality of the fiscal deficit, besides providing enough financial resources for the development expenditure.

Revenue Sharing with Centre:

The 15th Finance Commission, chaired by Shri. N. K. Singh submitted its first report, consisting of recommendations for the financial year 2020-21, and it was tabled in the Parliament on February 1, 2020. The 15th Finance Commission, recommended to decrease the share of States in the centre's taxes from 42% during the 2015-20 period to 41% for 2020-21. This 1% decrease is to provide for the newly formed union territories of Jammu and Kashmir, and Ladakh from the resources of the central government.

Table No. 3.5: Share of States in Centre's Taxes (Recommendations by 14th and 15th Finance Commissions)

| State | Share of States in Centre's Tax Revenue | | | Devolution to States by the Centre | | |
|------------------|---|-------------------------------|----------|------------------------------------|------------|----------|
| | 14 th FC (2015-20) | 15 th FC (2020-21) | % Change | 2019-20 RE | 2020-21 BE | % change |
| Uttarakhand | 0.44 | 0.45 | 2% | 6,902 | 8,657 | 25% |
| Himachal Pradesh | 0.3 | 0.33 | 10% | 4,678 | 6,266 | 34% |

Sources: prsindia.org

The 15th Finance Commission recommended a 0.45% share for Uttarakhand in the centre's tax revenue for 2020-21. This is a marginal increase from the earlier 0.44% share recommended by the 14th FC for the period 2015-20. This means that out of every Rs 100 of centre's tax revenue in 2020-21, Uttarakhand will receive Rs 0.45 for the said period. In case of Himachal Pradesh, the 15th FC recommended 0.33 percent share in centre's tax revenue for 2020-21. This is slightly higher than the earlier 0.3 percent under the 14th FC for the period 2015-20.

The 15th Finance Commission also recommended certain grants-in-aid for various purposes for the year 2020-21. These grants include Rs 90,000 crore as grants to local bodies, of which Uttarakhand was to receive Rs 852 crore, and Rs 22,184 crore as grants for calamity relief, of which Uttarakhand was to receive Rs 937 crore. Moreover, Uttarakhand was also to receive Rs 5,076 crore grant for eliminating revenue deficit.

Section-III

The Covid-19 Pandemic and the Fiscal Path

Ahead

After going through one of the worst health and economic crises that the entire world, including our country and Uttarakhand had ever witnessed, the State started gaining momentum in late 2020

and early 2021, due to decline in the number of new Covid-19 infections and the roll out of vaccine across the nation, providing new hope of economic revival and V shaped recovery. This hope was short-lived, and the country and Uttarakhand is in the midst of a second wave of the COVID-19 infection which is sweeping all areas like a Tsunami. With added impetus to the vaccination drive, and the projected flattening of the curve of new infections, it is hoped that Uttarakhand shall emerge with minimal loss of lives and damage to the State economy. In order to put the economy on the path of growth again, the State needs to work in a coordinated and convergent manner with all arms of the government performing their designated roles, supporting the population in terms of providing healthcare services, saving lives, making available jobs to those who lost them due to the pandemic, ensuring continuity of education to those who cannot attend physical classes, and shoring up the eroding incomes of families so that they surface relatively less scathed after the virus abates.

The Aatmanirbhar Package by the Government of India is a sincere policy effort to pull the economy out of the crisis and the State has also made use of the provisions under the scheme. However, the main concern at this point is that despite a huge package, there is a still large scope to address the more pressing problems of the day, i.e., the revival of aggregate demand in the economy.

There are arguments that an expansionary fiscal policy would widen the fiscal deficit and could also cause inflation, and eventually result in a bigger problem of a slowing growth and high inflation. It is in this context, to be noted that expansionary fiscal policy could be inflationary at a time when the capacity utilization has reached an optimal level. But the present state suggests a large-scale underutilized capacity in the economy. Hence enhanced Government expenditure would only create more employment and generate more income in the hands of the people, which would be used further for consumption. Due to the multiplier effect, the economy would revive. In the later stage,

business confidence would improve and further improve tax revenues and the fiscal situation would be set right. Hence there is no need to worry if the fiscal deficit figures are high. They are the price that we would be paying today, for a better tomorrow. Along with other efforts that the State has put in, it is time to spend, and spending it right is more important than the spending itself.

The basic reason for a dip in economic growth and a spike in unemployment numbers is the lack of demand for goods and services in the economy. Although there are issues of disruption in supply chain networks and other issues related to supply, however, they are secondary. Hence, the pressing concern at this juncture is to take appropriate policy initiatives that boosts consumption. This requires steps to boost consumer confidence, business confidence and capacity utilisation, which would eventually revive the aggregate demand.

It is pertinent to note that the Covid-19 induced lockdowns cause erosion of incomes due to loss of jobs and earning opportunities of the self-employed. This necessitates a large fiscal stimulus to improve consumption expenditure. Businesses, ranging from retail, hospitality to corporates, have fixed costs irrespective of their current financial condition. This puts further stress on them to survive and revive their businesses. The Aatmanirbhar package largely focuses on offering loans, rather than providing them direct support in terms of subsidies on some of their fixed costs. It is to be noted in this context that businesses normally go for loans if they have enough confidence that these would flourish even in the worst-case scenario, and expected returns would be at least equal or higher than the interest paid on the loans. At a time when the consumption of goods and services is racing to touch bottom, the extent of utilisation of the loans window of the package depends upon how quickly consumption demand improves in the economy. This eventually boils down to the point of taking measures to improve demand.

The Way Ahead:

Thus, it would be prudent at this point of time, to make use of the fiscal policy to take on the economic slowdown, by boosting sector specific public investments and expenditure in a time bound manner. There is a need to improve public expenditure that provides work for the unemployed on one hand and providing input subsidies to farmers, fiscal incentives and meeting out a part of the fixed cost requirements of the small retail businesses and MSMEs, on the other hand. In parallel, there is a need to further increase the cash transfers to the poor and vulnerable as they spend maximum share of their incomes to meet their daily needs and this improves consumer demand. These measures in turn would provide incomes, boosting consumption. Task at hand is to help these segments with fiscal measures, to coax the economy to revive. The problem of fiscal deficit will surely arise. But it may not be bigger than the question of lives and livelihoods.

Sector Specific Spending Required

Once there is a clarity on whether we should spend or not, then the question comes, where to spend. In order to address this issue, one needs to weigh and strike a balance between, sectors where the propensity to consume is higher, when there is a rise in the incomes and sectors where opportunity for employment is higher. In Uttarakhand Agriculture, Industry, and Services are estimated to contribute 10%, 52%, and 38%, for the financial year 2019-20.

Keeping in view the fact that while agriculture's contribution is small to the overall State economy, its potential to provide livelihoods is high although income levels would be lesser than in manufacturing and services sectors. This is balanced by lower cost of living of families in villages, in their own homes. Increased capital expenditure and use of MGNREGA funds to create much needed infrastructure to boost drip irrigation, water harvesting, warehouses and cold storages for agricultural produce, MSME clusters for agro-processing and building robust supply chains, would create valuable assets in the State

to support rapid growth and prosperity for a majority of the population of the State.

Given the large-scale contribution of industry to the State economy, followed by services such as Tourism, it is pertinent to focus a substantial portion of spending in these two sectors. Enhancing tourism infrastructure in popular destinations, developing new tourism destinations and products would give a booster shot to the State economy post-pandemic, to cater

to the tremendous pent-up demand for tourism. A glimpse of this was experienced by the State from October 2020 to February 2021. Investments in much needed industrial infrastructure clusters and supply chains linked to agro produce and setting up of plug and play MSME parks to promote private investment in high tech, would not only create infrastructure but also generate large scale employment and help the economy to bounce back. It is time to spend, and spending it right is more important than the spending itself.

Chapter 04

Impact of COVID-19 on the Tourism Sector

Abstract

The COVID-19 pandemic severely impacted the tourism sector of the State, which is a mainstay for the residents, offering employment and income to hundreds of thousands of families. Uttarakhand Finance Department estimated Uttarakhand's revenue loss to be about Rs 7000-8000 crores due to lockdown restrictions. In terms of employment, an estimated 2.5 lakh people engaged in the hotel industry had lost their jobs by the end of June 2020. Amongst other tourism sector stakeholders, travel agents, transporters, tour operators, eateries, and homestay owners were severely impacted. A drop of 90-95% in number of tourists was experienced in 2020 as compared to 2019.

However, with the gradual unlock measures adopted by the State government from August 2020, a return of tourists was witnessed till March 2021 with most tourist destinations reporting a healthy flow of arrivals. The State government aggressively promoted the multiple destinations in the State and offered several tourism products and attractions. The restoration of tourism sector witnessed in the third and fourth quarters of 2020-21 was short-lived with the advent of the second wave of COVID-19 infections starting in mid-March.

The experience of the dramatic revival of tourism in the State during the October 2020 to February 2021 is a pointer to the potential of revival, restoration and resurgence of tourism in the State post the ebbing of the second wave. Travel and tourism have emerged as favoured avenues leading to transformation, mainly centred on improving health and well-being.

Uttarakhand needs to formulate revival and growth strategies and firm up plans supported by resources to give a kick start to the sector in a planned way as soon as the current wave subsides. That would be the right time to ignite the tourism industry with attractive products and offers as people confined in their homes would wish to travel with a vengeance.

To accommodate the 'new normal', reforms are the first steps, and recovery would follow reforms as people are concerned about the recent travelling where they prioritise cleanliness and hygiene in light of COVID-19. Once the businesses can deliver what the customers are seeking, rapid recovery and growth would be possible.

Uttarakhand can gain immensely by observing the wellness momentum and utilising its assets and resources that make it a spiritual centre of India and the world. Usage of technology would be an add-on advantage to the State; developing an understanding of changed travel behaviour, and tourist motivation would facilitate Uttarakhand's tourism industry's smooth restart and become a flag bearer in this revival.

"Everything we do after this crisis must be with a strong focus on building more equal, inclusive and substantial economy and society that is more resilient in the face of pandemics, climate change, and other global challenges..." said Antonio Guterres, Secretary-General of United Nations. These Statements are reflecting the two dimensions of the catastrophe. First is the need to assess the impact of the pandemic and climate

change on socio-economic aspects of States and individuals; second, to devise strategies essential to reforming sustainable economies and societies to become more resilient to future global challenges.

The world has been witnessing the devastation caused by novel coronavirus disease. Almost all the developed or developing economies of the world except China are staring at steep decline in

economic growth rates. The pandemic impacted almost every type of businesses and industries, but tourism and hospitality were the most severely impacted due to containment measures like lockdown, social distancing, and travel bans.

India, along with the other countries, experienced reverse migration and rising unemployment. The phenomenon was majorly visible at the destinations, which are tourism intrinsic or depend heavily on tourism activities for employment and economic opportunities. Uttarakhand has suffered both types of challenges, the pandemic and climate change. The recent Chamoli glacier incidents and other similar incidents bring into sharp focus the impact of climate change in Uttarakhand, calling for urgent remedial measures. The United Nation's Secretary-General has rightly said that the need for time post-crisis is to build equal, inclusive, and substantial economies and societies. The solution perhaps lies in technological advancements in tourism and regenerative tourism that enforce ethos sustainability without compromising competitive advantage. The policymakers may consider the importance of three **R's, Reform, Recover, and Regenerate**.

These three R's are sequential steps that may prove beneficial to tourism businesses. The COVID-19 pandemic has made us more adaptable to the functioning of contemporary societies. People and the society slowly and gradually accepted masks, gloves, sanitisers, and physical distancing and named it the new normal. Recovery from losses at both societal and economic level could be possible through structural reforms. Reforms come before recovery. Regenerative tourism would be the subsequent step post-recovery phase because it talks about re-thinking travel and stands a step ahead of sustainable tourism. It talks about preserving the ecosystem and focuses on improving the tourist destination once s/he leaves the destination. This is an essential step in the business of tourism, considering the issue of climate change. It would be beneficial States such as Uttarakhand, which are majorly dependent

upon tourism. For a destination like Uttarakhand, situated in the great Himalayas' fragile ecosystem, regeneration may prove a milestone step to avoid incidents like the Chamoli Glacier burst.

However, before planning and implementing the three R's, assessing the impact of coronavirus pandemic is essential. This chapter is organised in six sections. First, to highlight the socio-economic impact of COVID-19 at the international and national level. Second, to highlight the impact of COVID-19 on livelihood, businesses, and other sectors with particular reference to the State of Uttarakhand. Third, to explore the signs of green shoots in Uttarakhand in the context of post-COVID-19 travel trends. Fourth, to understand and learn from avenues of revival and growth, including good practices within the State and other States. Fifth, highlight the Uttarakhand government's plans to promote entrepreneurship in the hospitality and tourism sector amongst State residents and harness in-migrants' skills (especially with sectoral experience) to grow the sector. Sixth, offer a way forward, including lessons learnt from other State and countries to devise reforms that may restructure Uttarakhand Tourism.

1.0 The Socio-Economic Impact of COVID-19

The world has been experiencing the devastating effects of novel coronavirus disease. The United Nation Secretary-General expressed his grief in the following words "Hundreds of people falling ill from COVID-19, and the disease is spreading exponentially in many places. Societies are in turmoil, and economies are in nose-dive."

1.1 At International Level

The United Nation's Secretary-General's Statements reflected the despair of fatal causalities and unimaginable loss of human life during multiple waves COVID-19 spread. WHO reported the direct impact of coronavirus disease on human lives visible in 216 countries, with 111,102,016 confirmed cases, including 2,462,911 deaths till 22nd February 2021. Governments and leadership devised emergency plans like travel bans, lockdown, stay at home,

work from home, isolation, physical distancing and other similar measures to prevent the spread of coronavirus disease. However, the sudden shift in social-economic systems' functioning produced negative socio-psychological impact on individuals' lives. While an increasing number of active patients and deaths, are the direct effects of COVID-19, shrinking economies, industries, and increasing unemployment are indirect socio-economic effects. The International Labour organisation reported an escalation in job loss and predicted nearly half of the global workforce suffered the risk of losing their livelihood. The severe effects on employment can easily be understood through the absolute number of job losses in the unorganised sectors and the informal economy. Around 1.6 billion people either lost their job or are exposed to miserable living conditions. The United Nation's policy brief on tourism predicted unprecedented economic impacts in revenue and job loss. Tourism is the third-largest exporter of fuels and chemicals. The export revenue loss for the year 2020 was expected to lie between \$910 billion to \$1.2 trillion. It was further assessed that around 100 million direct tourism jobs were at risk along with 144 million jobs, which are service and labour-based, such as accommodation and food, that falls in the ambit of hospitality. The vulnerable sections of society who are directly or indirectly involved in some sort of tourism activity, such as women and youth, particularly from the places whose economy is based on tourism, have either lost their livelihood or are at risk of losing their livelihood.

1.2 At National Level

In India, the former Secretary (Tourism) reported to the parliamentary standing committee on transport, tourism, and culture that a total of two to Five and a half crore people involved in tourism directly or indirectly lost their jobs since the start of COVID-19 pandemic related lockdowns in March 2020. The revenue losses were reported as high as one hundred and fifty-eight lakh crore. The Hon'ble Minister of Culture and Tourism of Uttarakhand also stated that Uttarakhand's tourism industry had suffered huge

losses. These losses were incurred due to the closure of Char Dham yatra and significant tourist spots in Uttarakhand. Losses in absolute numbers are still awaited, but a significant setback to tourism start-ups, homestays, hotels, entrepreneurs and other stakeholders are predictable.

Globally, the preventive measures of the COVID-19 pandemic such as lockdown, social distancing, travel bans, quarantine, isolation and stay at home led to the indirect impact of COVID-19. People observed changes in routines and social systems and were forced to live in unimaginable situations. Scientific researchers report an increase in mental health anomalies such as stress, depression, and anxiety in people at the individual level. Further, the financial constraints and job losses are reflected in increasing stressful situations at home, evident in increased domestic violence and abuse cases. Post COVID-19, tourism can act as a medium of relief, escape, and transformation to mitigate the impact at societal and individual levels. However, post-COVID-19, tourists' travel behaviour, their intentions, and their demands would be altered. Tourism suppliers would require to focus on addressing the tourist's changing expectations and demands. This call for assessment of the changed behaviour of tourists, in order to meet their expectations and provide them with an unforgettable and delightful experience.

Emphasis needs to be laid on reforms instead of recovery post-COVID-19 crisis. Addressing the challenges with openness to innovation and reform may turn threats into opportunities, particularly in Uttarakhand, which caters to global wellness and transformational momentum. The need is to devise strategies and techniques considering the tourism reforms taking place worldwide to meet the international standards of service, without compromising Uttarakhand's sustainability quotient.

2. Impact of COVID-19 on Occupation, Livelihood And Business in Uttarakhand

In May 2020, Uttarakhand Finance Department officials predicted Uttarakhand's revenue loss due

to lockdown restrictions of about Rs 7000-8000 crore. They also Stated that tourism, transport, and allied industries were the worst affected. The numbers terms of indirect loss could be higher, and the intensity of such negative impact on peoples' livelihood and businesses may not be fully assessed. The hotel association representatives in Nainital stated that they were forced to lay off their staff as there was no business. Similar responses were expressed by the hotel association of Rishikesh as they said that the hotels were closed for business for seven months from March to September 2020, as most of them were converted into quarantine centres.

In terms of employment, an estimated 2.5 lakh people engaged in the hotel industry had lost their jobs by the end of June 2020. Amongst other tourism stakeholders, travel agents, transporters, tour operators, and homestay owners were adversely impacted.

Table No. 4.1: Tourist Visits To Char Dhaams (2019-20 & 2020-21)

| S. N. | Dhaams | Domestic Tourists in 2019 | Foreign Tourists in 2019 | Domestic Tourists in 2020 | Foreign Tourists in 2020 |
|-------|---------------|---------------------------|--------------------------|---------------------------|--------------------------|
| 1. | Kedarnath | 9,98,956 | 1065 | 1,35,287 | 62 |
| 2. | Badrinath | 12,44,100 | 893 | 1,55,009 | 46 |
| 3. | Gangotri | 5,29,880 | 454 | 23,736 | 38 |
| 4. | Yamunotri | 4,65,111 | 423 | 7,717 | 11 |
| 5. | Hemkund Sahib | 2,39,910 | 223 | 8,290 | 00 |
| | Total | 34,77,957 | 3,058 | 3,30,039 | 157 |

Source: Uttarakhand Tourism Department

The loss to the tourism business can be ascertained by observing the above table showing steep drop of 90% in tourist numbers to Uttarakhand-Char Dhaams, the most popular religious tourism destinations and avenues in the State, between 2019 and 2020.

The tourism industry is bread and butter for a significant portion of Uttarakhand's residents, mainly engaged in small or medium-scale enterprises. The coronavirus pandemic negatively impacted Uttarakhand's fledgling entrepreneurial spirits to engage in small scale start-ups or tourism enterprises. Mere observation

of the table below reveals the sharp erosion (65%) of people's motivation to apply for homestay registration in the State in 2020 over the 2019 numbers, while in 2019 these had shown an increase of 31% over the 2018 numbers.

Table No. 4.2: Homestay Registrations In Uttarakhand

| S.No. | District | F.Y. 2018-19 | F.Y. 2019-20 | F.Y. 2020-21 |
|-------|--------------|--------------|--------------|--------------|
| 1 | Dehradun | 211 | 220 | 77 |
| 2 | Haridwar | 13 | 05 | 03 |
| 3 | Tehri | 95 | 51 | 33 |
| 4 | Uttarkashi | 60 | 195 | 57 |
| 5 | Rudraprayag | 57 | 69 | 25 |
| 6 | Pauri | 19 | 76 | 14 |
| 7 | Chamoli | 125 | 195 | 61 |
| 8 | Nainital | 149 | 127 | 64 |
| 9 | Almora | 59 | 85 | 30 |
| 10 | Pithoragarh | 141 | 177 | 85 |
| 11 | Champawat | 05 | 29 | 51 |
| 12 | USN | 02 | 06 | 00 |
| 13 | Bageshwar | 29 | 27 | 37 |
| | Total | 965 | 1262 | 437 |

Source: Uttarakhand Tourism Department

3.0 Signs of Green Shoots

Uttarakhand Tourism started making a comeback with the reopening of the State after Unlock 3.0 in August 2020. Travellers from places with a high infection load had to undergo institutional quarantine for seven days, followed by home isolation for another week. This did not encourage tourism, and tourists were hesitant to travel with seven-day quarantine being a deterrent. There were also restrictions on number of visitors, with only 2000 visitors holding e-permits, allowed per day from outside the State.



Unlock 5.0: Govt lifts all border restrictions; just register at smartcitydehradun.uk.gov.in and visit Uttarakhand

With Unlock 4.0 in September 2020, visitor norms were further relaxed, lifting restriction on number of visitors to the State, in response to demands from the tourism sector. Visitors were required to register themselves on a State government smart city portal smartcitydehradun.uk.gov.in and produce COVID negative report not older than 72-hours before entry into the State.

As the new guidelines were introduced with Unlock 5.0 in October 2020, tourism started to pick up gradually in the State. More relaxations were announced for visitors like non-requirement of COVID negative certificate, no compulsory quarantine and no capping on the number of visitors. However, registration on the smart city portal was required, along with confirmed hotel bookings. Tourist destinations like Nainital, Mussoorie, Rishikesh and Haridwar, began bustling again. An increase in tourist inflow was witnessed from all over the country. In Nainital, the resumption of boating in the area brought back the tourism industry on track. Famous tourist hotspots like Mall Road, Naini Lake were regularly witnessing a good number of tourists.

An official of the Boat Association Nainital said, "We are witnessing a good crowd from last few days. Nearly 60 per cent of our boats are getting booking regularly. It is a good start after lockdown. We are expecting more tourists in the coming festival holidays."

An office-bearer of the Nainital Hotel and Restaurant Association said, "If we see the silver lining amid COVID19, I can say that the isolated places we have like Bhimtal, Kausani, Pangot, Mukteshwar are witnessing crowd from NCR. Tourists are more inclined to work from home these days, so hotels and cottages in these places are witnessing a good crowd. We have also strictly instructed stakeholders to follow all the safety norms, and all the guidelines issued by the government should be properly followed. Proper guidelines are already in place so that all stakeholders in Nainital regularly sanitise their properties after use and maintain mandatory distance."

Similarly, Mussoorie was blooming with the influx of tourists post-Unlock 5.0. Tourists, especially from nearby areas like Delhi, NCR, Gurgaon, Haryana, were seen enjoying and spending their evenings in Mussoorie. While sharing his views, President Hotel and Restaurant Association, Uttarakhand, said, "Mussoorie is continuously witnessing an increment in tourist footfall. Majority of tourists are from Delhi, NCR and nearby locations. In October, we have observed a 30-40% increment in tourists' number compared to September. Keeping in mind the festive seasons ahead; these numbers are bound to increase further."



Tourism Minister of Uttarakhand said, "Post COVID 19 lockdown, several positive initiatives have been undertaken to promote tourism by the State government, and the results are now evident with the increase in the number of tourists. Tourism stakeholders are successfully implementing safety measures as per the guidelines issued by Uttarakhand's government, and tourists are visiting the State hassle-free."



Secretary Tourism opined, "The enthusiasm of tourists coming to Mussoorie is evident of the fact that tourism is returning in Uttarakhand. These are positive signs for the State with a tourism-

based economy. We are rapidly moving towards normalcy. We expect that all the tourism stakeholders will follow the guidelines so that tourists' confidence in visiting Uttarakhand, will increase.

Many initiatives were taken by the State government and the private sector to revive tourism. Some are mentioned here:

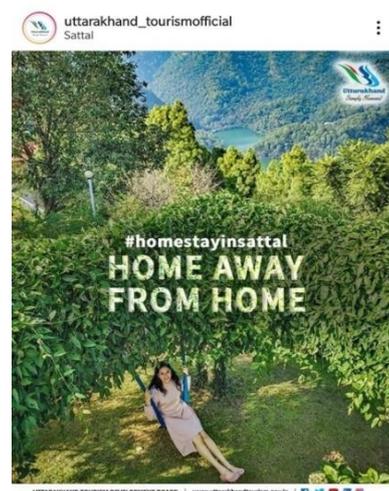
- a) *Encouragement to Adventure Tourism Activities:* A three-day national level adventure sport - Ganga Kayak Festival – was held at Rishikesh from February 17 to 19, 2021. The event was jointly organized by the Adventure Sports Society and Uttarakhand Tourism Development Board (UTDB). Similar adventure tourism festivals were organised in various parts of the State like Nayar Valley, Pauri, Mussoorie etc., that attracted tourists in large number and helped revive the State's economy.



- b) *Tehri Lake Festival:* Asia's biggest lake festival was organised from February 16 to 17 2021. The highlights of this festival were aerial sports, stunning fireworks, and other adventure activities, along with a host of water-based sports that will remain the main attraction here. Apart from adventure sports, there were many other experiences, such as yoga sessions, music performances and cultural dances.



- c) *Putting Villages On Tourist Maps:* Uttarakhand's tourism department selected 29 villages in Uttarkashi, Pithoragarh, Chamoli and Bageshwar districts, under the Trekking Traction Centre Homestay Scheme with the aim to boost adventure tourism by establishing residential facilities for tourists and travel enthusiasts. The homestays are developed according to the traditional architecture style of Uttarakhand. The villages fall on popular trekking trails and provide lodging facilities for adventure enthusiasts.



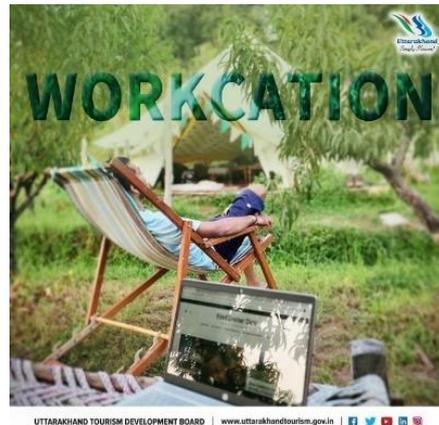
Financial assistance of Rs 60,000 per room and Rs 25,000 per toilet is provided for construction. The secretary of tourism has also instructed the old bungalows of Garhwal Mandal Vikas Nigam to be renovated and provide stay facilities to tourists.

d) *'Explore Uttarakhand'*: Discovery Channel, in collaboration with Uttarakhand Tourism Development Board (UTDB), presented an original two-part film titled 'Explore Uttarakhand'. Providing audiences with the chance to appreciate Uttarakhand's stunning natural beauty. The film premiered on February 20 and 21, 2021 on the channel and explored spiritual yoga destinations and adrenaline-packed adventure sports in the snow-filled mountains of the State. Through this two-part film, viewers get to witness the scenic Uttarakhand and familiarize themselves with its adventure sports and treasure of Yoga and wellness. The film documents most challenging adventure activities in the entire Indian subcontinent, attracting adrenaline-seeking sports professionals and enthusiasts worldwide. The ancient science of Yoga which was found by Indian sages thousands of years ago, traces its beginning to Uttarakhand.



e) *'Workation'- Work from Mountains*: To encourage people who were tired of working from home for months during the Covid-19 pandemic, Uttarakhand Tourism promoted the unique concept of 'workation' that encouraged visitors to work from scenic locations in the State, enjoying the fresh air and lush environs. Keeping in mind that a good internet connection is essential for remote working, Uttarakhand Tourism is offering a range of well-sanitised hotels, resorts and homestays with necessary facilities such as power back-up, comfortable stay, medical and first aid facilities, healthy and fresh food and room service. As an incentive UTDB launched a 'Tourist Incentive Coupon' scheme that provides a

discount of up to Rs 3000 for a minimum of a 3-day booking in hotels or homestays.



4. Avenues of Revival & Growth; Good Practices Within The State & In Other States

4.1 Role of Private Players/NGOs

Private players and NGOs have played an important role during the Covid-19 pandemic to support local communities and to revive tourism activities in the State. Some notable examples are discussed below:

a) *Madhouse2Mudhouse (The Green People)*: Madhouse2Mudhouse is a group of people working towards reviving villages and uplifting the local communities in rural Uttarakhand during the pandemic. Millions of 'White Collar' workers lost their jobs or took a steep cut in salaries due to the near-total collapse of industries like hospitality, tourism, aviation, real estate, entertainment, and media. Another million 'blue collar' workers who built the cities and urban industries' hardware and infrastructure are back to their villages after arduous journeys, with the real possibility of very few returning. This initiative is about coming and settling in such ecosystems not as a tourist or a traveller but more as stay-put residents. It goes a notch beyond stay-cations & workations or the long-staying leisure segment. They offer long-term alternate living & livelihood opportunities in rural India, with a robust socio-economic vision to create India's next growth story straight from its villages, sustainability,

minimalism, reduce, reuse, and recycling pillars of the initiative.

- b) *Been there Doon That*: Located in Dehradun, Been There Doon That (BTDT) offers numerous walks through this historic city that, unfortunately, has been seen by tourists as only a quick stopover on the way to the more sought-after hill stations. BTDT attempts to make Dehradun a destination in its own right and reconnect this city's residents with its history and idiosyncrasies. In the times of Covid, post lockdown, they are organising several walks (taking all the safety measures) to encourage economic activities. They are involving the local population and helping them to revive their businesses. They also act as waste warriors and raise a voice against single-use plastic and littering in the city.
- c) *Ankuri*: Founded as a non-profit in 2004, ANKURI — The Agency for Non-Conventional Urban and Rural Initiatives has been working in northern Uttarakhand since 2000 and now supports over 100 women through a variety of projects that provide employment, education, and training in skills such as knitting, entrepreneurship, and organic farming. They structure their programmes around the belief that an integrated approach is essential for sustainable social and economic development to be successful. They started a Foundation in 2000, working on providing livelihoods for rural women. They are now a For-Profit outfit that conceptualises, designs and markets hand knitted products made by local women and help them in the hard times induced by the pandemic.
- d) *Work from Mountains*: *Work from Mountains (WFM)* is an initiative between *Sunshine Adventures and Travel the Himalayas*, led by *Panki Sood and Prashant Mathawan*. The idea behind the concept is to help the urban population escape from boredom and monotony while supporting the rural Himalayan population with earnings. *Work from Mountains* initiative was featured on

BBC World News report on people in India moving to rural locations in India and working remotely. They have tied up with various homestays and lodges and are offering long-duration stay to the travellers. This initiative has given economic support to the locals in Uttarakhand during the pandemic and helped them survive.

- e) *Tons Trail*: Tons Trails is a social enterprise promoting sustainable tourism in this region. Their work economically empowers local mountain communities and helps them preserve this region's unique cultural and natural heritage. They have formed a trust called Kalap trust, especially for the Kalap village of Uttarakhand. Kalap trust works for equal access to education, healthcare and livelihood opportunities, and inclusion for disadvantaged host communities in Uttarakhand. They have developed one village, 'Kalap', as an example of a responsible tourism destination. They are currently working as a social enterprise with the Tons Valley communities since 2013 to empower them economically through tourism. In line with Tons Trails' community responsibility charter, 25% of profits are contributed towards supporting projects by Kalap Trust (www.kalaptrust.org), which provides access to free education and healthcare services to the people of Tons Valley. They have received *Best Stronger Together Effort* in Covid-19 award 2021 from Outlook Responsible Tourism Awards.

Best Practices From Around The World

COVID-19 bludgeoned the tourism sector the most across the globe. Available data shows that international tourist arrivals sharply declined in the first quarter of 2020 (-22%), with possible scenarios for the year pointing to an annual decline of 60% to 80% when compared with 2019 figures depending on the pace of easing travel restrictions (<https://www.unwto.org/market-intelligence>). Countries worldwide announced several measures to decrease the impact of Covid on the economy and increase employment

opportunities. Countries, mainly in Europe and Asia, introduced initiatives to restart tourism and promote demand by domestic tourists. The most crucial step to restoring people's trust and confidence in the tourism sector is health and sanitation protocols, certifications of safety and labels of hygienic practices. Many countries have understood the priority and importance of domestic tourism. They focus on marketing and promotional campaigns, new product development, and special discounts to encourage domestic travel. Providing vouchers, several forms of support and special conditions to domestic travellers as well as to tour operators, travel agents, and other tourism businesses, emerge as standard measures adopted by many countries to stimulate demand. As per UNWTO in a document titled '*How are countries supporting tourism recovery?*' (June 2020), the main initiatives taken by countries are discussed here:

A) Travel and Tourism Protocols

Spain: The Secretary of State of Spain with the Spanish Tourist Quality Institute (ICTE) created a Safe Tourism Certified system as a guarantee mark and certification of facilities/services who implemented the Risk Prevention System for the Health versus COVID-19, validated by the Ministry of Health. In the development process, representatives from the public sector at the national, regional and local level participated, along with representatives of the private sector and trade unions. In this framework, the Ministry issued a series of Guidelines to reduce the spread of Coronavirus SARS- COV-2 for areas such as accommodation, golf courses, camping, and travel agencies.

Portugal: Turismo de Portugal created the 'Clean and Safe' label to provide companies with information about the necessary hygiene and cleaning measures and promote the country as a safe destination, reinforcing the visitor's confidence in the country. *Costa Rica* and *Ecuador* have developed similar initiatives on labels and health and hygiene protocols.

Albania: The Ministry of Tourism and Environment of Albania,, in collaboration with the Ministry of Health and Social Protection, have drafted 'The Protocol of Anti-COVID 19 Measures' during tourism season 2020', with the aim of guiding and regulating necessary preconditions by tourism companies towards restarting the tourism season tht year in order to protect the health of employees and visitors.

Bulgaria: Bulgaria has formulated guidelines for accommodation establishments and a special declaration for tourists.

Lithuania, Latvia and Estonia: These countries opened their borders to each other's citizens from May 15, creating a Baltic' travel bubble'.

Estonia: Estonia started to test one of the world's first digital immunity passports, created by a team, including founders of global tech startups. A digital immunity passport collects testing data and enables people to share their immunity status with a third party using a temporary QR-code generated after digital authentication.

Kenya: Kenya announced the gradual reopening of tourism establishments and vouching for bilateral tourism agreements and Covid-19 free certifications for East Africa countries.

B) Marketing and Promotion

Issuance of Travel Vouchers: Travel vouchers issued by the government and granted to families to spend on domestic travelling have been approved by Italy, Iceland, Lithuania and the Republic of Korea.

Promotional and Marketing Campaigns: Promotion and marketing campaigns and development of new products to attract international tourists and developing domestic tourism are in preparation in Bosnia & Herzegovina, Georgia, Hungary, Iceland, Israel, Malaysia, Mexico, New Zealand, Thailand and Vietnam.

Marketing Partnership Programme: Singapore also launched a Marketing Partnership Programme and a fund to adopt tools to accelerate digital transformation, provide online training for

the tourism sector to upskill workers and provide additional assistance for travel agents.

Use of Market Intelligence: China conducted market intelligence gathering and analysis to forecast domestic tourism levels in the overall tourism demand. Tourism has been resumed, and activities are encouraged within each of the provinces, the scale and scope of the activities being decided by each province. The Ministry of Culture and Tourism and the National Health Commission jointly called upon the provincial governments to reopen local scenic spots and attractions with limited admission on the premise of strict control.

Crisis Management Action Plan: Bahrain is working on a crisis management action plan, including building trust-based coalitions, keeping positive and continuous contact with tour operators, focusing on co-marketing and joint promotion with other tourism partners.

Offering Off-season Discount: Egypt approved a new initiative promoting travel to upper Egypt during summer months (June, July and August) by offering discounts on entry fees to archaeological sites in Qena, Luxor and Aswan, in addition to a reduction of visa fees upon arrival at Luxor and Aswan Airports.

Best Practices from Indian States

Kerala: Kerala tourism has been a significant contributor to the economy of Kerala for decades. It provided revenue of Rs. Forty-five thousand nineteen (45,019) crores to the State in 2019 and employment to 1.5 million people, directly or indirectly. The COVID 19 pandemic halted the entire tourism industry in Kerala with an estimated loss of Rs.20,000 crores. The Department of Tourism in Kerala took stock of the situation to devise an effective strategy to help the trade overcome the crisis. Various departments under the Government of Kerala put up a united front to survive the pandemic. Post first wave of COVID-19, Kerala Tourism launched short-haul tours wherein the focus has been on domestic tourism. The idea is to promote prominent destinations in the State aggressively. Kerala Tourism has launched packages that focus

on 'Learning Experiences'. This experiential model is developed under the Responsible Tourism (R.T.) Mission. It will offer travellers opportunities to learn a craft, art or martial art of Kerala by staying in the State. Apart from this Kerala Tourism Department has launched various relief packages to help the industry:

- a) *Tourism Working Capital Support Scheme:* The Director of Tourism offers a loan scheme to support Kerala's tourism industry and put the industry afloat. This loan scheme aims to provide a working capital facility for entrepreneurs in the pandemic's tourism sector. In this scheme, the interested tourism industry stakeholders can apply for a working capital loan of up to Rs. 25 lakhs. The banks provide them with a flexible repayment schedule and lenient interest rates.
- b) *Tourism Houseboats Support Scheme:* The backwaters of Kerala and houseboats have played a significant role in attracting Kerala's tourists. The houseboats in Kerala provide employment and livelihood to a large number of people in Kerala. More than 1000 houseboats in the State were docked during the lockdown period for almost five months. The houseboat entrepreneurs needed investments to bring back the houseboats to a running condition. The Director of Tourism offers one-time financial assistance to houseboats' maintenance, estimated at Rs. 9.90 crores.
- c) *Tourism Guides Support Scheme:* The Director of Tourism proposed to extend one-time financial assistance to the tourist guides working in the Kerala tourism industry during the times of Covid. As per this scheme, financial assistance of Rs. Ten thousand will be given to tourist guides approved by Kerala Tourism and India Tourism, working in the Kerala region.
- d) *Tourism Employment Support Scheme:* The Director of Tourism offers a loan interest subvention scheme in association with Kerala Banks to support and safeguard the interests of people working in the Kerala tourism

industry. Under this scheme, banks provide short term loans to the employees at an interest rate of 9% per annum. The Department of Tourism absorbs 6% of the interest for a total period of 18 months, and the remaining 3% will have to be borne by the borrower.

5. Promoting Entrepreneurship in the Hospitality and Tourism Sector

The Organisation for Economic Co-operation and Development (OECD) predicted that the coronavirus pandemic hit the tourism industry hard, and approximately 80% downfall would be observed in international tourism during the year 2020. To restart the engines of the tourism business, start-ups and entrepreneurs can play a pivotal role. Globally, few economies developed specific strategies that are helping them to introduce the first 'R'-Reform in the tourism business. It has been observed and recorded that millions of people engaged in tourism businesses either lost their jobs or suffered salary cuts. The time demands tourism organisations to first secure at least minimum salary payments and protect jobs. At the same time, entrepreneurship should be promoted by sharing analysed reports with businesses so that tourism organisations operating at every scale may understand the dynamics of tourist behaviour and their travel motivation.

Some of the countries formulated specific measures to cope with the challenge of promoting jobs and promoting entrepreneurship. A small country like Montenegro, which almost one-fifth of Uttarakhand's size, strategically promotes tourism entrepreneurship. During the COVID-19 period, particularly for April and May 2020, the country paid salaries to tourism entrepreneurs to sustain the shock of losses due to the COVID-19 pandemic. Tourism companies were supported by providing them subsidies for payment of employee's salaries. In South American countries like Chile, the Ministry of Tourism and National Tourism Services (SERNATUR) officials adapt and promote the digital component for tourism business by assisting entrepreneurs. In Germany, the Federal Government Centre of Excellence for

Tourism made a corona-navigator website to provide news, information, facts, recommendations and advice to tourism stakeholders.

Similarly, Peru developed a website, www.turismo.pe which shares studies on coronavirus pandemic and report trends and advises tourism entrepreneurs. The website also shares information on Peruvian traveller behaviour post-COVID-19. More than ninety (90) countries in the world provide financial assistance to entrepreneurs to protect employment to contractual people and provide assistance to employees whose wage levels fall lower than the minimum monthly average salary.

To address the challenges posed by the coronavirus pandemic, Uttarakhand government has also taken specific initiatives to promote tourism and tourism entrepreneurship post-COVID-19. Tourism has been accorded industry status. Policies have been formulated to support capital investment in start-ups and new tourism businesses. Master plans of Badrinath and Kedarnath shrines have been developed for proper management of crowd and visitors. The Uttarakhand government also provided monetary support in the form of reliefs during the pandemic period. A relief fund of Rs 24.30 crore rupees was launched, out of which Rs 11.85 crores have been disbursed to the people in need. A total of 32,390 people has been benefited at a cost of Rs. 323.90 lakh rupees. Extraordinary relief was provided to the River Ganga rafting association with payment of Rs. 5000 to each guide.

Uttarakhand government's concern is to motivate its young residents for setting up tourism enterprises. The programme initiated for this purpose is known as 'Veer Chandra Garhwali Tourism Self Employment', (Table 4.1).

Table No. 4.3: Beneficiaries of 'Veer Chandra Garhwali Tourism Self Employment' Scheme

| S. No. | District | Beneficiaries 2019 -20 | Beneficiaries 2020-21 |
|--------|------------|------------------------|-----------------------|
| 1 | Dehradun | 21 | 14 |
| 2 | Uttarkashi | 15 | 07 |
| 3 | Haridwar | 06 | 05 |

| | | | |
|----|-----------------|------------|------------|
| 4 | Tehri Garhwal | 17 | 04 |
| 5 | Pauri Garhwal | 24 | 09 |
| 6 | Chamoli Garhwal | 32 | 22 |
| 7 | Rudraprayag | 13 | 03 |
| 8 | Almora | 21 | 08 |
| 9 | Bageshwar | 09 | 12 |
| 10 | Pithoragarh | 15 | 15 |
| 11 | Champawat | 09 | 06 |
| 12 | Nainital | 09 | 07 |
| 13 | USN | 03 | 04 |
| | Total | 194 | 116 |

Approximately 60% decline is observed in the number of beneficiaries for the year 2020-21 who showed interest in tourism self-employment and registered for the training programme over the year 2019-20. Uttarakhand government may consider renewed efforts and formulation of approaches to promote this scheme and in the process also review the experience of other countries and Indian States to promote entrepreneurship in tourism sector.

6. Way Forward

The coronavirus pandemic changed everyone's way of life. People experienced traumatic events during the lockdown period. While the socio-economic losses are essential aspects to be addressed, but at the same time, mental or psychological losses at the individual level are equally important and deserve a similar amount of attention from policy makers. The world is observing a secular trend towards wellness. People are accepting the significance of the well-being dimension of life. Earlier, physical health remained the prime centre of focus, but with society's progression, equal emphasis is now being given to mental and spiritual well-being. People are seeking transformation in their lifestyles and are exploring conducive environment to experience the transformational process. Travel and tourism have emerged as favoured avenues leading to transformation, mainly centred on improving health and well-being.

The phenomenon of travelling for transformation started gaining momentum in the later stages of first wave of COVID-19 till February 2021. The trend lost momentum since March 2021 with the second wave of the pandemic, which has engulfed us with unforeseen ferocity. Tourism is again severely hit. We need to use this period to formulate revival and growth strategy and firm up plans supported by resources to give a kick start to the sector in a planned way as soon as the current wave subsides. That would be the right time to ignite the tourism industry with attractive products and offers as people confined in their homes would wish to travel with a vengeance.

Worldwide, countries relying on tourism business are formulating plans and strategies to restart the tourism industry. At the country level, the policymakers' response to repair the dents on the tourism economy is somewhat slow and appears unplanned. The time is to learn from economies that understand the changed needs of the market, adjust with the changed tourist behaviour, and continuously analyse the tourist's motivations.

For Uttarakhand State, understanding and harnessing the wellness momentum is a must as they have all the ingredients related to health and wellness tourism that may satisfy or even delight the tourists. Focusing on increasing tourists' flow in Uttarakhand will generate revenue for the State and promote and support entrepreneurs and tourism stakeholders, mainly operating at micro, small, and medium-scale tourism businesses. The three R's-reform, recover, and regenerate may act as a game-changer for the State.

To accommodate the 'new normal', reforms are the first steps, and recovery would follow reforms as people are concerned about the recent travelling where they prioritise cleanliness and hygiene in light of COVID-19. Once the businesses can deliver what the customers are seeking, recovery would be possible. The vital lesson to remember is that COVID-19 is not the only or the last pandemic. The issue of climate change and sustainability are still prevailing and require the immediate attention of the world.

Thus, the third R-regenerate is most significant for destinations and places situated in a fragile environment like Uttarakhand Himalayas. Achieving a balance is critical. The time demands to look beyond the concept of sustainability.

Regenerative tourism would facilitate destinations to enhance the tourists' experience quality without compromising the factor of sustainability and competitive advantage. The time has come when tourists should responsibly improve the quality of the destinations visited and not restrict themselves to protecting or less damaging the ecosystems. Geospatial tourism would further help in using technology for mapping the crowd and population density. For Uttarakhand, mapping through satellites would facilitate tourism and ensure tourists' security. Emergency evacuations would become easy, travel milestones and tourism attractions and roadways could be marked. Uttarakhand can gain immensely by observing the wellness momentum and utilising its assets and resources that make it a spiritual centre of India and the world. Usage of technology would be an add-on advantage to the State; developing an understanding of changed travel behaviour, and tourist motivation would facilitate Uttarakhand's tourism industry's smooth restart and become a flag bearer in this revival.

Chapter 05

Industrial Sector

Abstract

It is a fact that despite the challenges for industrial growth, the State has been persistent in policy measures to trek the reform path in the segments related to Micro, Small, Medium Enterprises (MSME), Ease of Doing Business, and overall growth of the industry. Policy initiatives are underway to clear the hurdles on the path towards industrial growth by promoting a conducive market environment and these have been yielding results on the ground.

In FY 2018-19, Rs. 1536.47 crore worth capital investment was made, while it touched Rs. 1731.15 crore in FY 2019-2020. During FY 2020-21 (up to Nov 2020), capital investment of Rs. 572.18 crore has been made. In 2018-19, large, medium, small, micro industries generated employment for 20,894 people, while in 2019-2020 this number increased to 28,700. During FY 2020-21 (up to Nov 2020), the number was 13,655.

During FY 2019-2020, investments worth Rs.873.160 crore were made in 4153 MSME units and employment opportunities for 25,510 people were provided.

1022 fresh investment proposals were received by the State in 2020-21 (till Feb 2021) as compared to 1602 in 2019-20, with projected 25,145 employment opportunities (44,046 in 2019-20) and Rs. 4,053.55 cr financial outlay (Rs.11,793.82 cr in 2019-20).

To translate the Atma Nirbhar Bharat Abhiyan into a reality, the next generation of reforms relating to minimizing regulatory burden on businesses and citizens are being taken up by the State in mission mode. Making Government to Business and Government to Citizen Interfaces online, transparent and time bound are among the key priorities of the Government.

Govt. of Uttarakhand has setup a six-member committee (RCB Committee) on 17th October 2020 to look at ways to reduce, minimize and rationalize compliance burden of State Acts and Regulations on the industry and service sectors.

The unprecedented health emergency in the form of the Covid-19 pandemic and the resultant lockdowns, depleted a large percentage of State's employment and industrial output. Although the State has been pro-active in dealing with the crisis and in the initial stages could protect many lives, it is equally necessary to take policy decisions that restore business confidence.

The State, in tandem with the Union Government has been putting in efforts to revive the industrial sector, which would bear fruit in the near term. Along with the measures that support self-reliance, measures related to liquidity, employee retention, measures that promote businesses to avail emerging opportunities and measures that could make State's industrial sector ready for the Post Covid-19 world, are the need of the hour.

Strong and sustained policy direction and consequent changes in the way government does its business of facilitating the revival of industry and nurturing it back to good health, will determine the future of its large industrial base and put it on the growth path in the post COVID-19 world.

Walter Scheidel (2017), the Austrian economic historian, in his book, "The Great Leveller", argues that pandemic, war, revolution and State

collapse have been the four categories of catastrophic events that resulted in greater economic equality. He postulated that the

economies became more equal after these catastrophes due to the high death rates, resulting in the rise in demand and wages of labour. As the world is still struggling to overpower the global COVID-19 pandemic, it would be too early to attempt to prove whether Scheidel was right or wrong. It is due to the fact that more realistic impact of the pandemic could be gauged only when it is finally over. There are two broad underlying assumptions that led him to come to this sort of conclusion. One assumption is the all-pervasive nature of the pandemics that inflict disease, without discrimination. Another assumption is the economic hardship that the pandemics cause, cutting across class and income groups.

However, in the Indian context in general and in Uttarakhand in particular, an observation of the economic loss and human suffering that unfolded, as the deadly virus enveloped the State suggests that, the pandemic affected different sectors of the economy in different ways. Industrial sector of the State is one of the worst affected ones, in terms of output and employment loss. It is in this context it is pertinent to explore policies that aim to rejuvenate the industrial sector from the Covid-19 induced losses and making it ready to face the 'new/next normal' in the post Covid-19 world. Given this backdrop, this chapter is divided into two sections. The first section dwells upon the policy achievements and the initiatives of the State related to industrial sector, besides providing the profile of the same. The second section puts forward possible policy options and suggest measures to improve the performance of industrial sector in the backdrop of Covid-19 pandemic.

Section-I

5.1: State's Industrial Profile and Policy

Uttarakhand announced its first Industrial Policy in the year 2001. This policy helped to identify the sectors with potential for Industrial development and it underlined the pertinence of private sector participation in taking the efforts of Industrialization in the State to the next level. The policy laid emphasis on business friendly

measures like rationalising the inspection system, simplifying labour laws, preferential treatment of Small Scale Industries (SSIs) and creating 'Udyog Mitra'. Uttarakhand made persistent efforts to bring in a special package of incentives for industries from Government of India. As a result of these efforts, 'Nainital Declaration' was made in March 2002 and the State got a Concessional Industrial Package (CIP), on the lines of the package sanctioned to other special category States.

5.1.1 Industrial Policy of 2003:

On 7th January 2003, the State Government announced another industrial policy, after getting the sanction of CIP from Govt. of India. This policy focused on creating an investor friendly environment, besides the provision of fiscal incentives. The CIP included fiscal incentives like 100% Income Tax exemption for first 5 years and 30% for next 5 years for Companies and 25 percent for others, 100% Central Excise exemption for 10 years on items other than those mentioned in the negative list in the Concessional Industrial Package announced by the Central Government, extension of Central Transport Subsidy till 2007, provision of subsidy of 15% with a maximum limit of Rs. 30 lakh. Uttarakhand State Government also made provisions for fiscal incentives like providing subsidy to small scale industries. In addition to this, supporting measures like provision of assistance to obtain patents and ISO certification were taken.

The State put up an impressive performance in terms of facilitating and attracting investments, thanks to the CIP. Despite this performance there was a flaw in the scheme of things as a major part of the CIP was consumed by only three districts in the plain areas of Uttarakhand. Investments made in remaining hill districts were abysmally low in comparison. While the CIP classified segments like Tourism, Biotechnology, Aromatic Plants & Medicinal Plants based industries and Floriculture as thrust Industries, the hill regions underperformed due to several limitations. To address these issues and promote industrial

development in the hill regions, the State announced the Special Integrated Industrial Development Policy (SIIDP) for the hill regions in 2008. Later, few amendments were made in the SIIDP policy in 2011. To address the concerns of the hill districts, it was ensured that fiscal incentives were announced only for the hill regions. The hilly regions of the State were divided into two categories ‘A’ and ‘B’, with incentives in Category-A being higher than the incentives offered to the districts in Category-B. Category-A included districts of Pithoragarh, Uttarkashi, Chamoli, Champawat and Rudrapur. Category-B comprised of Pauri Garhwal, Tehri, Almora, and Bageshwar and Hilly area of Dehradun district.

Due care was also taken while framing this policy, keeping the environmental concerns in mind. Hence, non-polluting manufacturing industries categorized by the Ministry of Environment and Forests, GoI, were only eligible. Sectors like Tourism, Biotechnology Industry, Protected Agriculture and Cold Storages, Petrol and Diesel Pumping Stations and Gas Storages fell under the category of ‘eligible industries’. These industries were provided incentives like Special Capital Investment Subsidy, Special Interest Subsidy, and Stamp Duty Exemption on Purchase/Lease of Land, Infrastructure Development Subsidy, and Reimbursement of VAT.

Table: 5.1: Status of Industries in Uttarakhand:

| Year | Number of Industries | | | | | Capital Investment (Rs.in crores) | Employment Generated |
|-------------------------|----------------------|--------|-------|-------|-------|-----------------------------------|----------------------|
| | Large Scale | Medium | Small | Micro | Total | | |
| 2018-19 | 7 | 29 | 446 | 3165 | 3647 | 1536.47 | 20894 |
| 2019-20 | 28 | 35 | 501 | 3595 | 4131 | 1731.15 | 28700 |
| 2020-21 (November 2020) | 2 | 29 | 171 | 2659 | 2861 | 572.18 | 13655 |

Source: Directorate of Industries, Government of Uttarakhand

Despite the limitations on the front of industrial infrastructure, Uttarakhand’s performance on Industrial development front has been better than many North-Eastern States, Himachal and Jammu & Kashmir, to whom the CIP was sanctioned by GoI. In FY 2018-19, Rs. 1536.47 crore worth capital investment was made, while it touched Rs. 1731.15 crore in FY 2019-2020. During FY 2020-21 (up to Nov 2020), capital investment of Rs. 572.18 crore has been made. In 2018-19, large, medium, small, micro industries generated employment for 20,894 people, while in 2019-2020 this number increased to 28,700. During FY 2020-21 (up to Nov 2020), the number was 13,655.

5.1.2 MSME Policy

Uttarakhand’s MSME Policy was notified in 2015, in order to bring in more investments to this sector. This policy aimed at utilizing local resources, generating employment opportunities, especially in hilly areas in order to promote self-employment. During FY 2019-2020, investments

worth Rs.873.160 crore was made in 4153 units and employment opportunities for 25,510 people were provided. MSME Sector received larger emphasis in policy making in the last few years. This is due to its great potential to generate employment opportunities for the State’s youth and potential for units to be spread all over the State, unlike large scale industrial units, that are concentrated in few pockets of Uttarakhand.

The State’s MSME policy has been designed in such a way that it addresses the issue of regional imbalances, particularly, between the hills and the plain districts of Uttarakhand. As a part of this, higher incentives have been offered to units in the hill districts, relative to their counterparts in the plain districts. Both the manufacturing and service sectors have been given larger emphasis to avail the incentives offered by the State and many more measures that would provide impetus to the MSME units in the State to promote employment and foster economic growth at a faster pace.

Table 5.2: Status of MSMEs in Uttarakhand

| Name of the District | Registered Units in 2019-20 | | | Grand Total | | |
|----------------------|-----------------------------|----------------------|-----------------------------------|--------------|----------------------|--------------------|
| | No. Units | Employment Generated | Capital Investment (Rs in crores) | No. Units | Employment Generated | Capital Investment |
| Nainital | 290 | 1271 | 76.140 | 4550 | 21519 | 1090.168 |
| USN | 627 | 3004 | 131.240 | 8354 | 66651 | 4461.339 |
| Almora | 327 | 1113 | 40.660 | 4282 | 10201 | 224.821 |
| Pithoragarh | 213 | 619 | 19.200 | 3291 | 7649 | 107.719 |
| Bageshwar | 154 | 439 | 10.530 | 1919 | 4329 | 67.446 |
| Champawat | 155 | 423 | 7.430 | 1712 | 4629 | 88.882 |
| Dehradun | 475 | 5804 | 177.660 | 8959 | 55856 | 1456.244 |
| Pauri | 409 | 1536 | 71.240 | 6372 | 22834 | 540.511 |
| Tehri | 270 | 1279 | 59.410 | 4646 | 13828 | 316.013 |
| Chamoli | 179 | 549 | 12.480 | 3389 | 7548 | 108.967 |
| Uttarkashi | 179 | 655 | 14.010 | 4234 | 8424 | 117.916 |
| Rudraprayag | 197 | 633 | 15.750 | 2087 | 5575 | 114.405 |
| Haridwar | 678 | 8185 | 237.410 | 10824 | 95241 | 4922.299 |
| Total | 4153 | 25510 | 873.160 | 64619 | 324284 | 13616.730 |

Source: Department of MSMEs, Government of Uttarakhand

5.1.3 Handlooms & Handicrafts

To promote Uttarakhand craft products, the Uttarakhand Handloom & Handicrafts Development Council (UHHDC) has created 'Himadri' Brand. UHHDC had implemented Integrated Handicraft Development Project of Ministry of Textiles, Govt. of India in 15 Blocks of the State. The activities of Khadi and Village Industries Board are being developed as a cluster under the Khadi Gramudyog Parishad scheme. Under this scheme, local resources and local talent are being put to better use. The main objective of this scheme is to identify clusters and carryout activities for skill development of artisans. On the other hand, identification of production potential, strengthening of marketing system is being done.

Under this scheme, 09 cluster have been set up in the State. To further promote and provide marketing, new designs of khadi fabrics are being incorporated with the help of designers. Moreover, promotional activities are being undertaken at the district level also. Training is being imparted to local weavers, particularly women, to make them self-employed, by establishing Jacquard looms.

To take khadi cloth to the level of common man, an initiative of offering 10 percent discount on the sale of Khadi garments on October 2nd every year is being offered through ~200 sales centres of 60 Khadi institutions of the State.

Indeed, the MSME sector has a far wider scope for further growth with improvement in education and growth of entrepreneurship culture in the State. While the State's tourism sector had shown the way and had set an example of a successful model of young entrepreneurs facilitated by the State machinery, the same needs to be replicated in MSME sector which holds such high potential for growth of the State economy. With further advancement in technology and a larger pool of young population aspiring to take up career in entrepreneurship, the State would further have a larger role to play not only as a facilitator but also as a hand holder in the initial stages of start-ups.

5.1.4 Start-up Policy of the State:

Start-up India Scheme is an initiative of the Government of India, launched in January 2016. The main objective of this scheme is to promote start-ups, generate employment, and create wealth. Start-ups are incorporated as private

limited companies (as defined in the Companies Act, 2013) or registered as partnership firms (registered under section 59 of the Partnership Act, 1932) or as limited liability partnerships (under the Limited Liability Partnership Act, 2008) in India. These enterprises can be called Start-Ups up to ten years from the date of incorporation/ registration, provided turnover for any of the financial years since incorporation/ registration has not exceeded Rs.100 crore. The profits of recognized Start-Ups are exempted from income-tax for a period of 3 years out of 7 years since incorporation.

In line with the policy of the Union Government, and in addition to the existing MSME policy, the State's Start-up policy was notified in 2018. Its objective is to provide a platform to nurture aspiring entrepreneurs. Under this policy, the State provides incentives such as monthly allowance, marketing assistance, stamp duty, SGST etc., for the start-ups recognised by the State. Capital grants and running expenses are also provided for Incubators set up in the State.

5.1.5 Ease of Doing Business:

- The State has performed well under the Business Reform Action Plan of DPIIT and has kept improving year by year. The State stood 23rd in the country with a compliance score of 13.36 % in the BRAP 2015 exercise. The State has improved its position to 11th with an implementation score of 99% in the latest rankings.
- On boarding on National Single Window (NSW) – The State has already initiated the integration process and is vying to be the first State in the Country to be on boarded on the National Single Window Platform. The Nodal Officer from the State is regularly monitoring the progress of Integration.
- To translate the Atma Nirbhar Bharat Abhiyan into a reality, the next generation of reforms relating to minimizing regulatory burden on businesses and citizens are being taken up by the State in mission mode. Making Government to Business and Government to Citizen Interfaces online,

transparent and time bound are among the key priorities of the Government.

- Govt. of Uttarakhand has setup a six-member committee (RCB Committee) comprising of senior members of State administration and professionals on 17th October 2020 to look at reducing, minimizing and rationalizing compliance burden of State Acts and Regulations. State Nodal Officer for the exercise has been appointed.
- A systematic exercise across State Ministries, Departments and Regulators is being undertaken by the RCB Committee to eliminate/ reduce compliances, which have an adverse impact on time and cost of businesses.
- The process of on boarding of Sub-Nodal Officers of different departments onto DPIIT's Regulatory Compliance Portal is ongoing and reduced compliances are being uploaded category-wise.
- It is also proposed to establish a dedicated Compliance Burden Cell (CBC) for minimizing compliance burden for businesses as well as citizens of the State.

5.1.6 Investment Promotion Activities

The post-GST economic landscape & the aggressive Investment Promotion activities by some States led to the realization that Uttarakhand will also need to be proactive in its efforts to garner investments. The State is focused on improving governance systems related to Investor related clearances by rolling out the State Single Window Clearance System on 21 December 2015. With the necessary ecosystem in place, the State then embarked on a focused Investment Promotion programme in 2018.

An Investment Promotion & Facilitation Cell was created with the mandate to undertake Investment Promotion Activities & also to handhold big-ticket investors. A decision was taken to conduct a Global Investment Summit in October 2018 to build on the work done in the Investment promotion space by the State. The State's Investment Promotion Agency (IPA) is adjudged

as a “Top Performer” by Invest India, DPIIT, in the rankings for Investment Promotion Agencies across 20 States in the Country.

The following table sums up the investment and employment data for the financial year 2019-20 till February 2021.

Table 5.3: Investment and Employment

| S. No. | | 2019-2020 | | | 2020- 21 (Feb. 2021) | | |
|--------------------|-------|------------------|-------------------|------------------------|----------------------|-------------------|------------------------|
| | | No. of Proposals | No. of Employment | Investment (INR Crore) | No. of Proposal | No. of Employment | Investment (INR Crore) |
| 1 | MSME | 1547 | 35618 | 4347.65 | 989 | 20254 | 2237.09 |
| 2 | LARGE | 55 | 8428 | 7446.18 | 33 | 4891 | 1816.46 |
| GRAND TOTAL | | 1602 | 44046 | 11793.83 | 1022 | 25145 | 4053.55 |

Source: Directorate of Industries, Government of Uttarakhand

In response to Hon’ble Prime Minister’s call to develop the State as a Spiritual Economic Zone, the State Government planned the conduct of Uttarakhand Wellness Summit in April 2020. The State successfully conducted 3 Roadshows in Mumbai, Delhi & Kochi, in February 2020 before the COVID-19 lockdown necessitated the postponement of the event.

5.1.7 MOU Implementation Status Assessment Criteria:

Project should fulfil more than one criterion out of the ones listed below for being accepted as ‘grounded’

- Land has been purchased / allotted / leased for the project
- Necessary licenses have been granted by the departments for example, Excise License, Building Plan approval etc.
- For ITI’s, Letter of Allotment should have been issued to the successful bidder
- Construction work has started
- Orders for Plant & Machinery have been placed for the project

Table 5.04: Grounding Status of Direct Investment MOUs as on 11th February 2021

| Project Type | Ongoing Projects | Proposed Investment INR (In Cr) | Proposed Employment |
|---|------------------|---------------------------------|---------------------|
| Large Projects (MoUs Signed with Investors) | 141 | 15689.88 | 50794 |
| MSME Projects | 297 | 1239.99 | 12140 |
| Grounded ITI | 3 | 895 | 375 |
| Large Projects (Direct Investment recorded through Single Window) * | 84 | 8121.47 | 10644 |
| Grand Total | 525 | 25946.34 | 73953 |

Source: Directorate of Industries, Government of Uttarakhand

5.1.8 Single Window Clearance System

The State Government of Uttarakhand enacted The Uttarakhand Enterprises Single Window Facilitation and Clearance Act, 2012 (Uttarakhand Act No. 05 of 2013) which was passed by the Uttarakhand Legislative Assembly and assented to by the H. E. Governor on 24th January 2013. The Act was passed to provide necessary time bound licenses, permissions and sanctions to the establishment of industry in the

State of Uttarakhand. The Act devolves the power to administer various provisions in the Act to the State Level Empowered Committee (SLEC) and District Level Empowered Committee (DLEC) and these bodies are the final apex authority to grant approvals with their decisions being binding on all departments. The provisions in the Act also empowers the Act to have an overriding effect on all the other Acts that are prevalent in the State.

Table 5.5: Approved Proposals Under Single Window

| | Unit Type | Total Unit Approved | Investment (INR. Crore) | Employment |
|------------------------------------|-----------|---------------------|-------------------------|-----------------|
| April-2017 To March-2018 | MSME | 549 | 1144.81 | 9,195 |
| | Large | 17 | 1412.16 | 3,809 |
| April-2018 To March-2019 | MSME | 1075 | 3593.74 | 24,354 |
| | Large | 48 | 5554.96 | 8,823 |
| April-2019 to March-2020 | MSME | 1546 | 4345.65 | 35,593 |
| | Large | 55 | 7446.18 | 8,428 |
| April-2020 to Nov. 2020 | MSME | 747 | 1748.04 | 15,152 |
| | Large | 24 | 1550.23 | 4,545 |
| Grand Total For MSME Units | | 3917 | 10832.24 | 84,294 |
| Grand Total For Large Units | | 144 | 15963.53 | 25,605 |
| Grand Total (MSME + Large) | | 4061 | 26795.77 | 1,09,899 |

Source: Directorate of Industries, Government of Uttarakhand

5.1.9 Islands of Growth: Current Focus Sectors

Six sectors have been prioritized by the State based on strengths and factors like high multiplier effect on revenue and employment, availability of human capital, infrastructure, technology, export potential, utilization of local resources and skills, global trends & potential for economic development of hilly regions of the State.

i. Manufacturing (Pharmaceuticals, Automobile, Medical Devices)

- The State has developed a well-planned Pharma City spread across 50 acres in Selaqui. Phase II of the pharma city has been planned and RFP has been floated to rope in potential investors.
- To encourage domestic production of critical medical devices, the State is coming up with a 102 acres Medical Device Park in Haridwar.

ii. Tourism (Tourism & Hospitality, Film Shooting)

- To promote the sector, the State government has accorded Industry status to Tourism Sector and has rolled out a dedicated Uttarakhand Tourism Policy 2018. Initiatives like Development of 13 Districts 13 Destinations is an effort to take tourism to every district and the last mile.
- State has developed a Single Window System to provide permissions for film shooting.

iii. Wellness (Wellness & AYUSH, Natural Fibres, Nutraceuticals)

- Wellness is imbibed in Uttarakhand's culture, Rishikesh is known as the "Yoga Capital of the World".
 - The State is blessed with 95 different kinds of plant origin fibres like Nettle, hemp, etc. Uttarakhand also produces all four kinds of cocoons Viz Mulberry, Oak Tassar, Moga, and Eri.
 - Considering the business potential for cannabis, the State Government has legalized the cultivation of industrial hemp.
 - Seeing the rising demand for nutraceutical products post COVID, the State is also planning to develop a Nutraceutical park.
 - With its pristine Himalayan ecosystem, an abundance of nature's bounties, and ample skilled as well as semi-skilled manpower, Uttarakhand has the potential to emerge as the world's "Wellness Destination".
- #### iv. Agri & Allied (Horticulture & Floriculture, Organic Food, Herbs & Aromatics)
- The State has a robust infrastructure, including 2 Mega Food Parks, 4 Food Processing Clusters, and 60 Farmer Producer Organizations.
 - Uttarakhand is majorly an Organic State. The State has enacted Uttarakhand Organic Agriculture Act 2019 to promote organic cultivation.
 - There are 179 unique varieties of Aromatic Plants like Lemongrass, Damask Rose, Japanese Mint, Chamomile, Cinnamon in the State. To leverage its strength in the Aromatic

sector, an Aroma Park is under development, which offers special incentives for the extraction units.

v. Energy (Solar Energy, Hydro, Biomass)

- a. Uttarakhand is being developed as an ‘Energy State’ to tap the hydro-power electric potential of over 25,000 MW. 76.85 percent of the capacity is owned by the State utilities, with an installed capacity of 1876.89 MW as of 29th Feb 2021. The total installed capacity of Renewable energy in the State is 803 MW (Solar Photo Voltaic: 276 MW, Small Hydro: 454 MW, Bagasse Based 73 MW) constituting 25.2% to the total energy share.
- b. The State is also striving to achieve its ambitious target of meeting 50% of its energy demand from renewable energy by 2023.

vi. Futuristic Sectors (IT/ITeS/ESDM, Biotechnology, Education & Skilling, Fintech)

- a. The State Government through its various efforts and flagship projects is striving to make Uttarakhand as the preferred destination for IT and ITeS companies to set up their business. State Infrastructure & Industrial Development Corporation of Uttarakhand Limited (SIIDCUL) has developed a dedicated IT Park on more than 60 acres, with an earth station anchored in Dehradun by Software Technology Parks of India (STPI).
- b. The State has established a Drone Application Research Centre and is in the process of setting up drone application development incubation centre.
- c. The State is also developing an Electronic Manufacturing Cluster to attract investments in the ESDM sector.
- d. With its rich Biodiversity, Uttarakhand has the potential to become a major destination for

Bio-Tech companies. Uttarakhand Council for Biotechnology (UCB) is an autonomous organization set up to promote Biotechnology in the State. Uttarakhand is the first State in India to set up a Second-Generation (2G) Ethanol plant in 2016.

Section-II

5.2: Covid-19 and Industry: Policy Options

The Covid-19 pandemic had a serious impact of the industrial performance of the State. It affected all segments of the industry, given its all-pervasive nature and its strong impact on the demand for goods and services. As a result, Uttarakhand witnessed a huge loss of employment and output. However, the State has been proactive in dealing with the crisis and in the initial stages could protect many lives from the pandemic. It has taken key decisions to restore business confidence through policy interventions. The State, in tandem with the Union Government has been putting in efforts to revive the industrial sector, which would bear fruit in the near term.

5.2.1 Atmanirbhar Bharat Abhiyan:

With an objective of making India a self-reliant nation, the Union Government announced the ‘Atmanirbhar Bharat’ package, in three tranches. Under the Atmanirbhar Bharat 1.0, relief and support to the MSMEs to fight against the aftermath of COVID-19 was announced. Under the Atmanirbhar Bharat 2.0, a package of Rs.25,000 crores was announced to the ministries of road transport and defence. Under the Atmanirbhar Bharat 3.0, a package of measures was announced that includes initiatives that impact the industrial sector. As a part of this, Rs. 1.46 lakh crores to boost the Atmanirbhar manufacturing production linked incentives have been announced for 10 champion sectors. The State’s performance related to Atma Nirbhar Package is depicted in Tables 06 and 07 below.

Table 5.6: Phase-I up to Rs. 25 Crores (Progress as on 30.11.2020) (Rs. in crores)

| Eligible loan A/Cs | | No. A/Cs whose information sent | No of Accounts | | Amount | | Coverage Percentage |
|--------------------|---------|---------------------------------|-----------------|-------------------|-----------------|-------------------|---------------------|
| | | | Cum. Sanctioned | Cum. Disbursement | Cum. Sanctioned | Cum. Disbursement | |
| 95,916 | 2466.45 | 92479 | 64,057 | 39,817 | 1660.82 | 1407.86 | 66.78 |

Source: Directorate of Industries, Government of Uttarakhand

Table 5.07: Phase-II above Rs. 25 - 50 Crores (Progress as on 30.11.2020) (Rs. in crores)

| Eligible loan A/Cs | | No. of A/Cs whose information sent | No of Accounts | | Amount | | Coverage Percentage |
|--------------------|--------|------------------------------------|-----------------|-------------------|-----------------|-------------------|---------------------|
| | | | Cum. Sanctioned | Cum. Disbursement | Cum. Sanctioned | Cum. Disbursement | |
| 995 | 103.89 | 995 | 66 | 60 | 53.95 | 41.76 | 6.63 |

Source: Directorate of Industries, Government of Uttarakhand

The State Government has been working in coordination with the SLBC, banks and industrial organizations for better implementation of the "Emergency Credit Line Guarantee Scheme" applicable to MSMEs under the Atmanirbhar Bharat Package.

While these measures would promote self-reliance among the stakeholders, it is equally important to undertake more measures to restore business confidence, support industry and make them ready to face the changed world in the post Covid period. Indeed, it is a fact that the industry could not cope on its own, with the losses they incurred due to the unprecedented health emergency and the subsequent economic developments in the State and across the country. It is in this context, it is pertinent to understand that a coordinated policy response could potentially mitigate the impact on the State's industrial sector. This part of the second section dwells upon the possible policy measures that could potentially nurture industry back to good health. These measures include measures related to liquidity, employee retention, measures that promote businesses to avail opportunities and measures that could make State's industrial sector ready for the Post Covid-19 world.

5.2.2 Measures Related to Liquidity:

The first and foremost priority should be upon ensuring that the existing businesses do not shutdown. The lockdown and the subsequent contraction in consumer demand had serious impact on businesses. It is a challenging task to keep them afloat in the post Covid-19 times, given the massive financial losses they faced. Thus the immediate priority is to resort to liquidity enhancing measures that ensures adequate cash flow to the businesses. This includes expediting payments related to GST and other tax refunds to the businesses, and

encouraging banks to extend credit for those industries, with an emphasis on labour intensive ones. The reason behind this preference to the labour-intensive industries is that it helps protecting more jobs, thereby protecting incomes and prevent a fall in aggregate demand. Other measures like providing subsidies on the public inputs, offering compensation to the employment intensive industries through special channels, and providing the businesses, the option of going for a deferral of financial obligations, could enhance the liquidity of the companies, thus providing them an elbow room to gather the broken threads.

5.2.3 Measures Related to Employee Retention:

Keeping the employment prospects bright is as much important as keeping the businesses afloat, because lost jobs result in fall in incomes and consequential fall in consumption, which could spiral into a large-scale economic crisis. In fact, it could potentially result in further higher unemployment, cutting across the sectors, which could cause higher economic pain than what we are going through. It is a paramount need to ensure that the firms retain their employees and there is a need for strong policy action in this context. The State could envisage taking measures that incentivize those firms that don't resort to layoffs. In the process of fulfilling the imperative of ensuring that jobs are not lost, and fresh jobs are created, a fundamental question arises from the perspective of the employers. It is the challenge of paying the employees when the businesses are in loss. To address this issue, the option of providing wage subsidies to the employers on both existing employees and the new recruitments may be considered for a specified period. Such an initiative would avoid job losses and ensure stable incomes to the workforce. On the other hand, the plight of the

unorganized labour needs to be addressed with urgency. Significant policy commitment is needed to compile their database, as it is pertinent to ensure that they get the cash transfers or other related benefits at the earliest. It will not only stabilize their lives but also the economy in time.

These policy options may appear a costly fiscal exercise. However, the cost of not resorting to such an exercise could be possibly higher in terms of lost output and employment. Indeed, as the economy revives, the fiscal math could balance with higher tax revenues. Firms must be encouraged to resort to cost sharing and partial adjustments in the salaries of the employees, instead of layoffs. This would also benefit the firms, in terms of cost that would be incurred on recruitment and training of new employees once normalcy returns.

5.2.4 Going Japan's Way:

Japan's industrialization success, rising from the debris of the World –II to the level of a world leader in industries, offers valuable insights to India, particularly on the front of employee-employer relations. Unlike many countries in the world, Japanese employers consider humans are the only 'appreciating assets' of any enterprise. The unique part of this approach is that the employers guarantee life-long employment and also invest in their skill up gradation. They could do this with a simple procedure. During good times when the companies accumulate profits, they retain a part of them, for the future use of workers. When things go wrong, the accumulated money is used by the companies to provide salaries to the workers, who otherwise would have been fired due to falling profits. This not only provides the workers a job security but also builds a strong emotional connect with their organization and it helps promote innovation. In fact, this orientation of the Japanese employers towards their workers resulted in a synergy between them, where they worked collectively towards higher productivity. This became one of the key reasons for Japan's achievements on global competitiveness front. Such an approach could be imbibed in the State's industrial culture, where the workers are not seen merely like any

other tool.

5.2.5 Measures to Avail Emerging Opportunities:

It is a fact that every crisis, brings along with it, an opportunity. While Covid-19 resulted in saddening loss of many lives and livelihoods, it also brought in business opportunities that the firms need to explore and avail. The role of the State needs to be of a facilitator of this process, making the way easier. The State could encourage firms to shift part or whole of their capacities to manufacture and supply of Covid-19 related goods and equipment by providing fiscal incentives. While vaccines have been rolled out, it is pertinent to understand the risk of Covid-19 is far from over especially with the horrifying experience of the 2nd COVID-19 wave underway currently. There is a continuing large-scale demand for products like face masks, gloves, hand sanitizers, PPE kits, hand wash, soaps, disinfectants, face shields, steam inhalers, ventilators, oxygen generators, concentrators and containers and other medical equipment besides herbal immunity boosters, vitamins, herbal foods and drinks, herbal insect repellents, herbal cosmetics etc. Production of many of these products does not require higher skills and thus large number of workers with lower skills could be gainfully employed.

A State could contemplate creating an exclusive fund devoted to incentivizing businesses involved in production, distribution, marketing, sales and advertisement of these products. It would not only help the businesses to flourish but also contribute to economic growth. Increased Government procurement of these goods from the private firms would further boost production and support industrial revival and job creation.

In addition to this, measures aimed at helping businesses to adapt to the changing trends of doing business also ensures that they penetrate new markets. Such measures include providing training on improving their presence on the web, creating awareness on advertising through social media, making the firms understand the ease of improving customer service functions through

digital platforms, and teaching them how to engage in e-commerce.

5.2.6 Measures to Prepare for Post Covid-19 Reality:

Covid-19 and the lockdown induced by it had a cascading effect on the State's economy in general. Physical distancing norms and the fear of infections depleted demand that resulted in large scale losses for industries. Operational hazards and capital inadequacy, coupled with mounting losses further deteriorated their financial health. However, there is light at the end of this tunnel and the vaccines have brought new hope for future.

What remains as a bigger challenge is how to make the industrial sector, ready to successfully deal with the new reality in the post Covid-19 world. In this context, the State needs to pre-empt such challenges by recognizing them well in advance.

The first challenge is dealing with the risk aversion of existing firms and start-ups. The State needs to reassure them in the form of providing guarantees to the loans they take, depending upon the merit of their respective investment proposals. A special cell may be established to thoroughly scrutinize such proposals seeking concessions, based on prescribed quality parameters, with employment generation and value-addition being the prime criteria. The Government could take up initiatives to guide the industry on the changing trends in buying behaviour and also update them about the market patterns that could help them to take decisions related to production of goods, preponing or postponing a project and even thinking of new investments in sectors of the future. This needs persistent efforts from a devoted body of researchers and industry veterans working with financial market old hands, with real time data at hand. If implemented, this would be a breakthrough that could provide strong impetus to State's industrial growth.

The second challenge is addressing the supply disruptions caused due to the pandemic. The State needs to contemplate and plan to address the

supply side constraints for production of goods, with greater emphasis on locally manufactured goods.

The third challenge is to promote investments. Having gone through a rough patch during the pandemic, firms would be reluctant to take risks and resort to expansion and investments in new ventures. Policies aimed at providing incentives to investments in innovative business processes and extending fiscal support to sector specific investments made in labour intensive industries could go a long way in attracting investments.

Last but not the least, the State needs to continue to take measures that provide safety nets for the labour force, to retain the strength of base of the industry. It would help to make the industrial sector resilient and robust in the post covid-19 world.

5.3 Conclusion

The State has been making new strides along the path of industrial development. In fact, it has the potential to emerge as one of the most favourable destinations for investments, given its endowments in terms of natural resources and labour. On the other hand, there are challenges like a difficult terrain that results in higher costs of transportation and logistical cost for all segments of the industry. In addition to this, MSMEs' in particular, face hurdles like lack of credit availability, skilled labour and regulatory issues during the entry and exit stages. Despite these challenges, persistent policy endeavours are being put in and the State is on a reform path in the segments related to Micro, Small, Medium Enterprises (MSME), Ease of Doing Business, Exports and overall growth of the industry. Policy initiatives are underway, to clear the hurdles on the path towards industrial growth by promoting a conducive market environment.

Strong and sustained policy direction and consequent changes in the way government does its business of facilitating the revival of industry and nurturing it back to good health, will determine the future of its large industrial base and put it on the growth path in the post COVID-19 world.

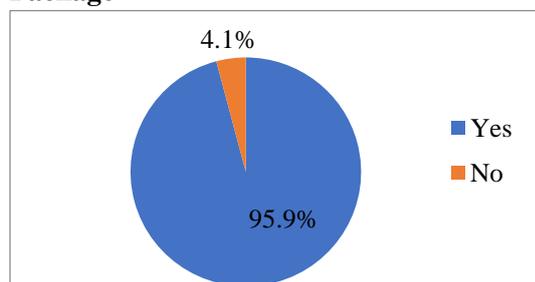
Annexure-I

To assess the impact of the COVID-19 pandemic on various sectors of the economy, a survey was carried out across the State before the onset of the second wave of COVID-19 pandemic. The survey results based upon interview of respondents from the industrial sector are presented below providing a first-hand insight of their views on several issues.

The responses have been compiled and presented in the following pie diagrams. Given the limitation of time, best endeavours have been put in to reach out to maximum possible stakeholders and get a pulse of industrial sector.

When asked about the usefulness of the Atmanirbhar Bharat package'' of Government of India, 95.5 % of the respondents were of the opinion that it is useful, while remaining 4.1 % did not find the package useful for their respective segments of industry - Fig. 5.01.

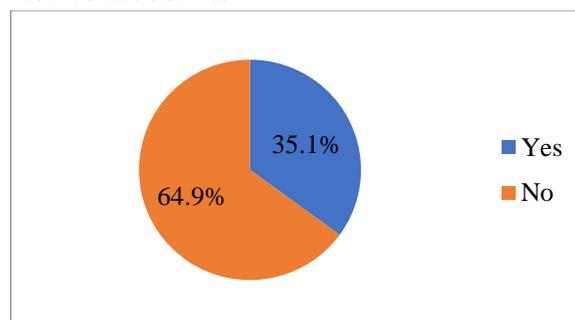
Figure 5.01: Usefulness of Atmanirbhar Package



35.1% respondents were of the opinion that the steps taken by Uttarakhand government related to boosting industrial sector in the wake of Covid-19 outbreak were helpful to revive industry in the State. 64.9% of the respondents did not agree with this statement, as they did not feel that the measures taken by the State Government were

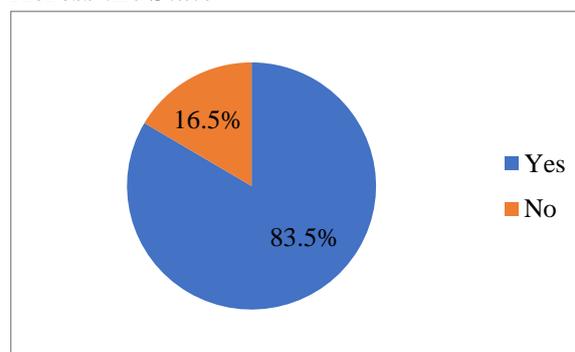
helpful to boost industry sector. This finding points to the need to revisit and possibly redesign the policies related to industrial assistance in the wake of Covid-19, with renewed focus on the real issues that plague the industrial sector and provide assistance in that direction. There may also be a need educate the stakeholders about the components of the support measures - Fig.5 02.

Figure 5.02: Usefulness of GoUK Steps to Revive Industries



83.5 % of the respondents were of the opinion that businesses in the State are showing enough signs of recovery to return to the pre COVID growth. while 16.5% respondents were of the view that businesses in the State are yet to recover – Fig. 5.03.

Figure 5.03: Status of Recovery of Businesses Across the State



Chapter 6

COVID Impact on the State Farm Sector

Abstract

Although the State experienced rapid industrialisation and surge in the contribution of the secondary and tertiary sectors to the Gross State Domestic Product (GSDP), agriculture remains the mainstay-providing livelihood directly or indirectly to an overwhelming share of the population. The share of agriculture, forestry and fishing in GSDP has declined from 11.5 percent in 2011-12 to 7.9 percent in 2020-21 (based on advance estimates). On the positive side, the sector seems to be reverting from the downward trend witnessed in the last few years. The composition of the sector reveals that crops and horticulture account for 50 percent of the sector in 2020-21, a fall from 57 percent observed in 2011-12. The share of animal husbandry or livestock, on the contrary rose from 22 percent in 2011-12 to 30 percent in 2020-21. Forestry and logging have witnessed a marginal decline whereas fishing and aquaculture have increased by a small margin.

Keeping in view the trends in both area and production under foodgrains in Uttarakhand during the past Rabi seasons, it is expected that area will increase by almost 3 percent and production by almost 6 percent in 2021. The target area and production figures reported by the Agriculture Directorate for the year 2020-21 seems to be an underestimation because the area and production data reported for Rabi 2020 have surpassed the targets for 2021. The total area under foodgrains in Rabi 2020 was 3,59,410 thousand hectares and production was 9,56,320 thousand tonnes. The yield of foodgrains for the year 2019-20 was 2325 kg. per hectare for India and 2317 kg. per hectares for Uttarakhand. The current yield figure, a marked improvement from 1697 kg. per hectares in 2004-05, is close to the national average indicating that policy changes may have contributed to the growth momentum. Focussed attention to the problems specific to hill agriculture, therefore may contribute to expansion of area under cultivation and attention to use of improved cultivation methods would generate better yields.

Beneficiaries under crop insurance schemes in Uttarakhand have increased, under Pradhan Mantri Fasal Bima Yojana (PMFBY). In Rabi FY 2016-17, 1.378 lakh farmers were provided insurance covering an area of 0.749 lakh hectares. In the Kharif 2016-17 number of farmers insured was 1.752 lakh and area insured was 1.01082 lakh hectares. This grew to Kharif 2020-21, 18.731 lakh farmers covering 16.987 lakh hectares.

The State agriculture departments and the Planning Department has been focussing on enhancing agricultural credit at the district level. At the end of December 2020, the total number of Kisan Credit Cards distributed was 6,05,595.

From December to March 2020-21, 9,09,397 farmers benefitted from Pradhan Mantri Kisan Samman Nidhi Yojana. 1957 farmers are benefitting in the State under Pradhan Mantri Kisan Maandhan Yojana.

The situation with regard to future growth of the primary sector in the State looks promising. A recent report titled 'Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework' has identified 14 key drivers of vulnerability across selected Indian States. Uttarakhand, despite the concerns with regard to climate change and disasters, is classified as a State with low vulnerability.

Introduction

The farm sector in Uttarakhand directly or indirectly supports a large section of the population. Decreasing land productivity, impact of climate change and disasters, rising land demand for residential and commercial activities and the exodus of people away from farming for better livelihoods led to a fall in the share of agriculture in the State Gross Domestic Product. The COVID 19 pandemic and the subsequent lockdown imposed to control its outbreak led to stagnation in the non-farm sectors along with return of population, labelled as migrants, back to their origin. Reports suggests that reverse migration led to the sudden increase in labour available for agriculture across many States in the country and same too was witnessed in Uttarakhand. Taking into cognizance the problems of the farm sector, the central and State governments implemented few policies. This chapter will explore how the farm sector in Uttarakhand responded to the crisis and assess the impact on the farmer households and other stakeholders including the government line departments. Further, the chapter will highlight the contribution of the off-farm and non-farm activities in supporting their needs during the challenging times. The number of small and marginal farmers is large in the State. The small holding farmers, considered a crucial part of the food value chain in India, are facing new risks threatening their livelihoods. The contribution of the chapter will specifically highlight the challenges faced by the small farm holders.

Farm Sector in Uttarakhand

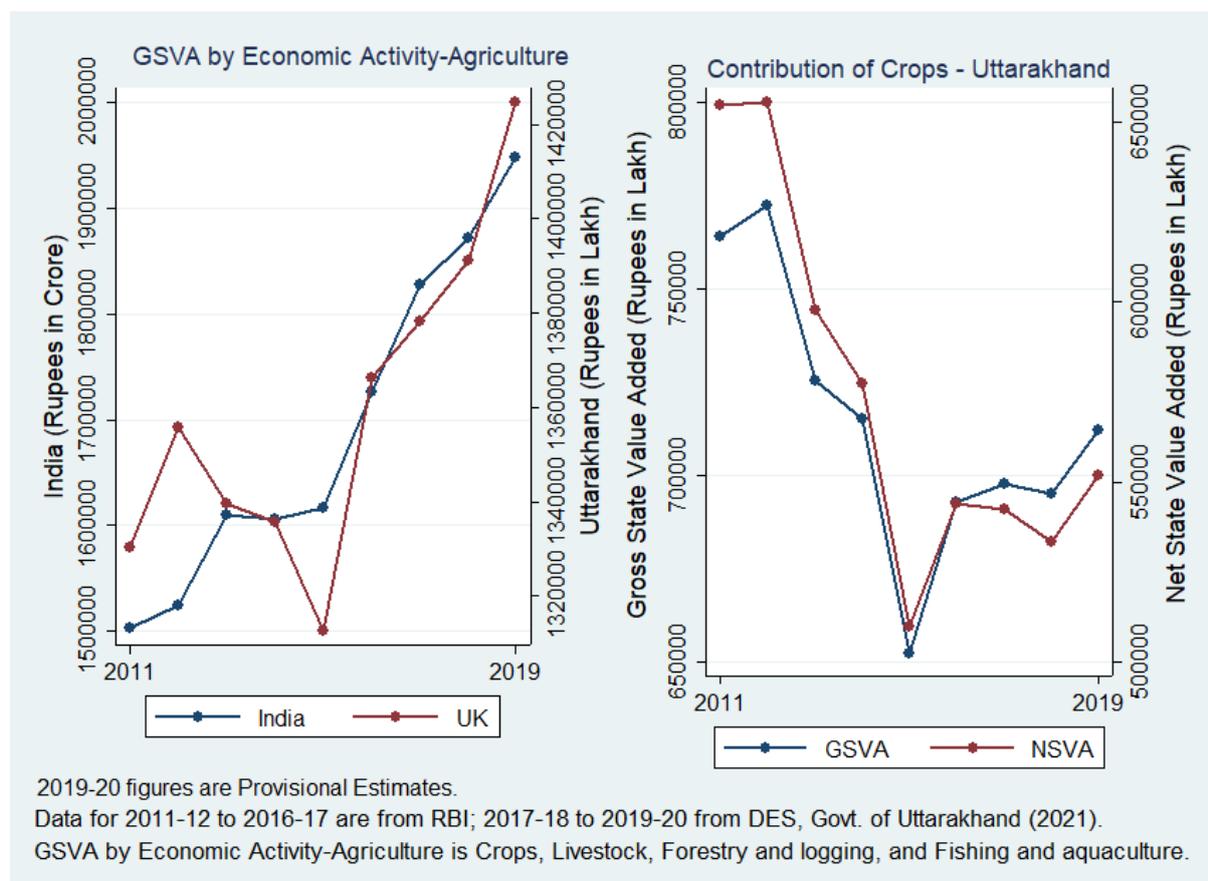
The Uttarakhand Economy Survey 2019-20 has provided statistical evidence that although the State experienced rapid industrialisation and surge in the contribution of the secondary and tertiary sectors contribution to the Gross State Domestic Product (GSDP), agriculture remains the mainstay-providing livelihood directly or indirectly to a substantial share of the population. The share of agriculture, forestry and fishing in GSDP has declined from 11.5 percent in 2011-12 to 7.9 percent in 2020-21 (based on advance

estimates). On the positive side, the sector seems to be reverting from the downward trend witnessed in the last few years. The composition of the sector reveals that crops and horticulture account for 50 percent of the sector in 2020-21, a fall from 57 percent observed in 2011-12. The share of animal husbandry or livestock, on the contrary rose from 22 percent in 2011-12 to 30 percent in 2020-21. Forestry and logging have witnessed a marginal decline whereas fishing and aquaculture have increased by a small margin. Noteworthy, the State has abundant forest resources, and the geography is not conducive for scaling up of fishing and aquaculture as has been observed in few neighbouring States.

The share of agriculture, forestry and fishing in total Gross Value Added (GSVA) (at constant 2011-12 prices) has declined from 12.28 percent in 2011-12 to 8.55 percent in 2020-21. There is approximately one percent increase compared to previous year 2019-20. In Figure 1, the GSVA for agriculture for the State has been continuously increasing and the trend corroborates what is observed at the national level. The share of crop husbandry is the highest. Further, the graph shows that after fall in the contribution of crop husbandry till 2015-16, both GSVA and Net State Value Added (NSVA) for crops has been rising. Some of the many reasons behind the increase in value addition are improvement in yield along with general increase in demand and prices of agricultural produce. However, the year 2020 has been challenging for economies around the globe due to the pandemic caused by the new coronavirus (2019-nCoV). The farm sector was impacted in many States, in particular where the sector is heavily dependent on migrant labour.

The typical characteristics of agriculture sector in Uttarakhand, the large number of small and medium farm holdings and the subsistence nature provided the much-needed cushion from the pandemic shocks. However, without the year end data on production and yield, it may be too ambitious to project increased role of the sector, but priori trends do indicate that the primary sector in the State in general may have benefitted.

Figure 1: Share of Agriculture in the State Macro-Parameters



According to the Economic Survey 2020, the farming activities were expected to show the repercussions of the pandemic; in particular, due to the lockdown period that coincided with the months when Rabi crops were to be harvested. Input shortages from labour to farm machinery were further expected to cause a disruption in the farm sector especially for the Kharif 2020 and Rabi 2021. Unlike many Indian States dependent on “migrant labour” for various farming activities, increased demand for farm inputs including farm machinery, etc., caused short-terms problems. However, the experience will be opposite in Uttarakhand primarily because of the path undertaken by the government towards rejuvenation of the hill agriculture, promotion of horticulture and emphasising the use of organic manure over chemical fertilisers. The Uttarakhand Economic Survey 2019-20, Volume 2 has presented an extensive account of the problems and prospects of the primary sector. Further, Arthik Sarvekshan 2020-21, Volume 1 refers data from Agricultural Census 2015-16

which indicates that the State has mostly small and marginal farmers (67.63 percent of the total area under cultivation). The marginal farmers (with land holdings of less than one hectare) have an average farm size of 0.43 hectares (above the national average of 0.38 hectares) and small farmers (with land holdings between 1 hectare and 2 hectares) have an average farm size of 1.39 hectares (below the national average of 1.41 hectares). The All-India Report on Input Survey 2016-17 further shows that most of the farms are fit for only production of one crop in a year mostly due to lack of irrigation facilities. In one estimate, the report shows that only 1/3rd of the marginal and small land holdings in the State are irrigated. There has been a systematic decline in the size of land under cultivation and therefore a brief exploration of the figures relating to Gross Cropped Area (GCA) and Net Irrigated Area (NIA) becomes important. Important to note that 91.97 percent farms are of the small and marginal types.

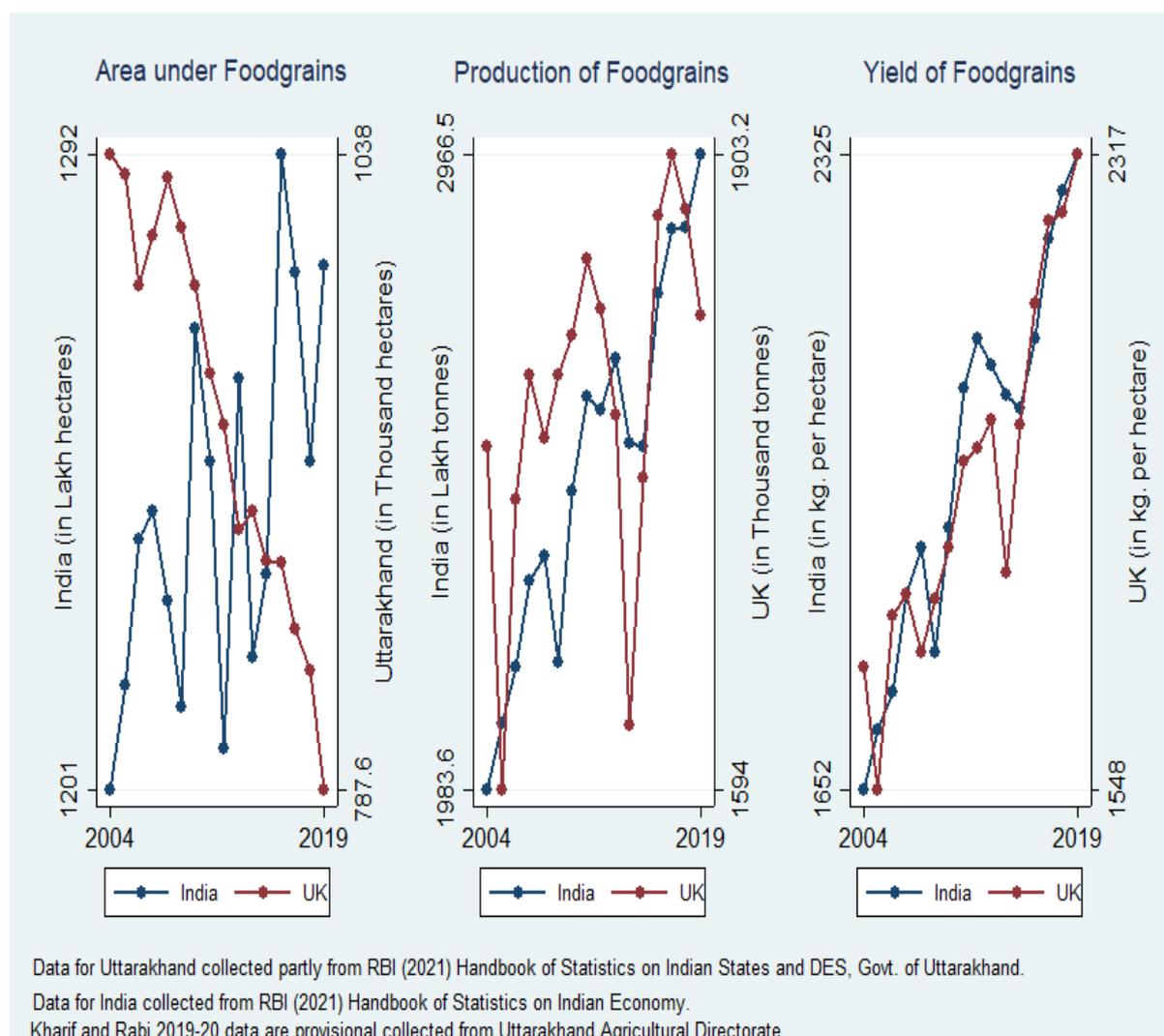
The GCA and Net Cropped Area (NCA) in the State over the past few years have been declining. The data from the Department of Revenue, Government of Uttarakhand shows that GCA in 2018-19 was 10,29,014 hectares and NCA was 6,47,788 hectares respectively. NIA was however reported to be 3,22,973 hectares and Gross Irrigated Area (GIA) stood at 5,39,651 hectares. Canals and wells are major sources of irrigated water and the share of land under irrigation far exceeds in the plain districts in comparison to the hill districts. Therefore, there ought to be a variation in the key land statistics across districts in the State that may finally impact farming decisions and outcomes at the farm level. The State has been actively engaging itself in various programmes and policies so as to boost agriculture and ensure equity in terms of availability of key resources that are not related to the vagaries of weather and environment related uncertainties.

The Input Survey Report 2016-17 shows that considering all sizes/categories of land, 3,21,000 hectares was NIA and 3,58,800 was Net Un-irrigated Area. Of NIA, 84,600 hectares are cropped once (26 percent of NIA), 6600 hectare cropped twice a year with one crop and 2,19,100 hectares cropped twice a year with two crops. Though the report mentions an area of 10,700 hectares to have been cropped more than twice, but this is mostly land concentrated in the plains and in particular in two districts of Udham Singh Nagar and Haridwar.

The input survey shows encouraging trend in terms of declining use of chemical fertilisers. Both, the irrigated area and the un-irrigated areas witnessed steady decline in the use of chemical fertilisers and the use of super phosphate and ammonium sulphate in the State is reported to be zero. Similarly, there is fall in the use of pesticides in the State and the current consumption reported is less than the national average. It is generally argued that there is a direct relationship between farm size and consumption of fertilisers. The Input Survey indicates that large farm holdings too have reduced the consumption of fertilisers. However, the consumption does depend on the crops grown; paddy and wheat leads the list. The consumption of farmyard manure on the other hand has increased over time and this is encouraging for the State departments engaged in the farm sector because they have been guiding the farmers and making them aware of the benefits of the traditional, chemical free and climate sensitive agricultural practices without hurting the production.

Agricultural machinery is divided into three categories namely manual machine/ equipment, animal-drawn implements, and power operated implement/equipment. Once again, in comparison to other States, there is scope for increasing farm mechanisation in the State but that should be dependent on the needs of the farmers.

Figure 2: Area, Production and Yield Trends for Foodgrains in Uttarakhand



The major crops produced in the State are wheat, paddy, jowar, maize, pulses including lentils and grams, oilseeds. Sugarcane is majorly grown in Haridwar and Udham Singh Nagar districts, but recent years have seen a marginal decline in the area under this water-intensive crop. In Figure 2, panel 1, the trends for area under foodgrains is shown for India and Uttarakhand measured in lakhs of hectares and thousands of hectares respectively. Panel 2 shows the movement of production at the country level and Uttarakhand measures in lakh tonnes and thousand tonnes. Panel 3, yield of foodgrains in kilogram per hectares is shown for India and Uttarakhand. The period considered is 2004-05 till 2019-20. The data for India was collected from the Handbook of Statistics on Indian Economy published by the Reserve Bank of India (RBI). The data for

Uttarakhand was collected from the Statistics on Indian States again published by the RBI. However, the information on Uttarakhand was available only up to the year 2018-19. Therefore, the 2019-20 figures for Uttarakhand corresponds to data as provided by the Uttarakhand Agricultural Directorate for the Kharif 2019 season and Rabi 2020 season. After, comparing the past data for Uttarakhand, it is validated that the sum of the two seasons may provide a direction of growth for the foodgrains production related information in the State. However, the trends are very interesting when interpreted, and more revealing when the comparison is made at the crop level.

At the all-India level, area under cultivation of foodgrains has bounced back and there is a clear upward trend (please note that area under

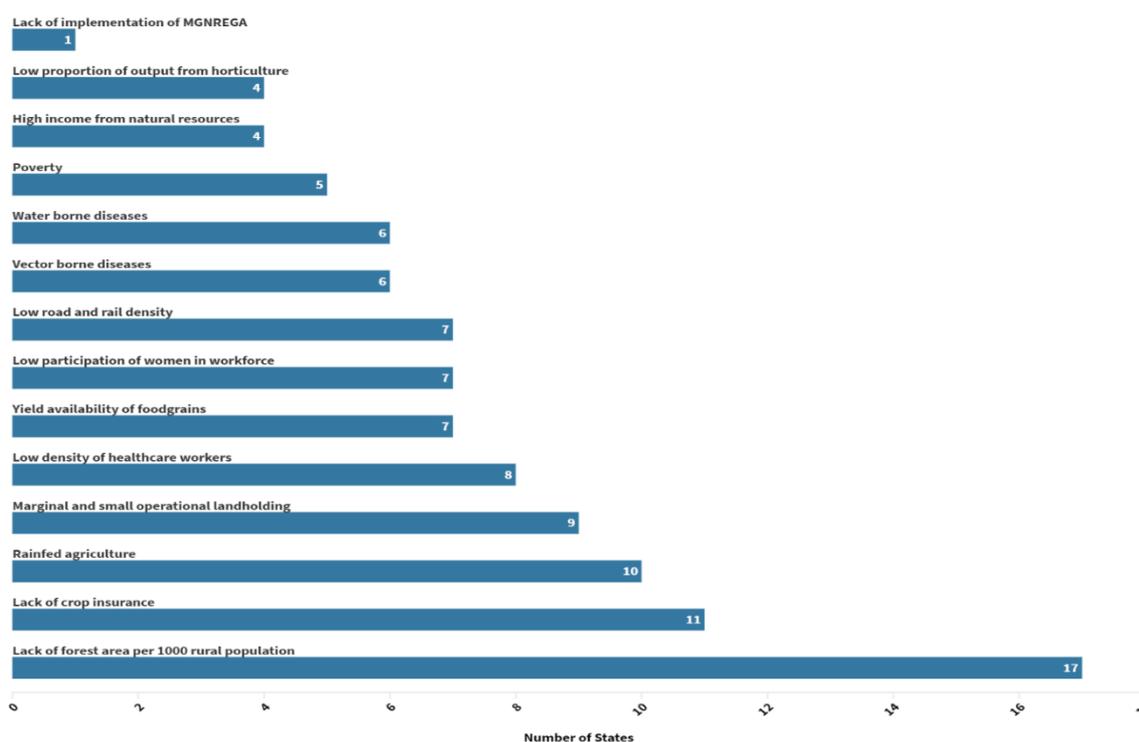
horticulture and non-food crops is not included here). Area under foodgrains in Uttarakhand had been declining since 2008-09. Area under foodgrains in the Kharif season had been declining faster in comparison to that in the Rabi season. However, keeping in view the trends in both area and production under foodgrains during the past Rabi seasons, it is expected that area will increase by almost 3 percent and production by almost 6 percent in 2021. The target area and production figures reported by the Agriculture Directorate for the year 2020-21 seems to be an underestimation because the area and production data reported for Rabi 2020 have surpassed the targets for 2021. The total area under foodgrains in Rabi 2020 was 3,59,410 thousand hectares and production was 9,56,320 thousand tonnes. The trends with respect to yield corroborate with the national trend but production of foodgrains in the State in recent years have witnessed a fall. Again, the major reason is the rainfed nature of agriculture and that many land holdings earlier cropped under Kharif season have been either abandoned or converted for other allied activities. The yield of foodgrains for the year 2019-20 was 2325 kg. per hectare for India and 2317 kg. per hectares for Uttarakhand. Therefore, the current yield figure, indicate a marked improvement from 1697 kg. per hectares in 2004-05, and is close to the national average suggesting that policy changes may have contributed to the growth momentum. Focussed attention to the problems specific to hill agriculture, therefore may contribute to expansion of area under cultivation and improved methods generate better yields.

The situation with regard to future growth of the primary sector in the State looks promising. A recent report titled 'Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework' has identified 14

key drivers of vulnerability across selected Indian States. Uttarakhand, despite the concerns with regard to climate change and disasters, is classified as a State with low vulnerability. The major drivers that may make a State and the primary sector more resilient to climate change in the near future are the availability of forest area per 1000 rural population, growing proportion/share of horticulture in total primary sector output, higher participation of women in agricultural activities and emphasis on livelihood diversification. The report suggests that lack of crop insurance, rainfed agriculture, larger number of marginal and small operational holdings, low road and rail density, extent of implementation of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) are other factors, increase vulnerability. In Figure 3, the drivers across States have been ranked on the basis of their significance from low to high.

A report on the status of MGNREGA published in 2017 pointed out that Uttarakhand and Jammu and Kashmir were two States where the efficiency of the programme was found to be below national average at 61.46 percent and 62.82 percent, respectively. This was contradicting the assumption that States with small size and decent literacy rate have relative advantage over other States in terms of gaining from MGNREGA activities. The hilly States have their unique problems that limit availability of work and regular employment opportunities for the rural poor population. The works generally provided under the Act are wells for irrigation, ponds construction, rural roads construction, among others, as compared to the States in the plains. However, in recent years, few studies have highlighted the gender inclusiveness under the scheme in Uttarakhand and that work to promote irrigation facilities is helping farms in rain-shadow areas.

Figure 3: Major Drivers of Climate Vulnerability Across States (By Number of States)



Source: Adopted from <https://factly.in/review-7-of-the-8-most-vulnerable-states-to-climate-risks-are-the-eastern-states/> (data pertains to DST 2019-2020; *National Climate Vulnerability Assessment Report*)

Investments in Char Dham Road project, revamping the key national highways connecting the country to border regions within the State, the Rishikesh to Karnaprayag railway route and the ongoing efforts to boost the road network in the State will further reduce vulnerabilities and especially the uncertainties related to agri-supply chain/ networks.

In recent years, beneficiaries under crop insurance schemes have also increased. Under Pradhan Mantri Fasal Bima Yojana (PMFBY) for Kharif, paddy, potato and mandua producers are provided insurance. In Rabi season, the insurance is available for wheat, apple and red gram. In the financial year 2016-17, under PMFBY and Restructured Weather Based Crop Insurance Scheme (RWBCIS) in Uttarakhand 1.378 lakh farmers were provided insurance thereby covering an area of 0.749 lakh hectares. In the Kharif 2016-17 season, total farmers insured were 1.752 lakh and area insured was 1.01082 lakh hectares. In Kharif 2020-21, the number of farmers under insurance stood at 18.731 lakh and area insured was 16.987 lakh hectares. For Rabi

2020-21, the number of farmers stood at 0.512 lakh and area insured was 20.063 lakh hectares. Therefore, there is a marked increase both in enrolment (of both loanee and non-loanee farmers), area insured, sum insured and number of beneficiary farmers. The initiative of the State along with the Horticulture Directorate is reducing the threat of production losses due to unforeseen weather-related perils as well as market risks. The data for crop insurance as discussed in this section have been collected from the Ministry of Agriculture and Farmers Welfare, Govt. of India (www.pmfby.gov.in).

One final observation with reference to crop insurance and the Vulnerability Index (VI) constructed at the district level reveals that the plain districts are likely to be less vulnerable. The report from DST (2019-2020) assigns the highest value of vulnerability to Garhwal (Pauri Garhwal) (0.716) and the lowest to Haridwar (0.340). The range of the VIs was divided into three categories: relatively high vulnerability (0.590-0.716) (Pauri Garhwal, Tehri Garhwal, Almora, Dehradun, Rudraprayag, Bageshwar),

relatively moderate vulnerability (0.465-0.590) (Champawat, Pithoragarh, Uttarkashi, Chamoli, Nainital), and relatively low vulnerability (0.340-0.465) (Udham Singh Nagar, Haridwar). The crop insurance beneficiaries should be more in the relatively high vulnerable districts but Pauri Garhwal had only 1472 farmers insured and Haridwar had 5343 farmers insured. Further, in Pauri Garhwal, only 14 percent were loanee farmers but in Haridwar 98.11 percent loanee farmers. Therefore, it is clear that the proportion of farmers demanding institutional credit will be lower in Pauri Garhwal in comparison to Haridwar but farmers in general acknowledge the need to be secure and thereby the proportion of non-loanee farmers seeking insurance is more. In general, the penetration of crop insurance has improved, but much more is desired to be achieved.

It is important to note that insurance is mostly benefitting those with small and marginal farm holdings. For example, in Rabi 2020, the share of small and marginal farmers in total farmers insured was 96.6 percent and in Kharif 2020 they were 98.45 percent. There are other initiatives by the State departments that have remarkably contributed to the revival of the sector and making it more climate proof. For example, there are experiments with climate smart and/or climate resilient rainfed agriculture.

To limit the vagaries of weather on the farmers, the government of India launched the *Extended Range Forecast System*² for climate risk management. This comes after Ministry of Earth Sciences report clearly shows the inconsistency in the monsoon rainfall pattern that is largely attributed to climate change and global warming which may further trigger extreme weather events. The Sendai Framework for Disaster Risk Reduction (SFDRR) as well as the Intergovernmental Panel on Climate Change

(IPCC) acknowledges that disasters may become the new normal rather than being considered as once in a lifetime rare event in the coming years. The Global Climate Risk Index 2020 ranked India 7th in the list of worst hit by extreme events. The Indian Meteorological Department (IMD) is helping the farm sector through the Extended range model guidance by offering “tailored climate information for farming and other rural livelihoods in nine monsoon-affected States of India, including Himachal Pradesh, Uttarakhand, Rajasthan, Orissa, and Tamil Nadu”³.

The percentage of households having Kisan Credit Card (KCC) with limit of Rupees 50,000 or above were found responsible for the vulnerability of 8 districts. The State agriculture departments and the Planning Department has been focussing on enhancing agricultural credit at the district level. At the end of December 2020, the total number of KCC distributed was 6,05,595.

Last year, there was a proposal to bring all farmers benefitting under the Pradhan Mantri Kisan Samman Nidhi Yojana under KCC with a target of 6.87 lakh farmers in Uttarakhand. This is not only supposed to boost agriculture and horticulture activities but also foster adoption of organic farming in the State. For the period December to March 2020-21, 9,09,397 farmers benefitted and 96 percent payments for Period 3 have been accomplished under the scheme⁴. PM Kisan is a Central Sector scheme with 100 percent funding from the Govt. of India that was introduced on 1.12.2018. Under the scheme, an income support of Rupees 6000 per year in three equal instalments is provided to small and marginal farmer families having combined land holding/ownership of up to 2 hectares. Pradhan Mantri Kisan Maandhan Yojana is a government scheme meant for old age protection and social security (involving a pension of minimum

²https://mausam.imd.gov.in/imd_latest/contents/extendedrangeforecast.php

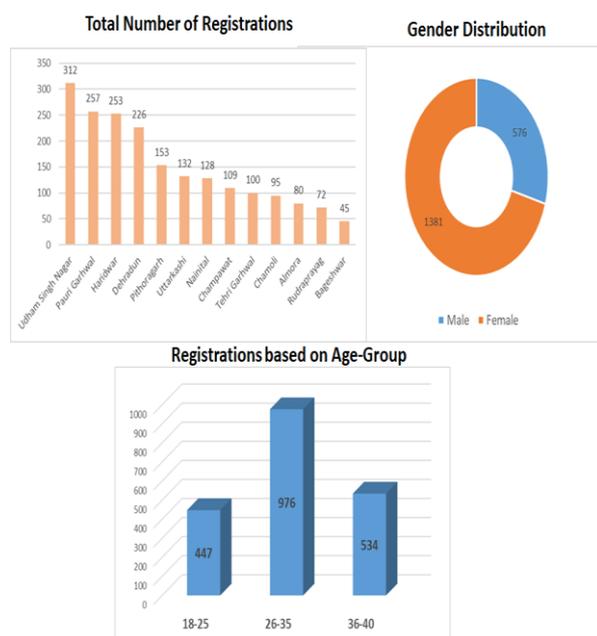
³ This section is partly based on the discussion in “A climate-resilient rainfed agriculture”. For

details refer:
<https://indianexpress.com/article/opinion/a-climate-resilient-rainfed-agriculture-7215977/>

⁴ Data available at <https://pmkisan.gov.in/#About>

Rupees 3000 per month) to the small and marginal farmers in the age group of 18 to 40 years. As on 15th May 2021, total of 1957 farmers have been registered for PMKMY with Udham Singh Nagar district leading the list in terms of registration with 312 farmers.

Figure 4: Key Information on PMKMY



Source: Data was obtained from <https://maandhan.in/stats/district/pmkmy/05>. Author's own representation

According to the All India Input Survey 2016-19, out of total of 8797 thousand operational holdings, 3749 thousand took institutional credit. This is roughly 42 percent of the total operational holdings. Commercial banks (CB) lead the list of loans disbursed followed by the Primary Agricultural Credit Societies (PACS), regional rural banks (RRB), and primary land development banks and the State land development bank (PLDB/SLDB). Given the increased role of the Cooperatives Department in the State and higher budget allocations for fostering growth through exploiting community collaborations, PACS have assumed importance in recent years. Further, as the interest rates are falling and competition in loan provisioning is increasing between schedule public and private commercial banks, they may not be interested in catering to the needs of those who are left outside the formal banking institutions. Under such

circumstances sustainability and role of PACS becomes important because most of the credit facilitated by different institutions were mostly short-term loans mostly disbursed by the CBs and RRBs. The PLDB/SLDB disburse medium-term and long-term loans. The short-term loans are mostly required to meet the expenses of agricultural inputs and fertilisers; and also instant cash.

A key input, seeds has been regularly distributed by the agricultural directorate at the district level. The crops of which seeds were distributed were paddy, maize, *mandua/ragi*, yellow little millet/ *sava*, green gram/ *moong*, god's grain/ *ramdana*, black gram/ urad, soyabean, pigeon pea/ *arhar*, sesame, and horse gram/ *gahat* during Kharif season and wheat, sorghum/ *jawar*, chickpea/ *chana*, pea, red lentil/ *masoor* and mustard. The Input Survey 2016-17 shows that hardly 5 percent of the total operational holdings used certified seeds. Use of hybrid seeds is even lower but of the sample land holdings, only 27 percent used chemicals for pest control. The consumption of both fertilisers and pesticides have been low in the State. The State also provides the farmers guidance on cropping dependent on the soil characteristics. For this, regular testing of soil and distribution of soil health cards is undertaken in all districts. In the year 2019-20, 13645 samples were collected, analysed and distributed. However, majority of the samples were collected from Udham Singh Nagar, Haridwar and Dehradun. *Therefore, data is suggestive of the fact that there is a need to intensify collection of samples from the hill districts.*

Staying on the key highlight and achievement of the sector, out of 23 agriculture procurement centres (or *mandis*), 16 have been connected to eNAM (National Agricultural Market) and have initiated plans to prepare an online platform for sale of organic food products. The Agriculture Directorate has opened several Organic Shops (*Jaivic Haat*) in different places to promote sale of organic produce.

Before we move on to the next section describing the potential impact of COVID on the primary

sector, it is worth mentioning the progress the State has achieved with some of the programmes under the National Mission on Sustainable Agriculture. Rainfed Area Development (RAD) Programme, Paramparagat Krishi Vikas Yojana (PKVY), Pradhan Mantri Krishi Sichai Yojana (PMKSY) under which the flagship component is the “More Crop Per Drop” initiative, farm water resources management, among others are noteworthy. Few of these are revisited in the section discussing preparedness for COVID.

COVID 19 Impact on Agriculture: *Review of Literature*

The pandemic has led to disruptions in every economy and sectors worldwide. Therefore, it is obvious to believe that the Indian agriculture and the primary sector in Uttarakhand will also be directly or indirectly affected by the pandemic. In this section, a brief review of literature exploring the possible impact of COVID and in particular the COVID induced lockdown is presented. At the outset, the pandemic is supposed to affect the supply of agricultural inputs starting from labour to seeds. Further, the lockdowns affecting day-to-day life is also expected to affect the agricultural supply and value chains and there may be a delay in the crop harvest to its final sale in the agricultural markets/mandis. Reports suggest that the initial impact of the pandemic on agricultural sector is less compared to the other sectors but initial lockdowns affected necessary supply chains, input distribution, harvesting, procurement, transport hurdles, marketing and processing. Further, the closure and restrictions imposed on hotels and restaurants led to reduction in the demand for food produce including poultry and fisheries products⁵. Following lockdown in the month of March 2020, farmers were affected and to restore supply from

the farm to the markets, it was suggested that the State governments (because agriculture is a State subject) should focus on post-harvest activities, wholesale and retail marketing and directly engage in procurement activities⁶. There was a brief period of concern in the poultry industry as the country was swept by bird flu in late 2020 and early 2021. There were reports of bird deaths that led to culling of bird stocks and few States even putting strict restrictions on poultry product. Livestock complements the income of those in the farm sector and necessary for income diversification.

During the first wave that affected the country, experts believed that farm sector would be affected due to short-term disruptions in supply chains leading to income uncertainties. Farmers, farm labourers and those who are key stakeholders in the sector have to constantly interact with the different people in obvious crowded places, the agricultural markets. Therefore, safety issues of the stakeholders in agriculture and horticulture are important and precautions at the correct time may prevent spreading of the pandemic to rural areas.

Farm income is often too low to support a family and therefore in many instances, the family is directly or indirectly engaged in non-farm and off-farm activities. Agriculture in the hills is mostly of subsistence in nature and therefore it is observed that many members of a family/household decide to migrate to nearby city or town where there exist better earning opportunities. This was one factor why out migration was a phenomenon in Almora and Tehri Garhwal districts of the State as reported by the Uttarakhand Rural Development and Migration Commission. Mamgain (2004)⁷, in his thesis highlighted that uncertainty with

⁵ Based on Mahendra Dev and Sengupta (2020) “Impact of COVID-19 on the Indian Economy: An interim Assessment”, Indira Gandhi Institute of Development Research Working Paper 2020-13. Available at: <http://www.igidr.ac.in/working-paper-covid-19-impact-indian-economy/>

⁶ Narayanan, S. (2020) “Food and agriculture during pandemic: Managing the consequence”. Available at: <https://www.ideasforindia.in/topics/agriculture/food-and-agriculture-during-a-pandemic-managing-the-consequences.html>

⁷ Mamgain, R. P. (2004) “Employment, migration and livelihoods in the Hill Economy of Uttaranchal”.

traditional livelihood practices was one of the reasons for low yield along with others such as land size, fragmented and scattered, relatively infertile land, poor irrigation facilities, difficulties in using modern technology and very limited use of modern inputs, mainly due both to their unsuitability and non-availability in these regions. In another report, Mamgain and Reddy (2017)⁸ attributed lop-sided development in the State along with low productive agriculture and educated unemployment who are unwilling to work as manual wage labour, as the key factors contributing to out-migration. Although rural-urban migration is a process of structural transformation, the nature of migration observed in hill districts of Uttarakhand is either long duration or permanent migration. In both situations, the farmland is left barren, only to be taken over by trees and undergrowth. The first phase of lockdown witnessed the large exodus of people from urban centres towards rural areas, a phenomenon referred to as reverse migration. It is argued that this may have its own impact on the primary sector because those who are returning home were mostly engaged in informal sector activities and unskilled or semi-skilled livelihoods.

Ali and Khan (2021)⁹ analysed the impact of lockdown on wholesale prices of the 50 agricultural commodities arriving in the agricultural markets of the Union Territory of Jammu and Kashmir. The study confirms that for the duration analysed (25 March – 31 May 2020) wholesale and retail prices, in particular of fruits and vegetables and food grocery were affected in different ways. The terminal markets were not

affected the way satellite markets were, though in general the wholesale prices of hydrating perishable fruits and vegetables fell compared to other perishable fruits and vegetables. Panic purchase and increased household demand for fruits and vegetables partially restored the falling price trend. The report from NIAP (2020)¹⁰ suggest that farm operations were normal and harvesting of Rabi 2020 crop was mostly completed in the month of April with the help of family labour and machines, especially in areas of the country where labourers could not return home. However, it was difficult to schedule marketing of crops, in particular, wheat. According to the report, “for vegetables, the lockdown period has nearly been a slack season and the produce available was allowed at the terminal markets. There are fixed market channels and only transport needs to be allowed and linked with the availability of the product in the producing centres like Himachal Pradesh, Uttarakhand, and eastern India.” Sufficient time with the government departments helped ensuring inputs (seeds and fertilizers) for Kharif farmers and good monsoon have increased the prospect of a good output. The incidence of poverty may rise because of a drastic cut in casual work in rural and urban areas.

A study by Alvi and co-authors (2021)¹¹ with reference to selected locations in India and Nepal make valuable observations that may shape policies in the short-term to restore the primary sector. Noting that the lockdowns have lessened the prospect of remittances for rural households in the selected regions, the rural households are more likely to depend on income as well as

Online at [https://mpr.aub.uni-muenchen.de/32303/MPRA Paper No. 32303](https://mpr.aub.uni-muenchen.de/32303/MPRA_Paper_No._32303)

⁸Mamgain R.P., Reddy D.N. (2017) Out-migration from the Hill Region of Uttarakhand: Magnitude, Challenges, and Policy Options. In: Reddy D., Sarap K. (eds) Rural Labour Mobility in Times of Structural Transformation. Palgrave Macmillan, Singapore. https://doi.org/10.1007/978-981-10-5628-4_10

⁹ Ali, J. and Khan, W. (2020) “Impact of COVID-19 pandemic on agricultural wholesale prices in India: A

comparative analysis across the phases of the lockdown”, *Journal of Public Affairs*, 20 (4) e2402

¹⁰ NIAP (2020), COVID-19 Lockdown and Indian agriculture: Options to reduce the impact, Working Paper **, ICAR-National Institute of Agricultural Economics and Policy Research, New Delhi

¹¹ Alvi, M., Barooah, P., Gupta, S. and Saini, S. (2021) “Women’s access to agriculture extension amidst COVID 19: Insights from Gujarat, India and Dang, Nepal”, *Agricultural Systems*, 188: 103035.

produce from agriculture for sustenance. The study based on phone surveys highlight the need to make farming practices and agricultural systems more gender inclusive. They highlight that providing women farmers access to timely and quality information is necessary along with building a more resilient and inclusive agriculture extensive systems. Factors limiting participation in farm labour need to be understood and addressed systematically so that they may contribute to food security in the event of a crisis. Recent studies have looked into the impact of COVID-19 crisis in Burkina Faso, Colombia and France (Andrieu et al., 2021)¹², Caribbean (Blazy et al., 2021)¹³, India (Cariappa et al., 2021)¹⁴; Kumar et al. 2020¹⁵; Mukhopadhyay, 2020¹⁶). The main takeaways from these papers are summarised in the following paragraph.

The rural economy has already been in a State of distress and government policies were aiming to revitalise the sector and in particular working towards doubling farmers' income by 2022. The pandemic is no doubt a threat to the rural economy and will directly impact the farm sector starting from the farm owner to tenant farmers and contractual labourers. The lockdown imposed severe restrictions of agribusiness and for a short period, impaired the supply chain. In recent years, it has been observed that horticulture production has increased but a vast majority of the farmers have no markets for their output either because of their dependency of traders and middleman. Storage and processing facilities are also limited that has led to wastages of perishable fruits and vegetables. Floriculture, dairy farming, fisheries and poultry farms were

also affected due to restrictions of religious festivities, marriages, curbs on events and limited or no tourism activities. The closure of agri-food sector or temporary closure of such units due to unavailability of labour has further complicated the financial situation of farmers who are at the forefront of the farm diversification strategy. The financial problems faced due to lockdown and unanticipated losses may lead to scarcity of capital and access to credit. In many cases, the current crisis has been termed as a blessing in disguise because the pandemic gave policymakers and implementing agencies an opportunity to explore the weaknesses of the agri-food system and the need for reforms to make it more resilient. There are wide spread reports of fear of infection to perform farm operations, limited sale points and restricted movement due to ambiguity and mis-understanding of the standard operating procedures during lockdowns, colossal losses and throwaway prices, distress sale in few States, and increased procurement by State policy. There is a need to revive food security through sufficient buffer stock, because many countries imposed cereal trade restrictions that distorted the global food supply. The States should also plan to procure and maintain a buffer stock for use during crisis.

Agriculture Policies and Service Extension in the time of Pandemic

The Govt. of Uttarakhand have taken timely decisions to protect those engaged in the farm sector. Policies adopted by the central government, to a large extent aimed at reducing the burden of the State by addressing

¹² Andrieu, N., Hossard, L., Graveline, N., Dugue, P., Guerra, P. and Chirinda, N. (2021) "Covid-19 management by farmers and policymakers in Burkina Faso, Colombia and France" *Agricultural Systems*, 190: 103092.

¹³ Blazy, J.M., Causeret, F. and Guyader, S. (2021) "Immediate impacts of COVID-19 crisis on agricultural and food systems in the Caribbean", *Agricultural Systems*, 190: 103106.

¹⁴ Cariappa, A.G.A., Acharya, K.K., Adhav, C.A., Sindhil, R. and Ramasundaram, P. (2021) "Impact of

COVID-19 on the Indian agricultural system: A 10-point strategy for post-pandemic recovery", *Outlook on Agriculture*, 1-8.

¹⁵ Kumar, A., Padhee, A.K. and Kumar, S. (2020) "How Indian agriculture should change after COVID-19", *Food Security*, 12: 837-840.

¹⁶ Mukhopadhyay, B.R. (2020) "COVID-19 and the Indian farm sector: ensuring everyone's seat at the table", *Agriculture and Human Values*, 37: 549-550.

vulnerability of the sector and of those dependent on it. Few notable steps to secure the farmers were:

- (a) A payment of Rupees 2000 in early April via the PM-KISAN scheme for the anticipated loss of income.
- (b) Compensating the farmers under Pradhan Mantri Fasal Bima Yojana for crop damages.
- (c) Buying of unsold/leftover crops directly at farm gate using the eNAM and keeping mandis open with restricted timings.
- (d) Provisioning 5 kg of free grains for three months to those entitled under the National Food Security Act.
- (e) The cash transfers schemes that pays Rupees 500 per day, paid directly to the bank account of women and unemployed informal workers via the 'Jan Dhan' financial inclusion program.
- (f) The Government of India has recently promulgated ordinances allowing barrier free trade and movement of farm produce across States and removing cereals, pulses, onions, potatoes, edible oils, and oilseeds from the purview of the Essential Commodities Act.

Some of the notable steps taken by the Uttarakhand Agriculture Directorate and other State departments are as follows:

- (a) Creation of dedicated centres for facilitating the farmers at the district level. These are different from the Krishi Vikas Kendras (KVKs). Distribution of gloves, masks and sanitisers to farmers. The expenses were considered part of the total costs towards inputs. Reportedly 2 lakh farmers benefitted.
- (b) Along with the pandemic that delayed harvesting in few districts; the plain districts mostly completed harvesting by April but the timing is delayed in the 10 hill districts. Unseasonal rainfall and hailstorm in mid-April and the first week of May 2020 damaged standing crops in many districts. The Department estimated the loss at Rs. 4.10

crores from around 1679.41 hectares. One lakh hectare of wheat crop was damaged in Udham Singh Nagar and 32,000 hectares in Pithoragarh. The Yamuna and Ganga valley saw damage to horticulture output such as apple, plum, apricot, pear and peach, vegetables and grain crops. A massive hailstorm affected vast area of Uttarkashi and Pauri Garhwal. The Department was active in its support to the affected farmers and restarted the transportation and procurement at different *mandis* after reports surfaced that farmers were unable to transport the output and had to sell the crops at much lesser prices.

- (c) The support of the Directorate to the farmers engaged in organic cultivation is evident from the fact that the first consignment of millets grown in Uttarakhand would be exported to Denmark. Agricultural and Processed Food Products Export Development Authority (APEDA), in collaboration with Uttarakhand Agriculture Produce Marketing Board (UKAPMB) and Just Organik, an exporter, has sourced and processed ragi (finger millet), and jhingora (barnyard millet) which meets the organic certification standards of the European Union (EU) for exports¹⁷. The Organic Agriculture Act (2019) enacted by the State was followed by a decision by the industrial department to set up export hubs across all 13 districts to promote local products and give them a bigger market. The decision was aligned with the policy "*vocal for local*" initiated by the central government. It is important to note that according to APEDA, Rupees 1.3 lakh crore of export business was recorded in 2020-21 in comparison to Rupees 1.1 lakh crore in previous financial year at the country level.
- (d) A committee formed by the State government under cabinet minister Shri Subodh Uniyal estimated the losses during Covid-19 lockdown period (March-end till June 2020).

¹⁷ For more details see <https://swarajyamag.com/insta/from-uttarakhand-to->

[denmark-india-starts-export-of-organically-grown-millets-of-himalayas](https://swarajyamag.com/insta/from-uttarakhand-to-denmark-india-starts-export-of-organically-grown-millets-of-himalayas)

Initial estimates suggest losses borne by the State government is around Rs 4000 crores. However, according to the committee, “the agriculture sector in the State did not face much loss during the lockdown as alternative methods of livelihood like honey rearing, cash crop cultivation were adopted”¹⁸. The report also suggested that part of the losses were covered in the form of exemption from GST. Another report headed by Indu Kumar Pandey focussed on analysing ways to improve the State economy and improve the opportunities available for income generation including key resources needed to sustain livelihood. The State also formed a 5-member sub committee for understanding the strategies to accelerate the growth of the agriculture and allied sector and protect those stakeholders affected by the pandemic.

- (e) Govt. of India on 27th February 2021 finalised a list of agriculture and allied sectors products that it wishes to promote based on a cluster approach in 728 districts across the country. This is aimed at improving farm exports and enhance farmers income. In consultation with food processing industries, the ministry has finalised the list of products for 'One District One Focus Product' (ODOFP). All districts of the State are part of this programme.
- (f) According to a report published by the Uttarakhand State Migration and Rural Development Commission (USMRDC), 71 percent of the migrants returning back to the State are reported to have decided to stay back. Out of total 3,57,536 migrants, 2,52,687 chose to stay back in the State till September-

end 2020 while 1,04,849 left for other cities and States. The reverse migrant population engaged in agriculture, horticulture, cattle rearing along with dairy farming was recorded to be 33 percent. This is expected to increase the area under cultivation and thereby production and yield of at least the Kharif 2020 season. In a telephonic interview of returning migrants, it was noted that incremental value addition may be limited because already many family members are already working on tiny and fragmented farms.

In Figure 4, district-wise trends of area and production under Kharif crops is presented. It is evident from the graphs that area under Kharif food crops has increased in Bageshwar, Champawat, Dehradun, Haridwar, Nainital, Pithoragarh, Rudraprayag, Pauri and Tehri Garhwal. Both area and production has increased in Garhwal division but has significantly dropped in the Kumaon division. Production has increased in all districts and therefore at the State-level. Incremental increase in area in the past period was higher compared to decrease in area under Kharif crops in few districts. Therefore, overall at the State level, we see an increase in area. These figures are encouraging and do indicate that if sufficient measures are adopted by the State departments, the sector often identified for poor overall performance of the economy may contribute to its growth.

Table 1 and Table 2 summarises the key budget highlights for the years 2020-21 and 2021-22 for the country and the State respectively.

Table 1: Key announcements in Budget 2020-21

| Government of India | Government of Uttarakhand |
|--|---|
| Allocation to the Ministry of Agriculture and Farmers' Welfare was ₹ 142762 crore | Uttarakhand becomes the second State in the country to pass the Organic Agriculture Bill. |
| Allocation to “Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)” to be ₹700 crore | ₹ 1 crore was allocated for “Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)”. |

¹⁸Cited from the news article available at <https://www.hindustantimes.com/dehradun/uttarakha>

nd-faced-loss-of-around-rs-4-000-cr-during-lockdown-govt-committee/story-Ozeg8LuOLtBkdHyjyx3IUO.html

| | |
|--|--|
| PM KUSUM to cover 20 lakh farmers for standalone solar pumps | ₹100 crore has been proposed for the “State Integrated Cooperative Development project”. |
| Integration of e-NWR with e-NAM. | An amount of ₹46.22 crore allocated towards extension and training of farmers. |
| “Kisan Rail” and “Kisan Udaan” to be launched by Indian Railways and Ministry of Civil Aviation respectively for a seamless national cold supply chain for perishables | The Chief Minister Krishi Vikash Yojana was launched on the lines of National Agricultural Development Scheme. An amount of ₹18 crore was proposed under this scheme |
| Agricultural credit target of ₹ 15 lakh crore. | An amount of ₹ 30 crore was allocated for “National Bamboo Mission”. |
| Allocation to Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) was ₹75000 crore | A total of 6 lakh farmers benefitted from the Pradhan Mantri Kisan Samman Nidhi Scheme |
| Allocation to Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) ₹ 65000 crore | Krishi Utpadan Lagat Sarvekshan Yojana will be initiated for providing MSP for crops such as Mandua, Sanwa, Urad, Ghat and Masoor. |
| Budget Estimates of the Expenditure on Agriculture and Allied activities to be ₹ 154775 crore | An amount of ₹3401 allocated towards expenditure on agriculture and allied activities. |
| Allocation for Market Intervention Schemes and Price Support Scheme (MIS-PSS) was ₹ 996 crore | A provision of ₹27 crore is proposed under “Deendayal Upadhaya Cooperative Farmers Welfare Scheme” |
| Allocation to “Food Subsidy to Food Corporation of India under National Food Security Act” was ₹ 344077 crore | ₹ 105 crore was allocated for strengthening of agricultural inputs godown and training centres. |
| Allocation to “Food Subsidy for Decentralized Procurement of Foodgrains under NFSA” was ₹78338 crore | 500 Farm Machinery Banks and 800 custom hiring centres will be setup under “Mission on Agriculture Mechanization”. |
| Allocation to “Pradhan Mantri Krishi Sinchai Yojana” was ₹11127 crore | ₹ 38.5 crore was allocated for “Pradhan Mantri Krishi Sinchai Yojana (PMKSY)” |
| Allocation to Green Revolution to be ₹ 10474 crore | An amount of ₹ 15 crore was allocated for “Pradhan Mantri Unnati Yojana. |
| Allocation to “Crop Insurance Scheme” to be ₹15307 crore | |
| Allocation to “Interest Subsidy for Short Term Credit to Farmers” stood at ₹ 19832 crore | |
| Allocation to “Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)” was ₹ 250 crore | |
| Allocation to “Promotion of Agriculture Mechanization for in-situ Management of Crop Residue” was ₹ 600 crore | |
| Allocation to “Agriculture Infrastructure Fund (AIF)” was ₹ 208 crore | |
| Allocation to “Urea Subsidy” was ₹ 94957 crore | |
| Allocation to “Pradhan Mantri Kisan Sampada Yojana” was ₹750 crore | |

Source: Union Budget and Budget of Uttarakhand

Table 2: Key Announcements in Budget 2021-22

| Government of India | Government of Uttarakhand |
|--|----------------------------------|
| <u>Under the Atma Nirbhar Bharat Abhiyan</u> <u>Agriculture and Allied Sectors</u> <ul style="list-style-type: none"> • Concessional Credit Boost to farmers • Agri Infrastructure Fund | |

| | |
|---|--|
| <ul style="list-style-type: none"> • Emergency working capital for farmers • Amendments to the Essential Commodities Act • Agriculture marketing reforms | |
| Expansion of Operation Green Scheme to include 22 perishable products | The Organic Agriculture Act (2019) has been implemented |
| 1000 more mandis to be integrated with e-NAM | An amount of ₹54.38 crore allocated towards extension and training of farmers |
| Allocation to Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) ₹ 65000 crore in 2021-22 | Under the Pradhan Mantri Kisan Samman Nidhi Scheme ₹1026.5 crore has been transferred to the account of 8,74,000 farmers |
| Allocation to the Ministry of Agriculture and Farmers' Welfare ₹ 131531 crore | An amount of ₹ 61.2 crore was allocated for "National Bamboo Mission". |
| Allocation to the Ministry of Consumer Affairs, Food and Public Distribution ₹ 256948 crore | A provision of ₹87.5 crore is being made under traditional agricultural development scheme. |
| Budget Estimates of the Expenditure on Agriculture and Allied activities to be ₹ 148301 crore | ₹ 114.7 crore is allocated for strengthening of agricultural inputs godown and training centres. |
| ₹ 65000 crore to be allocated to Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) | There is a provision of ₹20 crore in the Chief Minister's State Agricultural Development Scheme and of ₹12 crore in the Integrated Model Agriculture Village Scheme. |
| ₹ 131531 crore to be allocated to the Ministry of Agriculture and Farmers' Welfare | An amount of ₹ 18 crore was allocated for "Pradhan Mantri Unnati Yojana". |
| ₹ 256948 crore to be allocated to the Ministry of Consumer Affairs, Food and Public Distribution | An amount of ₹67.9 crore was allocated under the Chief Minister Krishi Vikash Yojana scheme for the financial year 2021-22. |
| ₹ 154775 to be allocated towards the Expenditure on Agriculture and Allied activities | An amount of ₹3545 allocated towards expenditure on agriculture and allied activities. |
| ₹ 13408 crore to be allocated to Green Revolution | A provision of ₹47 crore is proposed under "Deendayal Upadhaya Cooperative Farmers Welfare Scheme" for the financial year 2020-21. |
| ₹ 11588 crore allocated to "Pradhan Mantri Kisan Sinchai Yojana" | ₹ 40.5 crore was allocated for "Pradhan Mantri Krishi Sinchai Yojana (PMKSY)". |
| ₹ 776 crore allocated to "Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)" | ₹ 7.2 crore was allocated for "Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)" |
| ₹ 1501 crore to be allocated for Market Intervention Schemes and Price Support Scheme (MIS-PSS) | |
| ₹ 16000 crore to be allocation to "Crop Insurance Scheme" | |
| ₹ 19468 crore to be allocated to "Interest Subsidy for Short Term Credit to Farmers" | |
| ₹ 700 crore to be allocated towards formation and promotion of 10,000 Farmer Producer Organizations (FPOs) | |
| ₹ 700 crore to be allocated for the promotion of Agriculture Mechanization for in-situ Management of Crop Residue | |
| ₹ 900 crore to be allocated towards "Agriculture Infrastructure Fund (AIF)" | |
| ₹ 58768 crore to be allocated for urea subsidy | |

| | |
|---|--|
| ₹ 202616 crore to be allocated for food subsidy to Food Corporation of India under National Food Security Act | |
| ₹ 40000 crore allocated for food subsidy for decentralized procurement of food grains under NFSA (National Food Security Act) | |
| ₹ 700 crore allocated to “Pradhan Mantri Kisan Sampada Yojana” | |

Source: Union Budget and Budget of Uttarakhand

Conclusions

It is widely believed that the impact of COVID-19 related lockdowns will be not so significant for the agricultural sector, as supply-demand mismatch mainly affected the secondary and the tertiary sectors.

The agricultural sector in Uttarakhand is less dependent on migrant labour, is rainfed and still traditional in its outlook. Land holdings are small, and farmers have moved towards horticulture and organic farming with State support. Government initiatives may have resulted in increase in farm income coupled with an increase in yield of food-grains.

It is widely reported that many farming families who migrated from the hill districts have returned back or due to the growing livelihood related uncertainties in urban centres, have voluntarily stayed back. This may usher a new beginning in the State as districts affected by mass migration and abandonment of farming activities may see rejuvenation of the sector.

The State and the agriculture, horticulture and allied farming departments may highlight policies important to support those who require immediate support and assistance.

Preliminary data for the Kharif 2020 season and the expected area under production for Rabi 2020-21 season indicate that the sector may see a reversal in growth prospects in few districts at least.

Support through Central government policies and social security schemes floated by allied departments, may result in higher returns from the farm sector.

Provisioning of key agricultural inputs and focus on restoration of agri-supply chains

would be crucial to sustain agriculture affected by the lockdown in the second wave.

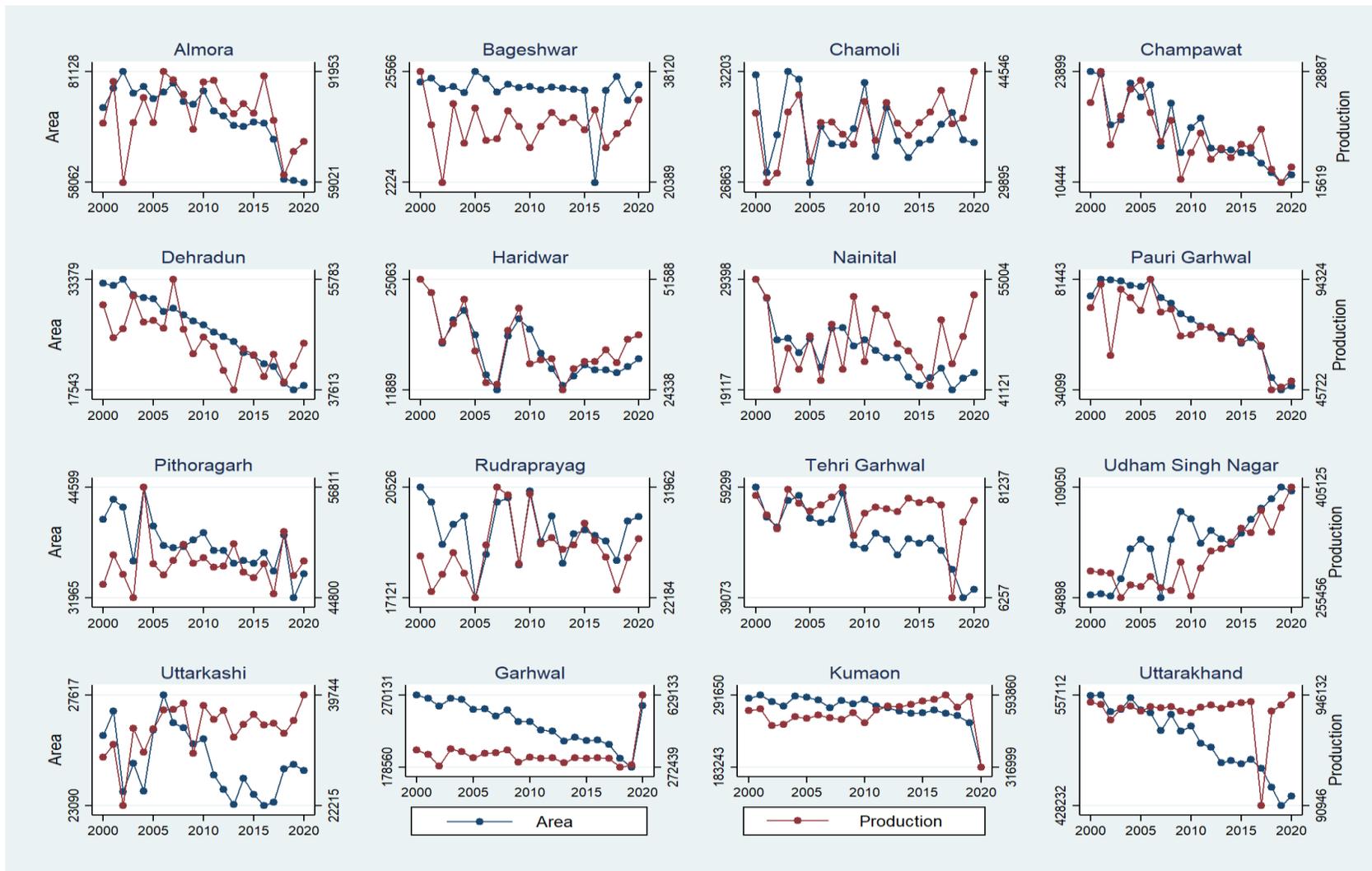
It is also necessary to protect the health and well-being of those involved in farm activities through medical/ health check-ups and sensitisation for vaccination especially through the KVKs.

An in-depth study is required to analyse the net impact of the pandemic on the farm sector and its dependent population. In districts, where tourism dominates, it is important to assess the extent to which agriculture substituted for the income losses from tourism activities.

It is also important to check the monthly variation in prices of food crops, vegetables and fruits, medicinal plants and herbs, and other off farm products at the mandi level.

Though, the State is benefitting from the organic revolution, the impact of closure of hotels and restaurants, and the restrictions in movement of agri-products to nearby cities may see a short term change in the cropping pattern of the farmers. Enhanced subsidy, training and guidance at the block level may help fulfil the goals of Atma Nirbhar Bharat Abhiyan for the agriculture and allied sectors.

Figure 5: District Trends in Area and Production Kharif Crops: 2000-01 to 2020-21



Source: Author's representation using data from Agricultural Directorate. The figures for Kharif 2020 are advance estimates

Chapter 7

Health – Building Resilience to Future Pandemics

Abstract

The State of Uttarakhand, much like its national and international counterparts continues to grapple with the Covid-19 virus. A year ago, when the first case was reported in the State, there was limited knowledge about this novel coronavirus as well as had limited resources at State's disposal. But concerted and strategic efforts by the State government ensured that the State machinery was prepared to safeguard its people against this ravaging pandemic. The healthcare sector of the State has been tirelessly committed to serve from the front, beginning last year and till date.

However, the healthcare system is stressed and key areas of concern, especially the lack of an adequate and well-trained healthcare workforce, have been exposed. In the face of adversity, the State rose up to the challenge and gradually geared up its physical and human infrastructure in response to the growing medical needs of the population.

The fiscal commitment of the State also reflected a renewed perspective to the healthcare sector as being the foundation of State's preparedness for the pandemic. In a year's time, the State has ramped up its health facilities across all districts of the State, expanded its health workforce who are the frontline warriors safeguarding the citizens, and deployed available technological capabilities to put in place a transparent and rich health information network.

As a result, a healthy recovery rate of 93.29 per cent has been achieved, and efforts continue to minimize deaths and slow the spread of the virus. But the limited workforce and the health inequity across the districts of the State put constraints on time-bound scaling up of response efforts in the State.

The Chapter lays out the key principles of an ideal healthcare system and identifies key challenges on four fronts – financial, workforce crisis, health information and governance – to recommend the policy directions the State must consider for establishing a robust healthcare system that can battle any future pandemic also with resilience.

7.1 Introduction: Setting the context

7.1.1 The novel corona virus, known as Covid-19, disrupted economies all across the globe more than a year ago. Given the constantly changing nature of the virus, countries worldwide struggled to minimize the spread of infection and the resulting fatalities. The importance of a robust healthcare system was realized like never before. Most countries announced lockdowns to slow the spread of the virus in the initial months of reported cases in their countries. While that meant that the economies were at a standstill, healthcare was one of the very few crucial sectors functioning tirelessly to safeguard lives. Till date, healthcare providers remain at the forefront to

ensure safety and wellbeing of the population. The spread of virus surging again in some countries, given the discovery of new strains of the virus, the vaccines being developed in many countries, and the gigantic task of ensuring administration of vaccines to everyone, the battle against Covid-19 continues. It hinges on the ability of the healthcare system to put adequate measures in place against a pandemic of this complex and evolving nature.

7.1.2 Covid-19 pandemic provided a reality check of the status of healthcare systems in all countries. India's healthcare system has evolved a lot over the last few years with concerted efforts put by the Union and State governments alike in

building and sustaining sound health infrastructure. In view of the Covid-19 pandemic, it is thus an opportune moment to assess the status of extant healthcare infrastructure and chalk out a policy framework on how to strengthen it further to shields the nation against any possible risks emanating from any pandemic.

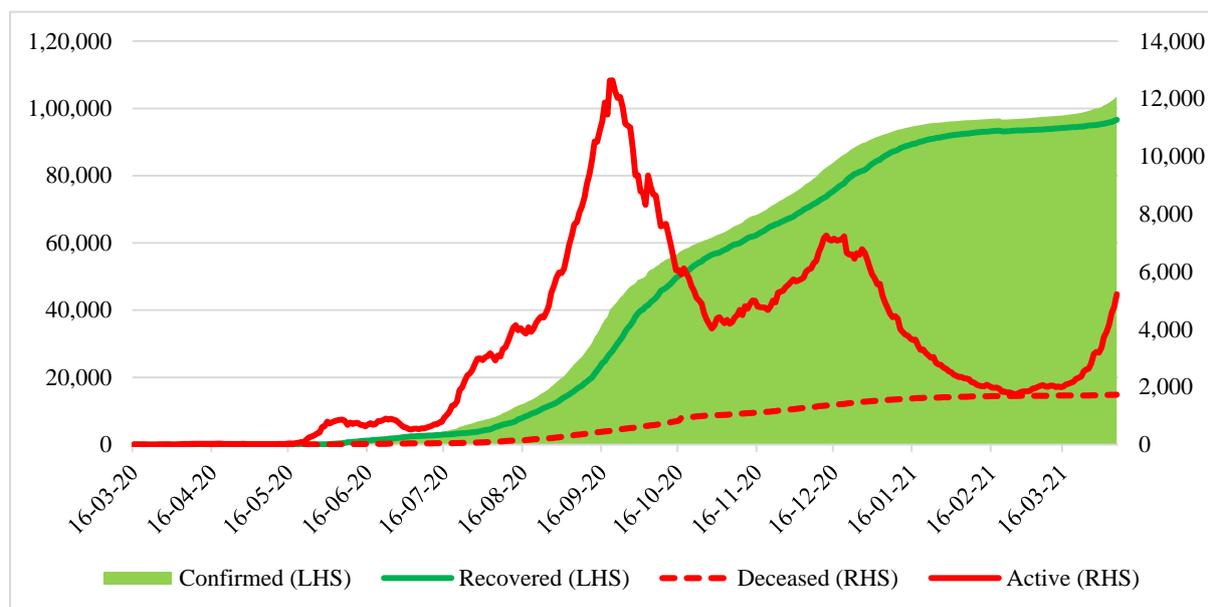
7.1.3 The chapter on Health in the previous Economic Survey of Uttarakhand was a comprehensive exercise in exploring the trajectory of healthcare infrastructure in the State and suggesting seven policy directions for strengthening it. Building on that, in this Economic Survey we assess what is the status of the State's healthcare system, gauge the deficit/gap, and suggest guided policy actions, given an understanding of what an ideal healthcare system should be. The chapter will also detail the government's response in tackling Covid-19 in the State in the last one year which includes a few commendable policy decisions by the government which will go a long way in improving the overall quality of the State's healthcare system. The Chapter is structured under 5 sections. Section-1 sets the context for the need to assess healthcare sector in the wake of the pandemic. Section-2 gives a snapshot of the Covid-19 situation in the State. Section-3 lays out the core principles of an ideal primary healthcare system. Section-4 provides an overview of the financing concerns for the functioning of the healthcare sector and key financial decisions taken by the State to tackle the Covid-19 pandemic. Section-5 describes the health workforce crisis faced by the State and how it has responded to it. Section-6 details the importance of health information for the efficient functioning of healthcare systems and how the State has taken

massive strides in establishing a robust and transparent health information network, especially since the onset of the pandemic. Section-7 pans out the intra-State disparities in equitable access to healthcare and how that could pose a challenge to State's responsive efforts to the pandemic, including that of the vaccination drive. Section-8 concludes the Chapter with 10 guided policy recommendations that can help the State establish a robust healthcare system, which is more resilient to future pandemics.

7.2 Covid-19 in the State of Uttarakhand: The year gone by

7.2.1 The State reported its first confirmed case on March 16, 2020 (as per the Health Bulletin on novel corona virus, dated March 16, 2021, State Control Room, Integrated Disease Surveillance Programme, Directorate of Health Services, Uttarakhand, Dehradun). A little more than a year later, as on April 6, 2021, there were 3607 active cases in the State. A total of 96,647 patients out of 103,602 who were detected with Covid-19 have been treated/cured till the given date, giving a 93.29 recovery percentage. Unfortunately, the death rate of the State standing at 1.68 per cent has amounted to 1,736 lives being lost to the deadly virus. The figure below gives a snapshot of the timeline of covid cases in the State. As evident, the State has done a commendable job in managing the situation – the recoveries have kept pace with the increasing confirmed cases keeping a check on the active cases. The surge in active cases in between is consistent with the pan-India pattern as lockdown restrictions were lifted gradually and, movement within and across the State and international borders resumed, resulting in peaking of active cases.

Figure 7.2.1: Cumulative Covid-19 cases – Confirmed, Recovered, Deceased, Active¹⁹ – March 16, 2020 to April 6, 2021



Source: Daily Health Bulletin on Novel Corona Virus, State Control Room, Integrated Disease Surveillance Programme, Directorate of Health Services, Govt of Uttarakhand; and www.covid19india.org

7.2.2 In the last one year, the State has ramped up its health infrastructure to meet the new and unique challenges of the Covid-19 pandemic. The

timely responsiveness of the State can be gauged from the table below.

Table 7.2.1: Dedicated Covid19 Facilities in the State

| | Dedicated Covid Hospitals/Centres | Beds (With and Without Oxygen), ICU Beds | Ventilators |
|--------------------------|---|--|-------------|
| March 15, 2020 | N.A. | Isolation beds – 337 Quarantine beds – 801 | N.A. |
| December 31, 2020 | Dedicated COVID Hospitals – 5 Dedicated COVID Health Centres – 12 Dedicated COVID Centres – 314 Total – 331 | Beds for confirmed cases – 13,813 Beds for suspected cases – 10,514 ICU Beds – 273 | N.A. |
| April 6, 2021 | Dedicated COVID Hospitals – 11 Dedicated COVID Health Centre – 109 Dedicated COVID Centre – 229 Total – 349 | Beds without oxygen – 5,187 Beds with oxygen – 6,029 ICU Beds – 1,657 | 654 |

Source: Department of Medical Health and Family Welfare, Govt of Uttarakhand

7.2.3 While the State has till now managed the covid crisis well, the impending second wave as evident from the rising active cases, poses new challenge for the State. The preparedness of the health infrastructure of the State is of paramount

importance to ensure that the State battles the pandemic, minimizing loss of human lives and ensuring welfare of all its citizens.

¹⁹ Active cases are derived by subtracting the deceased and recovered cases from the total confirmed cases. As such, the total active cases on April 6, 2021, stand at 5219. But the actual active cases are 3607, and the difference is explained by adjustment made for Covid-19 patients who have migrated.

7.3 Primary Healthcare System: The need to revisit the core principles

7.3.1 A year into the Covid19 pandemic has revealed that a low-cost and highly effective safeguard against the pandemic is physical distancing. With a populous and severely dense country like India, ensuring physical distancing becomes a challenge and while lockdowns help control the spread of the virus, it comes with a heavy economic cost, the consequences of which feedback in a poorly funded healthcare sector as well. Moreover, till the time each citizen is vaccinated, the risk of spread of the virus persists. With travel restrictions within and across the States, the importance of a robust primary healthcare system has been realized by governments and citizens alike. The restriction of physical movement outside homes during the lockdown periods results in the community hospitals and health care centres becoming the first points of contact for the citizens in times of need. Primary level care in fact has the potential to take care of 90 per cent of healthcare demands (15th Finance Commission). It is in this context that it becomes imperative to revisit the principles that lay the foundation of a robust primary healthcare system that is responsive to the needs of its citizens.

7.3.2 The health system needs to be based on some core principles that can set a roadmap for the State to reflect on the needs of the citizens and put in place a health infrastructure that can efficiently meet needs of all on a consistent and sustainable basis. The Declaration of Alma-Ata was adopted in the International Conference on Primary Health Care, 1978, with the strategy of “Health for all by the year 2000”. To ensure that governments across the nations can carry out their primary responsibility of providing for adequate health and social measures to their citizens, primary healthcare became a core policy for the World Health Organization (WHO) in 1978²⁰. It required renewed commitment to

primary healthcare system as part of a comprehensive national health system, especially in developing countries, to fulfil the agenda of “Health for all” that can accelerate growth and development.

7.3.3 To adapt to today’s reality of the growing pressure on healthcare infrastructure in response to the pandemic, policymakers across the globe are focussing on strengthening the primary healthcare systems since they are the closest to the people. To make them responsive to the growing needs and demands of all citizens, we need to revisit the principles that lay the foundation of a robust primary healthcare system. The Declaration of Alma-Ata identified the following core principles – universal access and coverage on the basis of need; health equity as part of development oriented to social justice; community participation in defining and implementing health agendas; and intersectoral approaches to health.

7.3.4 It is on these principles that the primary healthcare system of the State needs to be reviewed to identify the deficit/gaps so as to suggest a course correction in a timely manner that can equip the State to fight the impending second wave of the pandemic. To build a resilient primary healthcare system on the core principles suggested above, policymakers confront some key challenges. From the experiences of countries worldwide, these challenges have been identified as – lack of financial resources and financial planning, bottlenecks in health workforce management, inadequate and immeasurable health information, and weak governance that limits adoption of pro-equity health policies.

7.3.5 In subsequent sections, each of these challenges are explored for the State of Uttarakhand in light of the pandemic, and measures recommended that can build a resilient primary healthcare system which could minimize

²⁰{HYPERLINK “https://www.who.int/docs/default-source/documents/almaata-declaration-en.pdf?sfvrsn=7b3c2167_2”

the human and economic loss from the ongoing Covid19 pandemic.

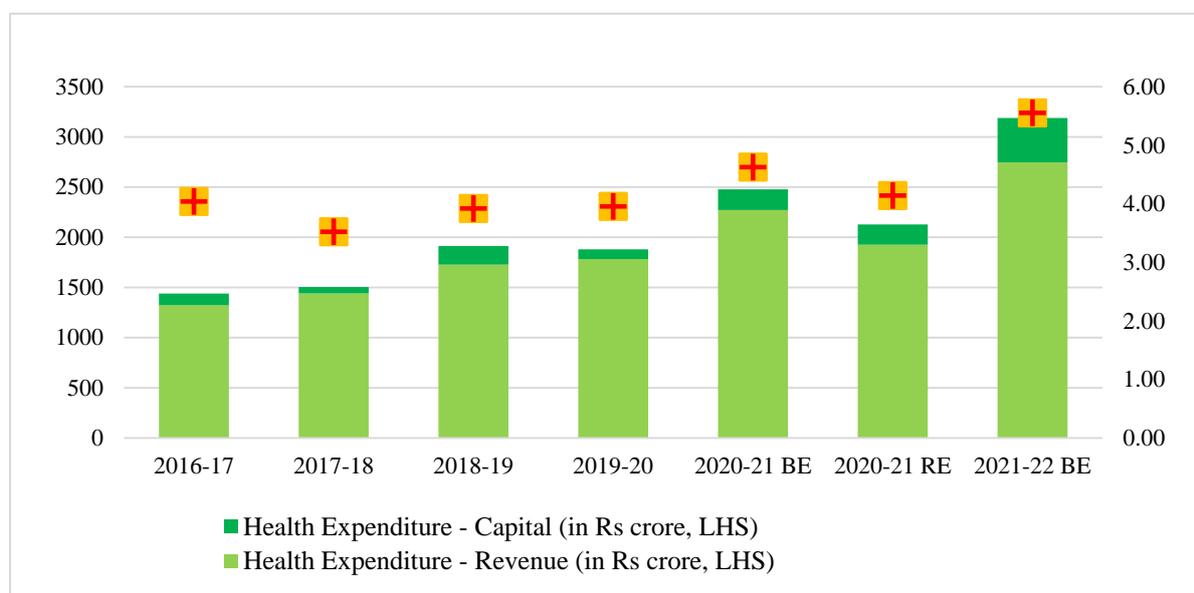
7.4 Financing the Healthcare Sector: Are we spending enough? Are we spending right?

7.4.1 The functioning of the healthcare system hinges heavily on an adequate and sustainable source of financing. To not just keep the system running, but also incentivise innovation and uptake of best of medical education and research practices, finance is the lubricant for the health machinery to perform efficiently. A well-thought policy about funding the healthcare system strives to achieve two things – how to mobilize resources, and how to efficiently budget them so as to get the desired results by targeting the areas of strategic importance. It is in this light we analyse the funding of the State’s healthcare sector, and how post Covid19 reality has been integrated in the Budget of the Government of Uttarakhand to lay the roadmap for the next fiscal year.

7.4.2 The State Budget of 2021-22 laid emphasis on the healthcare sector of the State.

“Health for All” was prioritized in the Budget Speech, and key government decisions about funds allocated for construction of Medical Colleges in Haridwar, Pithoragarh and Rudrapur as well as efforts to begin the Almora Medical College this academic year were conveyed. It was encouraging to see the fiscal commitments match the budgetary commitments for the health sector. This year’s budget allocated a total of Rs 3,188.95 crore to the health sector, 28.74 per cent higher than what was allocated in the last financial year. The share of capital expenditure in total health expenditure also saw an increase – from Rs 205.43 crore in 2020-21 (BE) to Rs 442.64 crore in 2021-22 (BE) – this reflects an increase in share of capital expenditure in total health expenditure from 8.29 per cent to 13.88 per cent respectively. Figure 7.4.1 shows how this year has witnessed not just an absolute increase in the budget of the Department of Medical Health and Family Welfare, but the share of health expenditure in total budget expenditure has increased from 8.05 per cent in 2016-17 to 13.88 per cent in 2021-22 – the highest in the last five years.

Figure 7.4.1: Budgetary Expenditure on Health – 2016-17 to 2021-22 (BE)



Source: State Budget, Govt of Uttarakhand, various volumes

7.4.3 The increased share of the budget spent on health sector, and within that the rising share of capital spending, reflects the shifting priorities of the State to strengthen the health infrastructure.

However, a careful study of the capital outlay figures is important to understand whether the State’s financial planning responds to its demographic realities. The budget of the

Department of Medical Health and Family Welfare is budgeted under two Major Heads – Medical and Public Health, and Family Welfare. As evident from Table 7.4.1, Family Welfare gets next to none of the allocated budget from the Department, possibly as it is funded by GoI. It is interesting to note that Medical Education,

Training and Research (Minor Head (3) under Major Head (1)) gets more than 70 per cent of the total funds, and in this year's budget the share has increased to 86.44 per cent. This is on account of the announced allocation of Rs 228 crore 99 lakhs towards construction of Medical Colleges in Haridwar, Pithoragarh and Rudrapur.

Table 7.4.1: Composition of Capital Outlay in Health Sector: 2019-20 (Actuals) to 2021-22 (BE) (figures are in Rs thousand, figures in parenthesis are per cent share in total capital outlay in health sector)

| Major Head | Minor Head | Line Item | 2019-20 Actuals | 2020-21 BE | 2020-21 RE | 2021-22 BE |
|--------------------------------------|---|----------------------------------|------------------------------|----------------------|----------------------|-------------------|
| (A) Medical and Public Health | (1) Urban Health Services | Hospitals and Dispensaries | 301,799 (30.92) | 443,001 (21.56) | 362,501 (18.06) | 400,001 (9.04) |
| | | (2) Rural health Services | PHCs | 10,978 | 50,000 | 50,000 |
| | CHCs | | 0 | 30,001 | 10,000 | 50,000 |
| | Hospitals and Dispensaries | | 0 | 100,000 | 20,000 | 100,000 |
| | Other Expenditure | | 0 | 15,000 | 10 | 10 |
| | Total | | 10,978 (1.12) | 195,001 (9.49) | 80,010 (3.99) | 200,010 (4.52) |
| | (3) Medical Education, Training and Research | Allopathy | 607,796 | 1,360,665 | 1,554,623 | 3,726,312 |
| Ayurveda | | 55,377 | 15,674 | 10,000 | 100,000 | |
| Unani | | 0 | 40,000 | 100 | 100 | |
| Total | | 663,173 (67.95) | 1,416,339 (68.94) | 1,564,723 (77.95) | 3,826,412 (86.44) | |
| (2) Family Welfare | | (1) Rural Health Services | Rural Health Family Services | 0 | 1 | 1 |
| Total | | | 975,950 | 2,054,342 | 2,007,235 | 4,426,424 |

Source: State Budget, Govt of Uttarakhand, various volumes

7.4.4 While this capital investment in medical education and research will definitely boost State's capacity and yield returns in the long run, what is worrying is that this increased share has come at the cost of cutting Urban Health Services (Minor Head (1)) budget and only a marginal increase in Rural Health Services (Minor Head (2)) budget as compared to the budgeted amount

last year. Given that the hospitals and dispensaries are over-burdened from the rising need of Covid-19, they needed to be sustained with more financial resources. Also, given the fact that roughly 70 per cent of the State's population resides in rural areas²¹, the paltry 4.52 per cent budget being allocated for Rural Health Services reflects that the rural section of the State

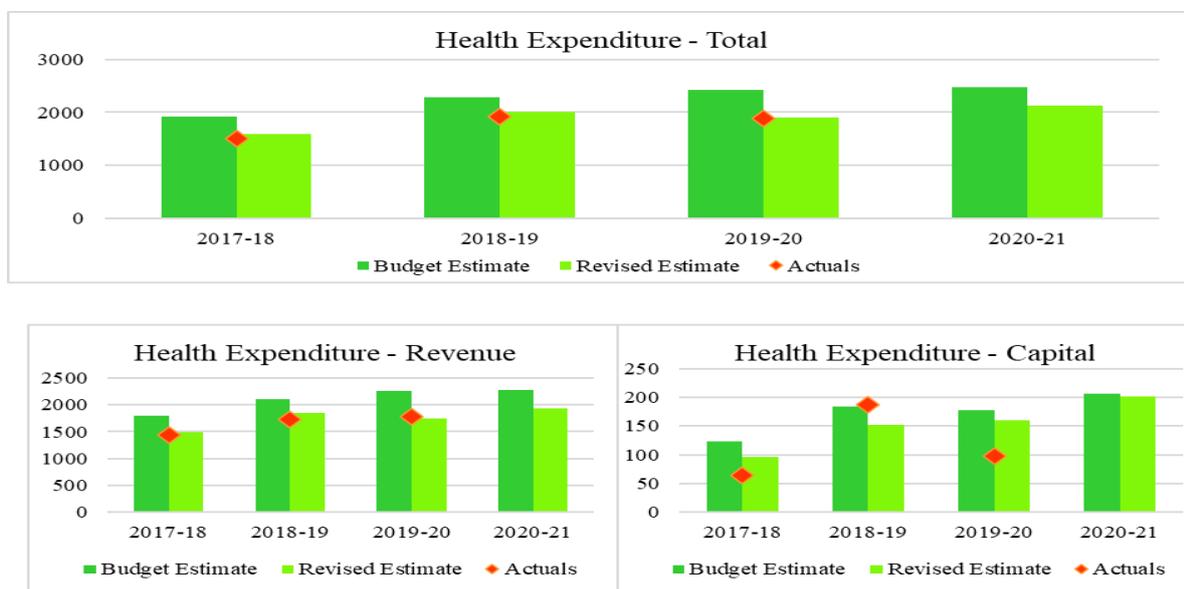
²¹ The rural population of the State is 69.77 per cent as per Census 2011.

is being grossly neglected. The PHCs, CHCs, hospitals and dispensaries in rural areas need to be equipped with adequate beds, oxygen supplies, drugs, ventilators and other essential medical equipment to tackle the second wave of Covid19 pandemic, which is expected to hit the rural pockets of the country more severely this time.

7.4.5 The data suggests increased flow of funds over the years, but what is equally critical is tracking the flow of funds and their utilization. A sustainable source of financing needs to be complemented with proper financial planning to ensure that the funds are spent in areas of strategic importance. A good way to gauge is to see the deviation between the Budget Estimate, Revised Estimate and Actual figures for a fiscal year. The figure below captures a snapshot of poor fiscal marksmanship in the State – the data suggests that the Revised Estimates have been consistently lower than the Budget Estimates, and the Actuals

even lower. The actual total health expenditure for 2017-18, for instance, was 5.51% lower than the RE of the same year, and the RE itself was 17.18% lower the BE figure. This suggests a lack of financial planning whereby the allocated amount is not being put to judicious use. Composition of the total expenditure shows that the fiscal marksmanship is the poorest for capital outlay of health expenditure – the deviation between the BE and RE for 2017-18 was 22.17%, and the Actuals were 33.67% lower than the RE figures, resulting in approximately just half of the budgeted amount of Rs 124 crore being actually spent on capital outlay. Hence it is evident that capital expenditure usually bears the brunt of poor financial planning (except in the year 2018-19). This practice has to discontinue going forward, else the perils of underspending on capital needs of the health sector would pose serious risks to the State in terms of an incapacitated health sector.

Figure 7.4.2: Variation between Budget Estimate, Revised Estimate and Actuals of Expenditure on Health – 2017-18 to 2020-21²² (figures are in Rs crore)



Source: State Budget, Govt of Uttarakhand, various volumes

7.4.6 In addition to these, the State has also proposed sector-wise and Department-wise investments that reaffirm the State’s commitment of driving progress. In the 6th Meeting of the

Governing Council of NITI Aayog, the government proposed 9 MoUs in healthcare sector (7 MSME projects and 2 Single Window Projects) worth Rs 143.75 crore (Rs 61.38 crore

²² The Actuals for 2020-21 will be released in the Budget of 2022-23 next year.

in MSME projects and Rs 82.37 crore Single Window Projects), and 12 MoUs worth Rs 599 crore (Large Projects) for Wellness and AYUSH sector. The proposed investment for Department of Medical Health and Family Welfare as well Department of AYUSH along with the details about status of projects with them are enlisted in Table 7.4.2.

Table 7.4.2: Projects and Proposed Investment (in Rs crore) for Healthcare Sector

| | Ongoing Projects | | New Projects | | Expansion Projects | |
|--------------------------------|------------------|---------------------|--------------|---------------------|--------------------|---------------------|
| | Count | Proposed Investment | Count | Proposed Investment | Count | Proposed Investment |
| Department of Medical Health & | 30 | 927.94 | 17 | 634.75 | 13 | 293.19 |

| | | | | | | |
|---------------------|---|-----|---|-----|---|-----|
| Family Welfare | | | | | | |
| Department of AYUSH | 9 | 469 | 5 | 252 | 4 | 217 |

Source: 6th Meeting of the Governing Council of NITI Aayog, 2020

7.4.7 Keeping in consideration the growing demand on States' budget, the 15th Finance Commission (FC) also awarded grants particularly for the health sector. These unconditional grants will be released to the local governments by respective States on a yearly basis. The share of Uttarakhand Govt is represented in Table 7.4.3. The 15th FC has however awarded the grants under particular heads keeping in mind States' health infrastructure needs post Covid-19. A significant portion of the grants have been awarded for training of healthcare workers and for critical care hospitals.

Table 7.4.3 Grants awarded to the State by the 15th Finance Commission (figures are in Rs crore)

| | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | 2021-26 |
|---|---------|---------|---------|---------|---------|---------|
| Grants for DNB Courses | 18 | 14 | 17 | 23 | 23 | 95 |
| Grants for Training of Allied Healthcare Workers | 522 | 521 | 521 | 521 | 521 | 2606 |
| Grants for District Integrated Public Health Laboratories | 0 | 1 | 1 | 1 | | |
| Physical Targets for District Integrated Public Health Laboratories | 1 | 4 | 6 | 2 | | |
| Grants for Critical Care Hospitals | 31 | 61 | 61 | 61 | 92 | 306 |

Source: 15th Finance Commission Report

7.4.8 It is evident that the State is prioritizing healthcare sector and pumping funds in it to ramp up the health facilities in the State. However, certain bottlenecks exist – with the poor fiscal marksmanship practices, funds are underspent, capital outlay suffering the most; rural healthcare needs seem to be neglected, as reflected from the paltry share of Rural Health Services in total health expenditure. The first recommendation is thus to improve financial planning by engaging in stakeholder consultation to budget the Department's needs keeping its capacity and requirements in mind. A mid-year fiscal assessment of the budget is necessary to track how the budgeted amount is being utilized by the

Department so that the deviation between the budgeted and revised estimates and the actuals can be minimized. Given that the FC health sector grants are unconditional but granted for achieving pre-specified targets, accountability and transparency in operations must be ensured by having regular financial and performance audits of the funds devolved. Thus, there is the need to strengthen audit mechanisms and financial controls to handle the increased financial flow to the healthcare sector. It will also ensure that the funds are being channelized for intended use and targets are achieved in a time-bound manner.

7.4.9 The 15th FC also recommended certain measures for States to put in place, which would

enable them strengthen their health infrastructure and safeguard their citizens' wellbeing. It is critical to re-iterate those recommendations given that they shall help strengthen the foundations of the primary healthcare system of the State, that can address the health concerns of healthcare providers and seekers in the short as well as the long run. Thus, the third recommendation is *to increase the health spending on health to more than 8 per cent of State's budget and apportion at-least two-thirds of the total health expenditure to primary health expenditure by 2022*. It is to be noted that the budgeted health expenditure for 2021-22 is 13.88 per cent of the total budget. However, the actual expenditure would be known only after two years, and the State must ensure that the budgeted amount is spent on augmenting the capacity of the healthcare sector. By leveraging on the steps already taken by the State, the State can fulfil its commitment to having an expansive primary healthcare infrastructure that can aid the healthcare providers with the best of facilities as well is accessible to the citizens and responsive to their healthcare needs.

7.5 The Healthcare Providers: Are we managing our health workforce efficiently?

7.5.1 The Covid19 pandemic has stressed the health infrastructure of the country, especially because the scale of the pandemic is unprecedented. The healthcare workers have been tirelessly serving from the forefront as warriors and continue to serve despite the constraints and challenges of an under-funded and ill-equipped healthcare system. Even before the pandemic struck, physical infrastructure concerns outweighed human infrastructure concerns in most countries. But post Covid-19, the widening demand-supply imbalance in

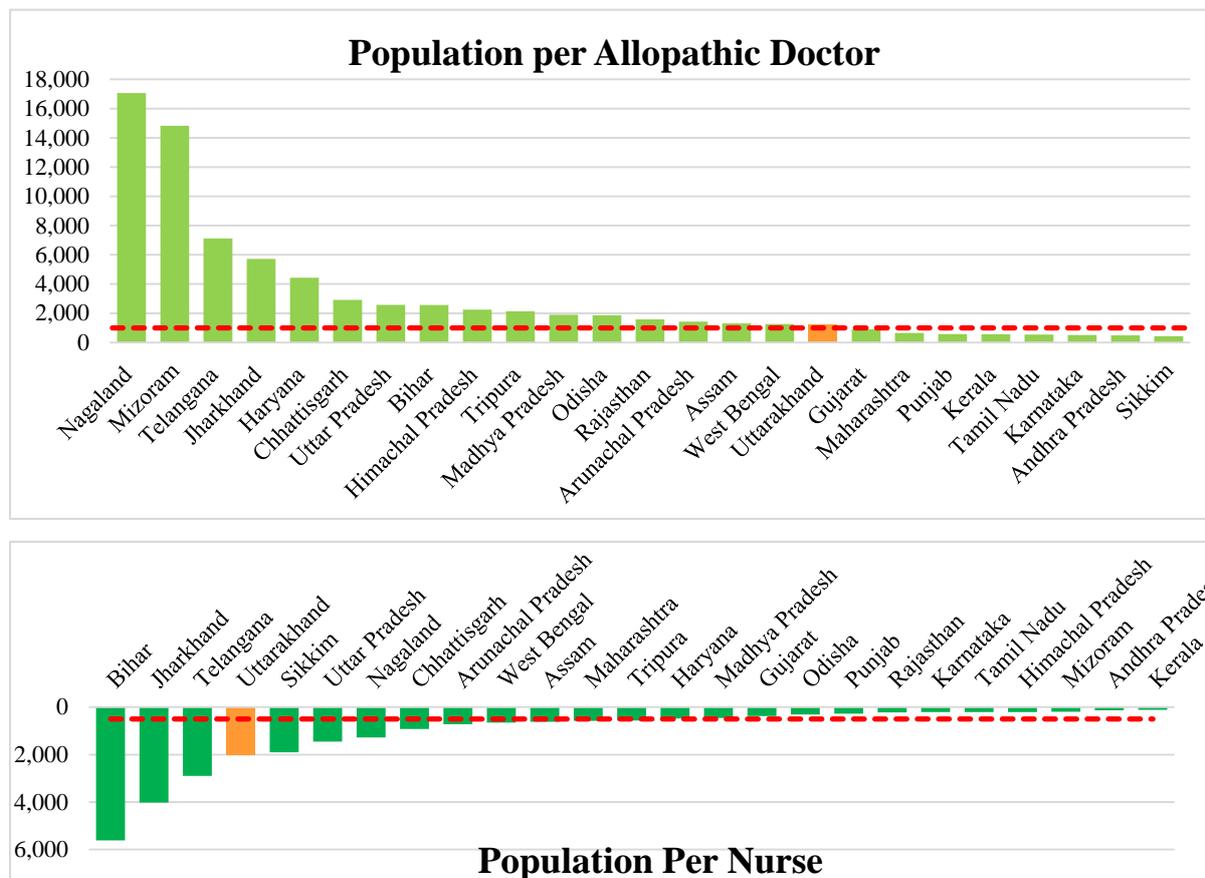
healthcare seekers and providers have brought to the forefront the serious workforce crisis that limits India's preparedness and response to the pandemic. It has been realized that concerted efforts need to be made for strengthening the workforce that can bolster the country's response to the pandemic.

7.5.2 It thus becomes important to assess the performance of the State in terms of the population coverage by healthcare professionals in the State. To leverage the inflow of funds as well as the physical infrastructure being created in terms of Covid Dedicated Hospitals/Covid Care Centres with the available and gradually increasing facilities, rapid and substantial strengthening of the workforce is urgently required. It is crucial to remember the importance of having a trained workforce that is the backbone of any healthcare system – Botswana's efforts, for instance, to provide free antiretroviral therapy to all eligible citizens was frustrated, not by financing, but by the severe lack of health personnel. The nation's commitment to tackle HIV/AIDS commitment took off only when the finances were duly supported by a trained healthcare workforce and partnerships leveraged with NGOs, CBOs, etc.²³

7.5.3 To begin, we assess Uttarakhand's performance vis-à-vis other States in terms of the coverage of population by healthcare providers. It is because the strength of health workforce indicates the capacity of the system to scale up delivery of interventions since they are responsible for actually being on ground and battling the pandemic. Figure 7.5.1 shows the population per allopathic doctor and nurse, and Figure 7.5.2 shows the population per AYUSH practitioner and PHC doctor in different States of the country.

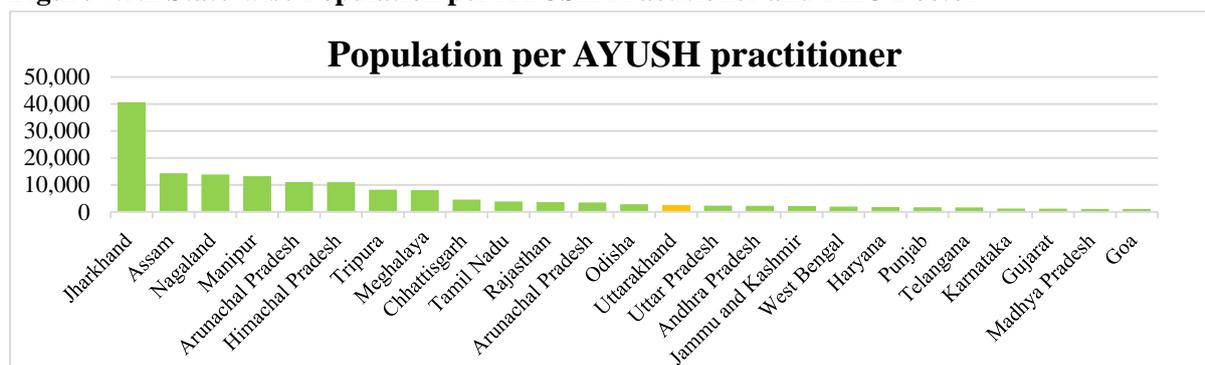
²³ <https://www.devex.com/organizations/the-african-comprehensive-hiv-aids-partnerships-achap-50187>

Figure 7.5.1 State-Wise Population Per Allopathic Doctor And Nurse²⁴

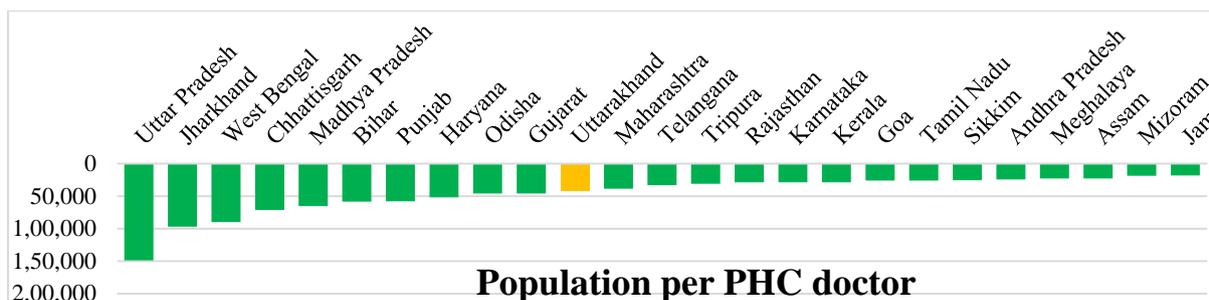


Source: National Health Statistics 2019, Census 2011

Figure 7.5.2 State-wise Population per AYUSH Practitioner and PHC Doctor



²⁴ The red dotted line represents the WHO recommended doctor-population and nurse-population ratio which are 1:1000 and 1:500 respectively.



Source: National Health Statistics 2019, Census 2011

7.5.4 It is evident that while availability of allopathic doctors and AYUSH practitioners in the State is at par with few of best performing States in the country, there is a significant shortage of nurses and PHC doctors for the people in the State. The State has a doctor each for 1,214 people, higher than the WHO recommended doctor-population ratio of 1:1000; while the nurse-population ratio of 1:2006 in the State is well beyond the WHO recommended ratio of 1:500. This clearly indicates the severe shortage of nurses and PHC doctors in the State which needs immediate redressal, as well the need to increase the number of allopathic doctors and AYUSH practitioners in the State so that the burden on each health provider reduces and s/he is able to discharge her/his services efficiently. The Interim Committee Report also suggested that in the short-run, health care system can be strengthened by engaging AYUSH healthcare providers into the mainstream of healthcare to provide necessary support²⁵.

7.5.5 The shortage of medical personnel can be traced to the medical colleges in the State and the seats in running programmes, as well the sanctioned posts of healthcare workers in the State. At present, there are three government medical colleges in the State in Dehradun, Srinagar and Haldwani with both UG and PG programmes. The number of seats in each of these colleges are listed in Table 7.5.1. In addition to these, the Almora Medical College is expected to begin its first academic year and three more

medical colleges have been announced to be set up in this year's budget (Refer paragraph 7.4.2). The State needs to hasten the construction process and ensure that the proposed colleges are functional soon in the coming years. The stressed medical infrastructure needs more doctors and healthcare professionals graduating and joining the workforce to meet the growing healthcare needs of the population.

Table 7.5.1 Details of Programme Wise Seats In The Medical Colleges in the State – 2020-21

| | Srinagar | Haldwani | Dehradun | Almora ²⁶ | Total |
|-----------------------------|----------|----------|----------|----------------------|------------|
| UG programme – MBBS | 125 | 125 | 175 | 100 (expected) | 425 |
| PG programme – MD/MS | 4 | 65 | 17 | | 86 |

Source: Department of Medical Health and Family Welfare, Govt of Uttarakhand

7.5.6 We now assess the sanctioned posts for healthcare professionals in the Medical colleges of the State. As per the information shared by the State, there are a total of 3,843 sanctioned posts across Categories A, B, C and D in the State. As on December, 2020, of the total, 3,347 posts are vacant and 496 filled (Figure 7.5.3). In response to the staggering number of vacancies even in the wake of the pandemic when there is a severe

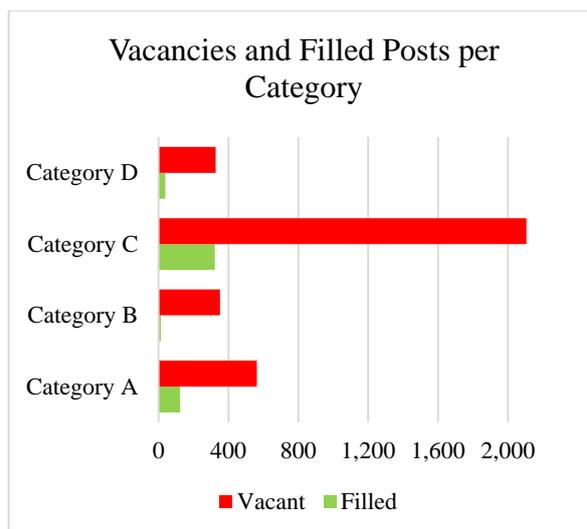
²⁵ Interim Report on Strengthening Uttarakhand Economy and Livelihoods post COVID -19, under the chairmanship of Mr. Indu Kumar Pandey, Retired Chief Secretary of Govt of Uttarakhand

²⁶ The Medical College in Almora is expected to begin the programme this academic year. hence, the 100 seats of the State have not been included in the total seats of the UG programme.

crunch of healthcare providers, the State stated the following:

- Category A posts – 21 Professors and 38 Associate Professors have been issued appointment letters; advertisement for appointment of 141 Assistant Professors is ready for submission and consideration of the government; there are provisions for appointment of Senior Residents admitted in State Medical Colleges on a total of 182 posts on contractual basis in accordance with the provisions of the service manual.
- Category B posts – There are provisions for appointment of Junior Residents admitted in State Medical Colleges on a total of 321 posts on contractual basis in accordance with the provisions of the service manual.
- Category C posts – The requisition for filling 1063 posts in the nursing cadre and 306 posts in the technician cadre have been sent for approval of the State Medical Staff Selection Board; the vacancies for filling 22 posts of helpers has been advertised by the Selection Board; for filling up posts in other cadres on regular basis, the requisition will be put up for Selection Board’s consideration after service rulebook conditions have been formalized
- Category D posts – There are provisions to employ workers on outsourced basis. At present, the State utilizes the services of 327 outsourced employees for this category posts.

Figure 7.5.3: Details of Sanctioned, Filled And Vacant Posts in Govt. Medical Colleges



Source: Department of Medical Health and Family Welfare, Govt of Uttarakhand

7.5.7 The State has definitely responded to this workforce crisis and is acting on it. In response to the shortage of medical staff since the onset of Covid-19 pandemic, the State has taken steps to close some deficit of healthcare workers over time. As of January 2020, against 2,735 approved posts for doctors, 1,435 doctors were serving on a regular basis while 1,300 posts were vacant. Against the vacant posts, a total of 651 doctors were working on a contractual basis. Keeping in mind the vacant posts and the rising need for doctors to serve the growing healthcare needs during post Covid-19, against 876 vacant posts requisition was sent for Selection Board’s consideration. 476 doctors were then selected by the Board, of which 367 discharged their duties. In July 2020 again, request for filling 763 posts was sent for approval of the Board for further action.

7.5.8 While there are merits in State’s proactive response to the workforce crisis, a cautious approach needs to be adopted by the State going ahead. The rising incidence of selections on contractual basis across different categories of positions in the State offered a quick fix to the crisis situation. But financial and non-financial benefits both need to be extended to retain such qualified healthcare providers as part of a healthy and conducive work environment. Contractual offerings usually lack the various social security benefits as well as opportunities for career

development prospects in service. Rather than viewing the new recruited cadres as a pragmatic response to current shortages, they need to be treated at par with regular employees who need to be trained for State-specific medical realities and groomed for taking up more qualified professional positions in the long run. Failure to manage and retain the expertise of health professionals can lead to a gradual collapse of the public healthcare network.

7.5.9 Another key concern for the State is its geographical terrain. The tough hilly terrain makes it difficult for the State to expand its public service delivery for access by all citizens. This also means that there is reluctance of medical personnel to serve in remote locations as well as in rural areas. A robust primary healthcare system cannot exclude a section of citizens in remote geographical locations, it needs to be inclusive to ensure equitable access by all. To respond to this concern, the State has in place financial and non-financial incentives. The State awards 10 preferential points (maximum 30) to doctors each year in accordance to their service duration for serving in remote locations in the State. There are also provisions for giving assured career progression to those serving in hilly/remote terrains of the State. A difficult area allowance is also provided to recruited local health professionals posted in remote locations. These measures ensure that healthcare needs of all are served and there are no geographical imbalances in the distribution of healthcare workers across the State.

7.5.10 There is a clear acknowledgement by the State of the shortage of healthcare providers in the State. The Interim Report on Strengthening Uttarakhand Economy and Livelihoods post COVID-19 also noted the distressed situation of the healthcare system whereby non-Covid19 cases were being treated as low priority, non-emergency surgeries were being postponed, and private sector healthcare establishments were closing given the limited medical personnel. While the State has responded with some quick fixes and some incentives that will play a vital role in the long run to retain and attract healthcare

providers to serve remote locations, there are policy measures the State needs to undertake to build, manage and efficiently utilize a trained workforce that responds to the healthcare needs of citizens. The first policy recommendation is *to expedite the construction work of medical colleges that will strengthen the medical education foundation of the State and produce trained healthcare professionals*. In this context, the recommendation of the 15th FC to start Diplomate of National Board (DNB) courses in private and corporate hospitals gains paramount importance. The specialist DNB courses will not only enhance the service provisioning but will also ensure the availability of trained workforce that will strengthen the primary healthcare system. As indicated in Table 7.4.3, grants worth Rs 95 crore for the 5-year period between 2021-2 will be awarded to the local governments. Thus, *the State must hold consultations with medical professionals, academics and local governments to plan the initiation of DNB courses in private hospitals in the State. A careful blueprint must be prepared to roll out the DNB courses and attract the right young talent for it, keeping in consideration the geographical imbalances in healthcare facilities in the State*. This will go a long way in preparing a technically sound workforce that is equipped with the skills to provide quality healthcare services across the State.

7.5.11 The pandemic necessitated the need to adopt an inter-sectoral approach to problem solving. To meet the human resource shortfall in the State, *the government could consider partnerships with the private sector and non-government organizations. With the financial resources of the former and the grassroots reach of the latter to provide and manage healthcare services directly to the citizens, the State can unleash the hidden potential of its resources in establishing a robust primary healthcare system*. The health activities of the State can be scaled up efficiently by such partnerships. This inter-sectoral approach also offers the most pragmatic response to the State – the opportunity to learn about and leverage cost-effective and sustainable

sources of finances, best training and skill-development practices, efficient management practices, etc.

7.6 Health Information – Are we collecting & feeding right & meaningful information?

7.6.1 The State has the primary responsibility of safeguarding interests of citizens. To be able to ensure “Health for All”, the State needs to understand the needs and concerns of its citizens while also communicating its plans and activities and outcomes in a transparent and timely manner back to the citizens. This flow of information between the State and the citizens leads to a virtuous cycle whereby the healthcare system becomes responsive to the needs and is accountable to the concerns of the citizens. Since the primary healthcare system is the first point of contact for the citizens, the success of a robust primary healthcare system rests on this seamless flow of information.

7.6.2 In the context of Covid-19, the importance of health information is paramount. Traditionally, policymakers and academics view health information as serving these functions – strategic decision-making, programme/scheme implementation, monitoring and evaluating impact of outcomes vis-à-vis targets/goals. But the meaning and importance of health information holds a new dimension for the primary healthcare systems, given the complex and ever-changing nature of the virus. The unprecedented scale of the pandemic necessitated that governments communicate directly and efficiently with the citizens, and dispense with the fears arising from the changing and often conflicting views of scientists and policymakers across the globe regarding the virus – its nature, mode of transmission, the ways to minimize its spread, various vaccines, drugs and associated side-effects, etc. Reliable information from a credible voice such as the government has helped assuage apprehension and fear of people all across the globe. With this in hindsight, we take stock of the government’s efforts in feeding and collecting health information from the citizens in

this one year since the pandemic first struck the State.

7.6.3 The State Control Room, Integrated Disease Surveillance Programme, Directorate of Health Services, came out with the first Health Bulletin on novel corona virus on March 15, 2020. It lucidly laid out the facts about the Covid-19, the key data on Covid-19 related preparedness of the State, an advisory from the State to the public about the preventive measures to be followed, and an appeal to come and share with the State officials the travel history from a Covid infected country for self and others’ welfare sake. More than a year later, these daily Health Bulletins have become a useful and key resource for not just the citizens of the State to keep a track on latest developments related to Covid-19 but also a rich resource for academics, practitioners and policymakers to gain insights into the State’s handling of the pandemic. Daily information on district-wise status about confirmed, active, deceased and recovered cases, vaccination beneficiaries, test samples, hospitals/containment zones etc. provide all the necessary information citizens need to be aware of the Covid-19 situation and the State’s responsiveness to the pandemic. In addition, Control Rooms have been set up in all districts along with an exhaustive Covid-19 State Directory with links to all Covid-19 related resources in the State and contacts of all resource people in districts. This serves as a one-stop destination for the citizen to seek help for any Covid-19 related issues in the State.

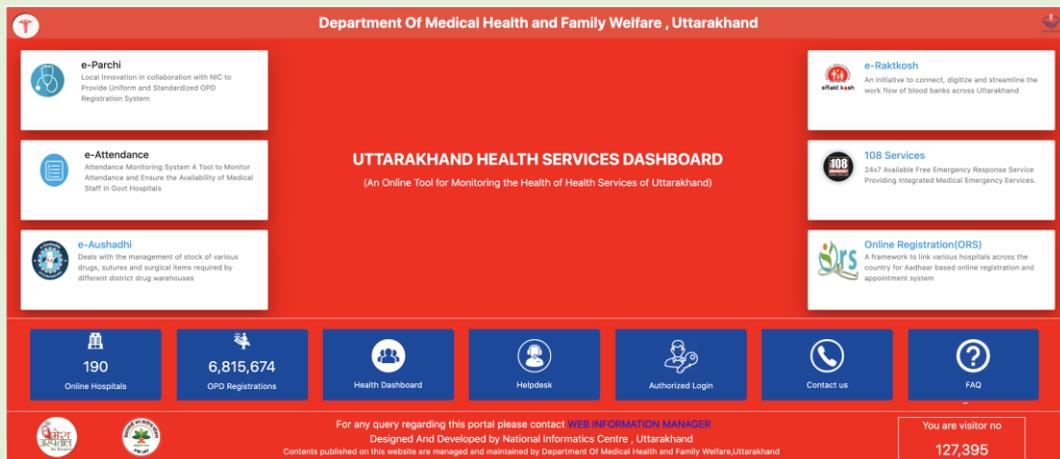
7.6.4 The State has also been forthcoming in communicating important updates regarding pricing of Covid-19 tests from time-to-time for the benefit of citizens. This brings in accountability in the system and strengthens the trust of the citizens in the healthcare sector and the government. The State has also unleashed the power of technology to provide real-time information on crucial health facilities. Building on the Uttarakhand Health Services Dashboard (Refer Box 7.6.1), the State now has a Covid

Dashboard²⁷ that is a rich repository of Covid19 resources in the State – district-wise Covid health facilities, Covid Sample Centres, Covid Care Centres, Containment zones; Guidelines/Advisory and Media Bulletins. It also provides real-time updates about the confirmed, active, deceased and recovered cases, Beds, ICUs

and Ventilators availability and the willing plasma donors in the State. This is precisely the inter-sectoral approach to policymaking that is needed, and the State has taken steps in the right direction by integrating technology in tackling this pandemic.

²⁷ <https://covid19.uk.gov.in/welcome.aspx>

Box 7.6.1 Uttarakhand Health Services Dashboard: Utilizing Technology For Strengthening Health Information in the State



The snapshot above is of the health dashboard that gives information on key health services provided in the State. It is evident that the services mentioned on the dashboard are those that give citizens insights into government’s management of resources – the aim of e-Aushadhi, for instance, is to improve the drug warehouse management system and facilitate provision of cost effective essentials drugs to common people by keeping an eye on the flow of drugs, vaccines, other health sector goods, information from suppliers to warehouse to health facilities to patients without any delay. At the same time, health services like e-Parchi are a local innovation of the State in collaboration with the NIC to provide uniform and standardized OPD registration system.

Another snapshot below is of the health dashboard of the State, has useful information like availability of hospitals and the specialties offered in districts, ambulance and blood group of each type in blood banks in the State, drug stores operational in each district, etc. These dashboards not just ensure transparency in operations of the State but also serve as communication channels between the government and citizens which is needed to bolster the primary healthcare system in the State.



7.6.5 Responding to the need of the situation, the Government of India initiated a National Teleconsultation Service, e-Sanjeevani OPD. Given the lockdown, there was an urgent need for healthcare professionals to reach the patients in a

scenario when the patients could not reach the healthcare professionals due to barriers on movement. The growing needs of population to seek medical services post pandemic were responded duly by the government, reflecting

how communication between governments and citizens results in designing targeted policies. E-Sanjeevani is an online platform to connect healthcare professionals to patients – an online OPD free of cost that shall let patients connect with medical professionals and have video consultations and also access real-time telemedicine. The Government of Uttarakhand has undertaken concerted efforts to inform its citizens about this facility. To strengthen its primary healthcare system, the State needs to leverage this platform to maximize its reach to the citizens.

7.6.6 It is laudable that the State has significantly strengthened its health information database post Covid-19. In an effort to assess the citizens' concerns and response to State's efforts, a primary survey was conducted. A total of 584 respondents were reached out to assess the impact of COVID-19 on the health sector. An overwhelming 90.07 per cent of respondents said that the health facilities of the government have improved post Covid-19. Going ahead, the State must build on these efforts to streamline the responsiveness to the second wave. It is often witnessed that the last mile connectivity of the citizens with the local governments is often constrained due to lack of health information. Thus, the first recommendation is to *expand the health information network beyond the districts to the villages which are likely to be impacted by the second wave. The local governments' capacities need be strategically built and strengthened in a time-bound manner so that they can gauge, collect and provide accurate health information on ground in response to which then the preparedness plans have to be chalked out.*

7.6.8 The pandemic also offers the opportunity to ramp up State's infrastructure keeping the future long-term needs of the citizens in mind so that the disruption in economic activity from a possible pandemic in future can be minimized. *The State must therefore develop linkages with the telecommunication sector to expand high-speed internet and call connectivity even in the most remote locations of the State. In addition, investment in Data Analytics, Artificial*

Intelligence and Machine Learning, etc. will not just strengthen the health information network in the present, but in the future will yield more meaningful information that can be extracted and utilized for designing tailored policies and evaluating their impact. The success of many ongoing State's initiatives rests heavily on utilization and efficient use of technology by the government, healthcare providers and healthcare seekers alike.

7.7 Pluralistic Governance – Are we providing equitable access to healthcare?

7.7.1 One of the fundamental principles of primary healthcare is to narrow gaps in equitable access to healthcare for all citizens. This necessitates designing strategies which are pro-equity, i.e., which aim at universal access to quality health care services. Often, lack of financial resources, skilled medical personnel, geographical constraints, administrative inculpabilities, etc., result in widening health inequalities. But the success of any healthcare system is gauged by its comprehensiveness in addressing the needs of the entire population, and strong government stewardship can play a significant role in addressing the extant health inequalities in the system.

7.7.2 The Alma-Ata Declaration lays emphasis on universal access and coverage on the basis of need, as well as health equity as part of development oriented to social justice as two core principles of a primary healthcare system. With Covid-19, the importance of these two principles has been realized by policymakers all across the world. As nations went into lockdown, the vulnerabilities of the most distressed section of the society were magnified. With no economic activity and no social security net to fall back on, the poorest were the hardest hit by the pandemic. It brings back the focus on having a primary healthcare system that aims at including the needs of the most vulnerable and addressing them through carefully designed policies. Pro-equity policies, require active government and community participation alike. Governments need to engage with communities to identify

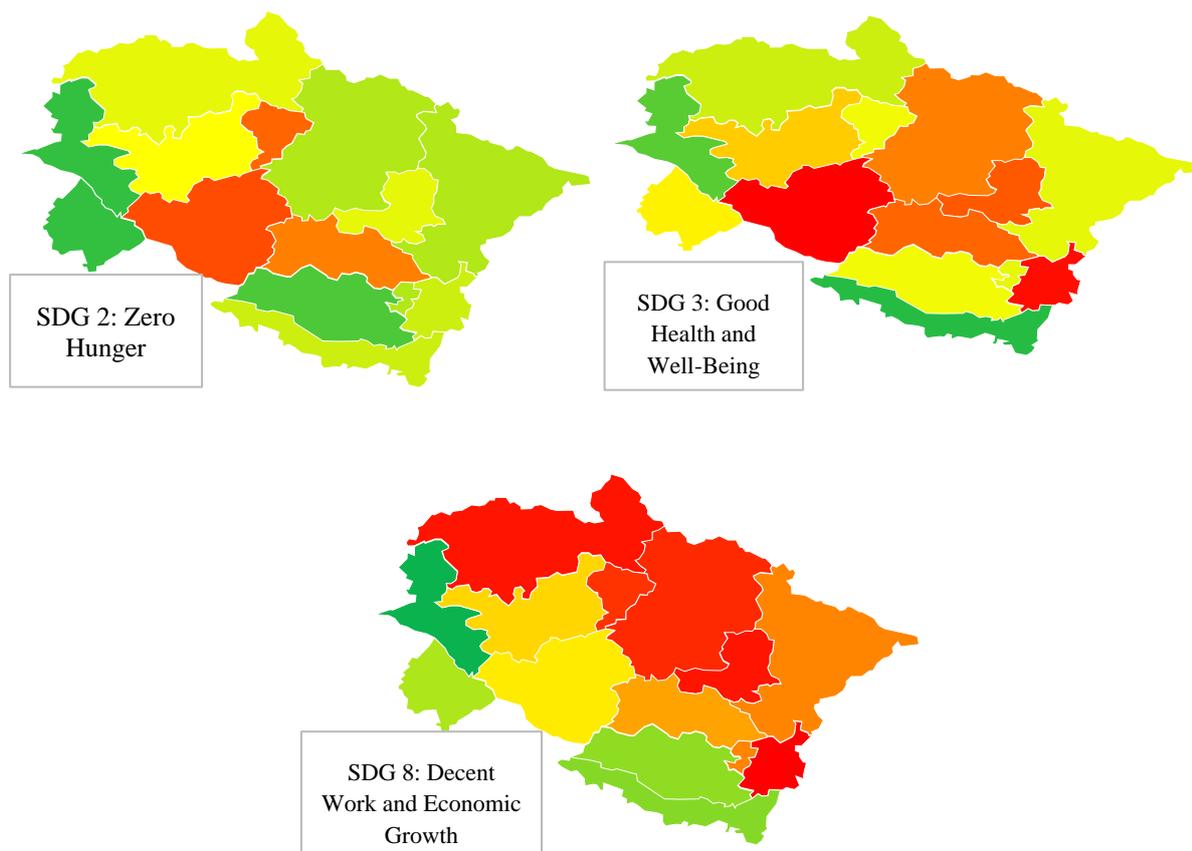
those who have been excluded from the healthcare system. Here, the temptation of governments to serve the better-off first can wreck the healthcare system. A good primary healthcare system is the one that swims against the tide – explicitly counters the bias to serve the better-off, and focuses on designing strategic policies that can specifically target the most vulnerable and improve their health outcomes thereby reducing inequity. Needless to say, a strong government alone can undertake and act upon pro-equity commitments.

7.7.3 The previous sections enlisted the Government of Uttarakhand's achievements in tackling the Covid-19 crisis, which was acknowledged by over 90 per cent of the respondents of the primary survey. However, some concerns emerged as well – only 44.18 per cent of the respondents responded in affirmative to self/family having health insurance, and 54.62 per cent respondents said that they or someone in their family was registered under the Ayushman Bharat Scheme. This, read with the finding that around 90 per cent of the respondents conveyed that they would like to have an insurance cover for their family indicates an unmet need in the State for health insurance. Another source of health inequity is the topography of the State that limits government's efforts in making health services accessible to all. To meet this challenge, Mobile Health Clinic Projects/Sehat ki Sawari was initiated in two districts of the State – Tehri and Chamoli in early 2000s. The objective was to improve health care access amongst remote and disadvantage population through implementation of Mobile Health Van (MHV) clinics. The workforce arrangement for the initiative were - One Physician, One Nurse, One Project Coordinator, One Driver, One Pharmacist, One Lab technician, One IEC Assistant, and One Attendant. While it was a good initiative, there is no documentation in public domain to gauge its effectiveness in addressing the health imbalances in the State.

The government has included MHV operations in the contracts signed with private sector service providers working under PPP contracts in three clusters of the State- Tehri, Pauri and Ramnagar. In each cluster the private service providers operate 3 MHVs to provide clinical care services in villages as per monthly visit schedule approved by the district health authorities. The primary healthcare outreach system through MHVs is reported to be functioning well.

7.7.4 The State needs to amplify its efforts in reaching those who have been excluded from the benefits of the public healthcare system. Due to the pandemic, economic and physical well-being have been compromised. For the State to respond to the needs of the citizens, it first needs to know who is it targeting. The performance of districts on each SDG can help identify districts which need immediate redressal. For the purpose of analysis, SDG 2 – Zero Hunger, SDG 3 – Good Health and Well-being, and SDG 8 – Decent work and Economic Growth, have been considered since they directly capture the ongoing impact of Covid-19 pandemic. Figure 7.7.1 shows the wide intra-State imbalances as reflected by differential performance of the 13 districts on these three SDGs from the heat maps. On SDG 1, for instance, while Haridwar and Dehradun perform the best with a score of 73 (NITI Aayog Methodology), Pauri Garhwal is the worst performing district in the State with a score of 58. The extent of health inequities is even more severe when measured by districts' performance on SDG 3 – Pauri Garhwal with the lowest score of 37 and Udham Singh Nagar with the highest score of 77. On the economic front, the imbalances are more staggering, as captured by performance of districts on SDG 8 – between the best performing district of Dehradun with a score of 69 and the worst performing district of Champawat with a score of 17, the lack of pro-equity governance in the State is evident.

Figure 7.7.1: Performance of the Districts of the State on SDG 2, SDG 3 and SDG 8

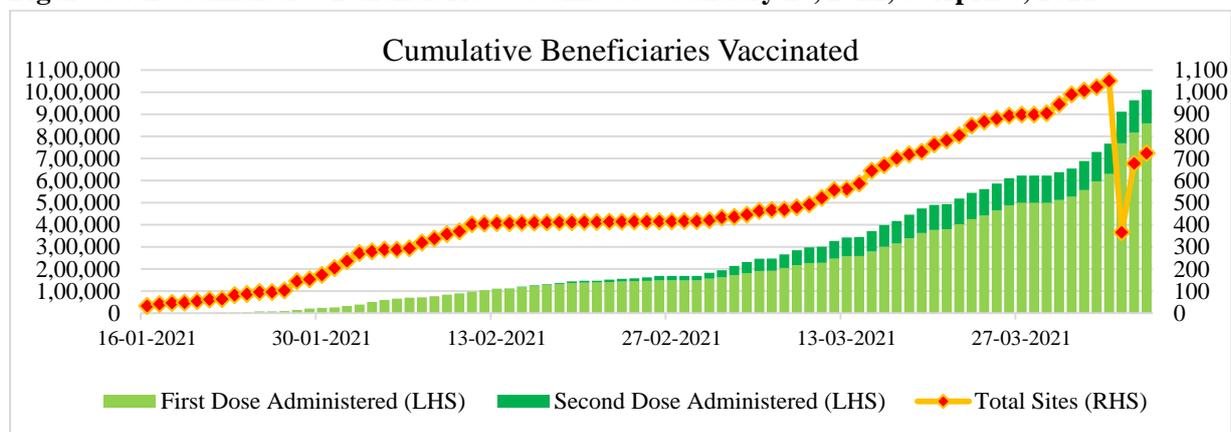


Source: Department of Medical Health and Family Welfare, Govt of Uttarakhand

7.7.5 It is important to consider these regional variations in health and economic outcomes while rolling out policies to battle the pandemic. For instance, the vaccination drive of the State will have to incorporate these ground realities if it wants to ensure mass vaccination in the State. The State started the vaccination drive on January 16, 2021, and till April 6, 2021 a total of 859,144 individuals (446,923 males, 412,126 females, and

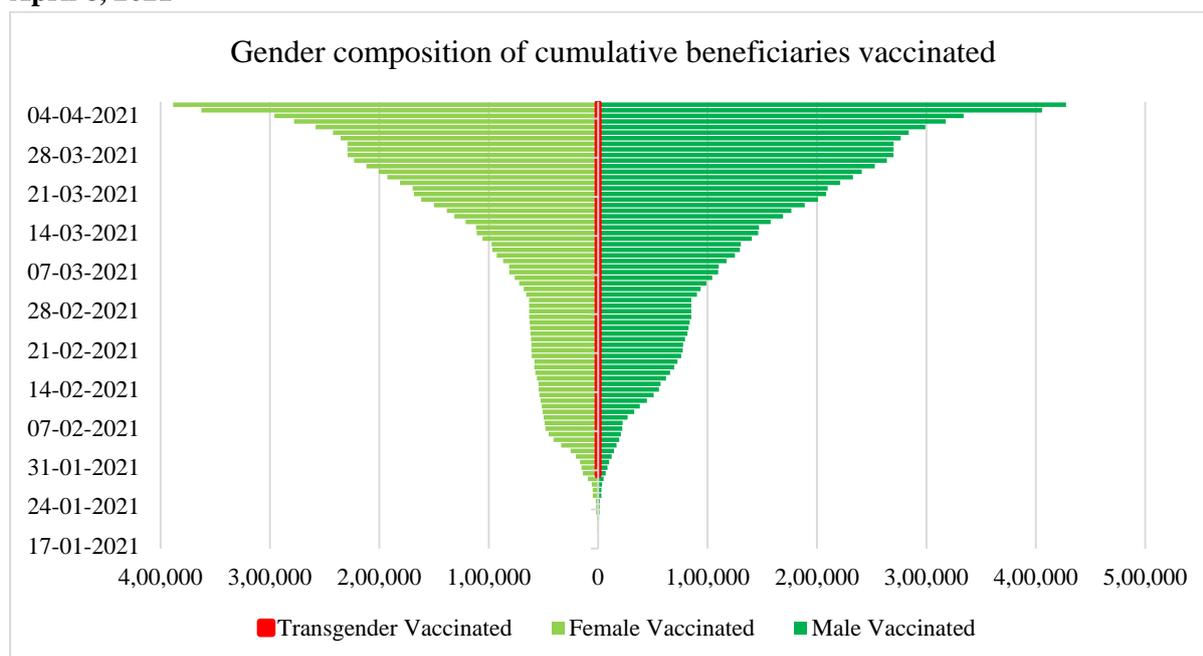
95 transgenders) have been partially vaccinated and 151,448 individuals have been fully vaccinated. Of the total 1,010,592 doses administered, 99.96 per cent individuals have been given the Covishield vaccine and 0.04 per cent the Covaxin vaccine. Figure 7.7.2 reflects how the State has gradually built and improved upon its capacity to expand the vaccination drive, and Figure 7.7.3 shows the gender composition of the beneficiaries who have been vaccinated.

Figure 7.7.2: Cumulative Beneficiaries Vaccinated – January 16, 2021, to April 6, 2021



Source: www.covid19india.org (Data collated from CoWin database)

Figure 7.7.3: Gender Composition of Cumulative Beneficiaries Vaccinated – January 16, 2021, to April 6, 2021



Source: www.covid19india.org (Data collated from CoWin database)

7.7.6 In the coming months as the State gears up for vaccinating more and more of its citizens, the success of the vaccination drive will be conditional on few crucial factors. There lies a mammoth task ahead of the State to vaccinate its entire population with the limited medical workforce at its disposal. Ensuring timely procurement of vaccines from the Centre and smooth functioning of vaccination centres will be a challenge. As the vaccination opens for the 18-44 age group, the State will need to expand the number of vaccination centres across all districts. In addition, the capabilities across districts vary significantly, as have been elucidated previously.

7.7.7 Given the differences across districts on various key parameters, it is thus responsibility of the government to strengthen its primary healthcare system which can design pro-equity policies so that the constraints and needs of all can be accounted for without compromising on the delivery of results. Thus, the first recommendation is to engage community in the planning and execution of State's vaccination drive. The government needs to partner with private hospitals, public and private schools and universities, and the civil society to collectively utilize the financial and non-financial resources

as well as capabilities of all stakeholders for carrying out pan-State vaccination. Utilizing private hospitals and their staff, school and university spaces as vaccination centres, outreach of the civil society to grassroots to advertise and encourage vaccination by all as well as for volunteering in vaccination centres, this community engagement is critical to successfully vaccinate everyone in the State.

7.7.8 The State must also prioritize that the fiscal burden of the Covid19 pandemic and the vaccination drive does not fall on the citizens. In the event of lockdown and slow economic activity, coupled with absence of health insurance cover for many in the State, a section of population is at a higher risk of being affected by the Covid19. Thus, the State must identify those residents who do not have health insurance, and promptly ensure their coverage under State health insurance scheme to safeguard their health and economic interests alike in the event of adversity. The lack of health insurance should not act as a deterrent for the people to access healthcare services. It is only by addressing the needs of those outside the coverage of the healthcare system, can the State achieve "Health for All".

7.8 The Way Forward – Recommendations and Policy Directions

7.8.1 *Improve financial planning by engaging in stakeholder consultation to budget the Department's needs, keeping its capacity and requirements in mind.*

7.8.2 *A mid-year fiscal assessment of the budget is necessary to track how the budgeted amount is being utilized by the Department so that the deviation between the budgeted and revised estimates and the actuals can be minimized.*

7.8.3 *Strengthen financial and performance audit mechanisms and financial controls to handle the increased financial flow to the healthcare sector. It will also ensure that the funds are being channelized for intended use and targets are achieved in a time-bound manner.*

7.8.4 *Increase State spending on health to more than 8 per cent of State's budget, and apportion at least two-thirds of the total health expenditure to primary health expenditure by 2022.*

7.8.5 *Expedite the construction work of medical colleges that will strengthen the medical education foundation of the State and produce trained healthcare professionals.*

7.8.6 *Hold consultations with medical professionals, academics and local governments to plan the initiation of DNB courses in private hospitals in the State. A careful blueprint must be prepared to roll out the DNB courses, attract the right young talent for it, keeping in consideration the geographical imbalances in healthcare facilities in the State.*

7.8.7 *Consider partnerships with the private sector and non-government organizations. With the financial resources of the former and the grassroot reach of the latter to provide and manage healthcare services directly to the citizens, the State can unleash the hidden potential of its resources in establishing a robust primary healthcare system.*

7.8.8 *Expand the health information network beyond the districts to the villages which are likely to be impacted by the second wave. The local governments' capacities need be strategically built and strengthened in a time-bound manner so that they can gauge, collect and provide accurate health information on ground in response to which then the preparedness plans have to be chalked out.*

7.8.9 *Develop linkages with the telecommunication sector to expand high-speed internet and call connectivity even in the most remote locations of the State. In addition, investment in Data Analytics, Artificial Intelligence and Machine Learning, etc. that will not just strengthen the health information network in the present, but in the future will yield more meaningful information that can be extracted and utilized for designing tailored policies and evaluating their impact.*

7.8.9 *Engage community in the planning and execution of State's vaccination drive. The government needs to partner with private hospitals, public and private schools and universities, and the civil society to collectively utilize the financial and non-financial resources as well as capabilities of all stakeholders for carrying out pan-State vaccination.*

7.8.10 *Identify the people who do not have a health insurance, and promptly ensure their coverage under State health insurance scheme to safeguard their health and economic interests alike in the event of adversity.*

7.8.11 *These recommendations in tandem with the policy directions identified in previous years' Economic Surveys will ensure that a robust healthcare system is established in the State that will not just help to successfully overcome the challenges from the ongoing pandemic but will also provide quality healthcare services to its citizens in the long run. While the Covid-19 pandemic persists, strategically designed policies, keeping in consideration the economic and social landscape of the State along the suggested lines will ensure the State healthcare system builds resilience to future pandemics and is well-equipped to safeguard its people.*

Chapter 08

Education in Uttarakhand

POST-PANDEMIC SCENARIO

Abstract

The COVID-19 pandemic brought unprecedented health and socioeconomic challenge for India, particularly for a small and hilly State like Uttarakhand, for the entire period of 2020-2021. Now with the second wave of the pandemic underway, it appears that this may extend well into 2021-22. Like all other sectors, it has severely impacted the entire education sector, especially its school education programmes across the State. While the Government took all necessary steps to reconstruct the educational delivery mechanism through ICT assisted systems and application, it was nevertheless a very challenging task with low penetration of broadband and smartphones in the State at the grassroots level. The cost and affordability issues of both infrastructure, data, connectivity and access to hand-held devices indicated ushering in a new kind of "digital divide" within the society. The emergency led us to identify new areas of innovation in educational delivery, pedagogy, and technological tools that will stay with us in years to come. These new challenges, innovative mitigation, and emerging opportunities are highlighted in our review of Uttarakhand's education sector in this year's report, as discussed in this chapter.

One lesson that the COVID-19 pandemic has taught us is the scope for more synergetic cooperation among various actors – schools, teachers, administrators, and department officials to re-assess the short, medium- and long-term impact of COVID-19 on our education sector. Several officials, departments, and educational institutions in the State were uniquely positioned to analyse and absorb the pandemic's effects on the teaching-learning environment at all levels. Our combined efforts generated several critical insights into the current challenges in the institutions and administrative systems that will also inform future perspectives of education. These local scenarios and perspectives are important, as they encourage us to revisit the education sector's goals like SDGs, in order to better meet these goals through higher quality collaboration in planning and implementation.

Indeed, COVID-19 is a viral pandemic that affects all of us, both individuals and society. The health crisis has quickly evolved into an economic, cultural, social and, for students, an 'educational' crisis. While the immediate responses were focused on primarily controlling and curbing the spread of the infection and led to

the closure of the entire country for a long time, the re-establishment of education delivery mechanisms for both teachers and students stranded in their homes, came to the forefront in the hill regions. The Government's lockdown measures have had an immediate effect on the education system, which performed under strenuous conditions to carry on teaching, learning, examinations, evaluation and even research activities. Educational institutions in Uttarakhand launched a mechanism that is now often referred to as '*emergency online education*'. Still, it was realised soon enough that the students needed assistance, teachers and supporting staff faced unprecedented challenges, including job insecurity. Higher educational institutions, colleges and universities had to reinvent how to run their campus operations. The consequences will leave their impact way into the future. To visualise the State's medium and long-term scenarios in education, it is important to capture what happened, what is happening now, and the long ranging consequences for our students. This review, therefore, presents an analysis of the immediate impact on education and research and the medium and long-term impact.

A survey conducted across the State highlighted the incredible innovative approaches to issues faced and the education sector's resilience. Increased interest of policymakers for education focused on delivery, access and ensuring a minimum standard of quality and competence. It is hoped that this review will counterbalance the negative trends being reported for the State's education system before the outbreak. It will bring back belief and trust in collective wisdom and the value of shared experience.

At the same time, many universities and colleges, and education institutions anticipate the impact of 'online mode' on our students and their families, due to the closure of physical teaching in schools, colleges, and universities, for the short, medium or long term. The grim financial future that many sectors will have to face will increase the education sector's responsibilities to society manifold. Students need to be sensitised, staff needs to be encouraged, institutions and the systems need to be supported, if the lessons from the COVID-19 pandemic are to be retained for the future.

The future of higher education needs rethinking in many ways. International and multilateral cooperation within the higher education sector and policymakers, communities and other stakeholders will need to be increased and strengthened. The short-term consequences of COVID-19 revealed through this survey are an eye-opener and a start to addressing the long-term consequences to be faced. The lessons learned so far must guide future developments of the sector as a whole.

Rethinking Education

While quality primary and school education are our basic minimum to sustain higher education, and research, the accessibility, affordability,

equity, and equality agenda are global requirements of a vibrant society for the new mechanism to be adopted by all. The need for knowledge creation and dissemination, under the circumstances, will need the support of all stakeholders, including, in particular, the institutional heads, department officials, staff and students, to ensure they can continue to help construct the new *hybrid education model*²⁸ that we need.

In just a few months, the novel coronavirus unleashed upon us the COVID-19 pandemic, which has changed people's conventional lives, including teachers' and students'. Apart from the health hazards that the COVID19 pandemic brought in, there were many implications for the students - their physical and mental wellbeing. To understand all these aspects, we surveyed the State in 2020. Using a framework²⁹, the quick survey addressed issues like technology use, quality, pedagogical concerns, and lessons learnt during the pandemic. A discussion on the survey's major findings helps us to generate suggestions for the policymakers and educational institutions, on future course of action. A total of 563 respondents participated in the survey from all the thirteen districts of Uttarakhand. The participation was unequally distributed among districts and gender. Respondents included teachers, students and officials of education departments.

Following issues were specifically addressed in the survey:

EDUCATIONAL TECHNOLOGY USE

1. Were there any digital tools being used for teaching before COVID?
2. Did you accept the digital mode of education before COVID?

²⁸ Hybrid learning is a way of combining traditional classroom experiences, experiential learning objectives, and digital course delivery that emphasizes using the best option for each learning objective.

²⁹ "Impacts of the covid-19 pandemic on life of higher education students" - Methodological framework (1st draft

version) developed by Aleksander Aristovnik, Damijana Keržič, Dejan Ravšelj, Nina Tomažević and Lan Umek at the Faculty of Public Administration, University of Ljubljana (June 2020).

3. Has the use of digital tools increased during COVID?
4. Have digital tools allowed education to continue during COVID?

QUALITY IMPROVEMENT

5. Do you think digital tools have improved the quality of learning?
6. Do you think new educational tools have been introduced during COVID?
7. Do you think you or your children will be more receptive to new teaching tools?

PRE & POST COVID SCENARIO

8. Was the learning of your child/children satisfactory in the pre COVID period?
9. Do you think their learning will improve in the post COVID period?

FUTURE USE

10. Do you think online learning should continue in the post COVID along with physical classroom learning?
11. Did you use recorded classes to learn or live online classes during COVID?
18. Do you think that students will continue to adopt new learning methods even after COVID?
22. Do you think students who discontinued their education during COVID will now continue their education?

PEDAGOGY

12. Do you think that during COVID, new methods of evaluating students was developed?
13. Going forward, do you think these new evaluation methods of student learning progress will improve the quality of learning?
14. Do you think that students could study from teachers who did not reside in their locality?
15. Do you think learning from teachers outside your locality has improved the quality of education?

16. Do you think student workload has increased after COVID?

STUDENTS' BENEFITS

17. Do you think that students benefited from online mentoring that was provided to them?
19. Were students able to learn several new activities online that will contribute to their overall development?
20. Do you think that the student's emotional health will improve in the post COVID world?
21. Have you or anyone around you been the beneficiary of the education program of the Government?

Education Sector in Uttarakhand

Education in Uttarakhand – Uttarakhand has a literacy rate of 79.63% and occupies 17th spot in the literate State of India. The rate of literacy varies for males and females in the State. As per the 2011 census, the literacy rates of male and female populations were 80.33% and 70.70% respectively. Comparing the literacy rates of various districts, *Dehradun, Nainital, Chamoli, Pithoragarh and Pauri Garhwal* top the list. The State abides by the 'Right to Free and Compulsory Education Act, 2009' to make free education mandatory for children in the age range of 6-14.

Table 1: Literacy Rate in Uttarakhand

| | Rural | Urban |
|---------------|--------|--------|
| <i>Male</i> | 86.61% | 89.05% |
| <i>Female</i> | 66.18% | 79.25% |
| Total | 76.31% | 84.45% |

The State is home to more than 19,000 schools, imparting education at the primary, secondary and senior secondary levels. The network of schools in the State has increased accessibility of education for students. The Government has initiated several programmes such as Rashtriya Madhyamik Shiksha Abhiyan and Uttarakhand Vidhyalayi Shiksha Parishad to promote education at the school level. The State schools are majorly affiliated with the Uttarakhand Board of School Education, Central Board of Secondary

Education (CBSE) and Indian Certificate of Secondary Education (ICSE).

The State has 14 government and 15 private universities. Home to more than 500 colleges, the State offers higher education in diverse disciplines of study. As per NIRF 2020 Ranking, IIT Roorkee is ranked among the top 100 universities.

Uttarakhand's Government and private colleges offer degree programmes in science, arts and commerce streams, and professional courses. As per the District Information System for Education (DISE) 2015-16 data, Uttarakhand's annual school dropout rate differs at various levels. In Uttarakhand, the dropout rate is 8.16% at the primary level. The boys' dropout rate is 10.05%, and for girls at the upper primary level and girls, it increases to 12.06%.

There is a sharp increase in the dropout rate at the secondary level as 12.24% of boys, and 9.26% of girls quit education at this level, as per the report for the academic year 2015-16. The average annual drop out of boys at the higher secondary level is 4.45%, while for girls, it is 1.66%.

The All-India Survey of Higher Education (AISHE), under the Ministry of Education (MOE) regulation, performs a survey showing several factors related to higher education in India and each State. Uttarakhand offers higher education at multiple levels. According to the last available report of the AISHE (2018-19), the enrolment of students at various levels of education in Uttarakhand is presented in Table 2. Uttarakhand has more than 19,000 schools offering education at the primary, secondary and senior secondary level.³⁰

Table 2: Student Enrolment in Uttarakhand

| Course Level | Number of Enrolments |
|------------------------|----------------------|
| Undergraduate | 2,97,359 |
| PG Diploma | 3607 |
| Certificate | 277 |
| Integrated | 4137 |
| Post Graduate | 62660 |
| Diploma | 3607 |
| M.Phil | 11 |
| PhD | 3175 |
| Total Enrolment | 374833 |

According to the All-India Survey on Higher Education (AISHE) for 2018, the estimated number of enrolment in Uttarakhand colleges in Postgraduate programmes stood at 31,082 (Male:12285, Female:18797), indicating that women are surging ahead of men in college education. It also supports an earlier study that showed that female enrolment surpasses male enrolment in almost every hill district. This pleasant number is rather attributed to the perennial reality of the hills - males migrating to the urban plains for both education and jobs.³¹ The Gross Enrolment Ratio (GER)³² of Uttarakhand in Higher Education (18-23 years) stands at an overall 39.1% higher than the national figure of 26.3%.

In Technical Education, the most striking fact that emerges is the low-capacity utilisation in undergraduate and postgraduate level institutions in the State. Out of the total intake capacity of 38,318 seats, only 17,769 students (Boys: 14,045, Girls: 3,724) were enrolled during 2018-19. Out of these enrolled students, only 8,011 found job placements after graduation. This trend is not unusual as per the All-India Council for Technical Education (AICTE) Report of 2019³³, indicating that all India Capacity Vs. Enrolment

³⁰ Gautam, K. (Aug 10, 2020). *Education in Uttarakhand* [Website]. Retrieved from <https://www.embibe.com/exams/education-in-uttarakhand/>

³¹ Pandey, T. D. and Pathak, J. (2018). Higher Education and Sustainable Development in Uttarakhand. In *Research*, 3(3), pp. 79-83.

³² Gross Enrolment Ratio (GER) is statistical measure for determining number of students enrolled in

undergraduate, postgraduate and research-level studies within country and expressed as a percentage of population. India is aiming to attain GER of 30% by 2020, but it is still far behind countries like China with GER of 43.39% and US with 85.8%.

³³ Please note that the report of All India Council for Technical Education (AICTE) for the year 2020 is not available as of now (Mar 2021)

stood as low as 49.8%. Traditional engineering disciplines such as Mechanical, Electrical, Civil and Electronics engineering are increasingly witnessing low enrolment, whereas disciplines like Computer Science are still retaining some interest. As highlighted by the AICTE Report (2019)³⁴, low enrolment, minimal placements, and low employability will pose more challenges in the coming years as employment generation will be an uphill task for the State. Therefore, the State's technical institutions must rethink their strategies and proactively redefine their teaching-learning and quality scenarios to incorporate the 'employability' aspects within the subjects and curriculums they offer. Such a strategic reform can be facilitated by the Government and invariably involve other stakeholders like industry, local entrepreneurs, and small and medium enterprises (SMEs).

FINDINGS OF THE QUICK SURVEY

Educational Technology Use

Rethinking the role of technologies in the education sector after the COVID-19 closure of the institutions, the rapid survey focused on using digital tools, the Internet, applications, and their acceptance by the students. The student's perception regarding technology adoption, increase in the use of digital tools while staying at home for several months to continue their education with many uncertain perspectives for the near future, is a crucial highlight of the survey.

In some districts like *Tehri Garhwal* and *Pithoragarh*, 89 to 92 per cent of children were not exposed to digital platforms for education in the pre-COVID19 period (Table 3). In terms of accepting such digital tools before the pandemic, a similar uneven pattern is seen among students (Table 4). However, this scenario changed during the COVID19 period, and there is a marked increase in technology use during the pandemic (Table 5).

In some districts like *Tehri Garhwal* and *Pithoragarh*, 89 to 92 per cent of children were not exposed to digital platforms for education in the pre-COVID19 period (Table 3). In terms of accepting such digital tools before the pandemic, a similar uneven pattern is seen among students (Table 4). However, this scenario changed during the COVID19 period, and there is a marked increase in technology use during the pandemic (Table 5).

Table 3: Use of Technological Tools in Education Before COVID19

| District | Were there any digital tools being used for teaching before COVID? | | | | Grand Total | |
|----------------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | | |
| Almora | 13 | 33.3% | 26 | 66.7% | 39 | 6.9% |
| Bageshwar | 40 | 90.9% | 4 | 9.1% | 44 | 7.8% |
| Chamoli | 25 | 62.5% | 15 | 37.5% | 40 | 7.1% |
| Champawat | 11 | 26.2% | 31 | 73.8% | 42 | 7.5% |
| Dehradun | 12 | 30.0% | 28 | 70.0% | 40 | 7.1% |
| Haridwar | 24 | 47.1% | 27 | 52.9% | 51 | 9.1% |
| Nainital | 28 | 66.7% | 14 | 33.3% | 42 | 7.5% |
| Pauri Garhwal | 10 | 25.0% | 30 | 75.0% | 40 | 7.1% |
| Pithoragarh | 3 | 7.5% | 37 | 92.5% | 40 | 7.1% |
| Rudraprayag | 13 | 27.7% | 34 | 72.3% | 47 | 8.3% |
| Tehri Garhwal | 6 | 10.3% | 52 | 89.7% | 58 | 10.3% |
| USN | 18 | 45.0% | 22 | 55.0% | 40 | 7.1% |
| Uttarkashi | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| State | 242 | 43.0% | 321 | 57.0% | 563 | 100.0% |

The worst affected are perhaps those children who do not have access to connectivity, Internet, or devices, and those who rely on schools for educational, nutritional and health needs due to their economic conditions. Due to technology-based delivery mechanisms, any lack of parental support at home to operate these technological media has been a major cause of inequalities in the new digital divide.

³⁴ "Engineering Education in India- Short and Medium-term perspectives" conducted by BVR Mohan Reddy (2019).

Table 4: Acceptance Rate of Digital Tools before Pandemic

| District | Did you accept the digital mode of education before COVID? | | | | | |
|---------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 32 | 82.1% | 7 | 17.9% | 39 | 6.9% |
| Bageshwar | 37 | 84.1% | 7 | 15.9% | 44 | 7.8% |
| Chamoli | 23 | 57.5% | 17 | 42.5% | 40 | 7.1% |
| Champawat | 8 | 19.0% | 34 | 81.0% | 42 | 7.5% |
| Dehradun | 12 | 30.0% | 28 | 70.0% | 40 | 7.1% |
| Haridwar | 12 | 23.5% | 39 | 76.5% | 51 | 9.1% |
| Nainital | 22 | 52.4% | 20 | 47.6% | 42 | 7.5% |
| Pauri Garhwal | 7 | 17.5% | 33 | 82.5% | 40 | 7.1% |
| Pithoragarh | 3 | 7.5% | 37 | 92.5% | 40 | 7.1% |
| Rudraprayag | 26 | 55.3% | 21 | 44.7% | 47 | 8.3% |
| Tehri Garhwal | 4 | 6.9% | 54 | 93.1% | 58 | 10.3% |
| USN | 17 | 42.5% | 23 | 57.5% | 40 | 7.1% |
| Uttarkashi | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| State | 240 | 42.6% | 323 | 57.4% | 563 | 100.0% |

Table 5: Increase in the use of Technologies during COVID19

| District | Has the use of digital tools increased during COVID? | | | | | |
|-------------------|--|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 36 | 92.3% | 3 | 7.7% | 39 | 6.9% |
| Bageshwar | 38 | 86.4% | 6 | 13.6% | 44 | 7.8% |
| Chamoli | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Champawat | 39 | 92.9% | 3 | 7.1% | 42 | 7.5% |
| Dehradun | 34 | 85.0% | 6 | 15.0% | 40 | 7.1% |
| Haridwar | 48 | 94.1% | 3 | 5.9% | 51 | 9.1% |
| Nainital | 33 | 78.6% | 9 | 21.4% | 42 | 7.5% |
| Pauri Garhwal | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 47 | 100.0% | 0 | 0.0% | 47 | 8.3% |
| Tehri Garhwal | 58 | 100.0% | 0 | 0.0% | 58 | 10.3% |
| Udham Singh Nagar | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| State | 523 | 92.9% | 40 | 7.1% | 563 | 100.0% |

During the period, one lesson learnt has been the increased need for coordinated and integrated effort among stakeholders such as officials, teachers, students and parents, to support students through online learning. It is also noted that the physical classrooms and peer-bonding in schools are an educational experience for many children (Table 6) and an avenue for socialisation that is absent during the lockdown period. It is a challenge for the online education systems to

replicate the physical space "to share interests, thoughts, hopes, and emotions among peers... in a structured setting in which children can learn and develop social competencies, such as self-confidence, friendship, empathy, participation, respect, gratitude, compassion, and responsibility. Social and emotional learning is important for young people to become conscious members of a solidarity-based community."³⁵

³⁵ Zins, J. E., Bloodworth M. R., Weissberg, R. P., and Walberg, H. J. (2007). The scientific base linking social

and emotional learning to school success. In *Journal of Educational and Psychological Consultation*, 17, pp. 191–210.

Table 6: Technology as a tool to continue educational activities during the pandemic

| District | Have digital tools allowed education to continue during COVID? | | | | | |
|--------------------------|--|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 38 | 97.4% | 1 | 2.6% | 39 | 6.9% |
| Bageshwar | 41 | 93.2% | 3 | 6.8% | 44 | 7.8% |
| Chamoli | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Haridwar | 48 | 94.1% | 3 | 5.9% | 51 | 9.1% |
| Nainital | 39 | 92.9% | 3 | 7.1% | 42 | 7.5% |
| Pauri Garhwal | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Pithoragarh | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Rudraprayag | 46 | 97.9% | 1 | 2.1% | 47 | 8.3% |
| Tehri Garhwal | 58 | 100.0% | 0 | 0.0% | 58 | 10.3% |
| Udham Singh Nagar | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| State | 548 | 97.3% | 15 | 2.7% | 563 | 100.0% |

We saw that perhaps the education system can still deliver major educational activities online, but the student's social life on a physical campus, which is a composite cultural life, and its role in students' mental growth and wellbeing, is an area that demands further attention and solutions. Some experts³⁶ suggest that technology-mediated applications may need to be developed remotely to support students' physical activity, good personal hygiene, and a balanced diet.

Quality Issues in Education

Increased technology use in education delivery during COVID19, has changed the existing

operational systems and brought educational quality issues to the surface. In higher and technical education, where a major part of the education is done either in the field (Management interns) or laboratories (engineering lab classes), there were marked weaknesses and vulnerabilities. While most of the respondents agree that digital tools improve the quality of education (except perhaps district like *Tehri Garhwal* answering hugely negatively, see Table 7), the risk seems to be in technical and professional education areas that were not prepared to convert fully into digital and distance learning.

Table 7: Perceived role of digital tools in quality of education

| District | Do you think digital tools have improved the quality of learning? | | | | | |
|----------------------|---|--------|----|-------|-------------|------|
| | Yes | | No | | Grand Total | |
| Almora | 38 | 97.4% | 1 | 2.6% | 39 | 6.9% |
| Bageshwar | 38 | 86.4% | 6 | 13.6% | 44 | 7.8% |
| Chamoli | 20 | 50.0% | 20 | 50.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Haridwar | 29 | 56.9% | 22 | 43.1% | 51 | 9.1% |
| Nainital | 38 | 90.5% | 4 | 9.5% | 42 | 7.5% |
| Pauri Garhwal | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Pithoragarh | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Rudraprayag | 45 | 95.7% | 2 | 4.3% | 47 | 8.3% |

³⁶ Paakkari L, Okan O. (2020). COVID-19: health literacy is an underestimated problem. *Lancet Public Health*, 5, pp. 249–50.

| | | | | | | |
|--------------------------|------------|--------------|------------|--------------|------------|-------------|
| Tehri Garhwal | 16 | 27.6% | 42 | 72.4% | 58 | 10.3% |
| Udham Singh Nagar | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| State | 455 | 80.8% | 108 | 19.2% | 563 | 100% |

Most of the new pedagogic tools were introduced during the pandemic (Table 8). It also indicates that several issues like teacher education and training will be needed to sustain such a pedagogical approach in the long run. There is an increased interest in these new tools like online classrooms, remotely monitored assessments etc.

Still, to retain these interests as a part of our emerging educational system in the post-COVID period, we will need more "resourcefulness, dedication and creativity from many teachers, families and students who are collaboratively building remarkable learning experiences."³⁷

Table 8: Introduction of new pedagogic tools during the pandemic

| District | Do you think new pedagogic tools have been introduced during COVID? | | | | | |
|--------------------------|---|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 37 | 94.9% | 2 | 5.1% | 39 | 6.9% |
| Bageshwar | 39 | 88.6% | 5 | 11.4% | 44 | 7.8% |
| Chamoli | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Haridwar | 47 | 92.2% | 4 | 7.8% | 51 | 9.1% |
| Nainital | 38 | 90.5% | 4 | 9.5% | 42 | 7.5% |
| Pauri Garhwal | 31 | 77.5% | 9 | 22.5% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 43 | 91.5% | 4 | 8.5% | 47 | 8.3% |
| Tehri Garhwal | 53 | 91.4% | 5 | 8.6% | 58 | 10.3% |
| Udham Singh Nagar | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| State | 525 | 93.3% | 38 | 6.7% | 563 | 100.0% |

It is interesting to note that both teachers and students are mostly accommodative towards new technologies as educational (teaching) tools except perhaps *Tehri Garhwal* district (Table 9). New educational technologies are seen as facilitators of better 'communication, collaboration and learning' that can bridge the

physical distances between learners and teachers. However, several concerns emerged during a discussion with teachers that included, among other things, issues like privacy, freedom of expression, intruding surveillance or even exposure of students' private lives or socioeconomic conditions.

³⁷ UNESCO (2020). Education in a post-COVID world: Nine ideas for public action. International Commission on the Futures of Education.

Table 9: Receptiveness towards new Teaching Tools

| District | Do you think you or your children will be more receptive to new teaching tools? | | | | | |
|-------------------|---|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 35 | 89.7% | 4 | 10.3% | 39 | 6.9% |
| Bageshwar | 36 | 81.8% | 8 | 18.2% | 44 | 7.8% |
| Chamoli | 24 | 60.0% | 16 | 40.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Haridwar | 29 | 56.9% | 22 | 43.1% | 51 | 9.1% |
| Nainital | 39 | 92.9% | 3 | 7.1% | 42 | 7.5% |
| Pauri Garhwal | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 38 | 80.9% | 9 | 19.1% | 47 | 8.3% |
| Tehri Garhwal | 11 | 19.0% | 47 | 81.0% | 58 | 10.3% |
| Udham Singh Nagar | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| State | 445 | 79.0% | 118 | 21.0% | 563 | 100.0% |

Learning During Pre and Post COVID-19

This COVID19 pandemic has manifested several critical challenges facing the education sector. The already existing digital divide in India with the disparity in Internet connectivity, access to telecom infrastructure, and broadband services between rural and urban, plains and hilly terrains, rich and poor sections offered different challenges and opportunities for different strata of the same society. Sustainable development means such disparities are removed, and a resilient society emerges that treats education as

a "common good" that ensures that "we are educating not just children and young people—but that we are educating publics."³⁸ There must be the satisfactory realisation that our alternative (online) delivery systems are appreciated by the larger community (Table 10) and mitigates present and future challenges. In a few districts like *Rudraprayag* and *Udham Singh Nagar*, there was significant dissatisfaction in learning achievements (32%-42%), and this should be in our mind while recommending our post-COVID19 education strategy.

Table 10: Learning satisfaction during Pre-COVID-19 Period

| District | Was the learning of your child/children satisfactory in the pre COVID period? | | | | | |
|---------------|---|-------|----|-------|-------------|------|
| | Yes | | No | | Grand Total | |
| Almora | 23 | 59.0% | 16 | 41.0% | 39 | 6.9% |
| Bageshwar | 33 | 75.0% | 11 | 25.0% | 44 | 7.8% |
| Chamoli | 30 | 75.0% | 10 | 25.0% | 40 | 7.1% |
| Champawat | 38 | 90.5% | 4 | 9.5% | 42 | 7.5% |
| Dehradun | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Haridwar | 43 | 84.3% | 8 | 15.7% | 51 | 9.1% |
| Nainital | 38 | 90.5% | 4 | 9.5% | 42 | 7.5% |
| Pauri Garhwal | 27 | 67.5% | 13 | 32.5% | 40 | 7.1% |
| Pithoragarh | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Rudraprayag | 27 | 57.4% | 20 | 42.6% | 47 | 8.3% |

³⁸ Ibid.

| | | | | | | |
|--------------------------|------------|--------------|------------|--------------|------------|---------------|
| Tehri Garhwal | 38 | 65.5% | 20 | 34.5% | 58 | 10.3% |
| Udham Singh Nagar | 24 | 60.0% | 16 | 40.0% | 40 | 7.1% |
| Uttarkashi | 32 | 80.0% | 8 | 20.0% | 40 | 7.1% |
| State | 427 | 75.8% | 136 | 24.2% | 563 | 100.0% |

Education re-construction has special significance in the post-pandemic situation, and this was our focus of the question in the survey. Education is one of the major re-construction tools that ensures that the affected societies and individuals recover from the temporary setback. The pandemic has made us realise and appreciate the technological tools available to improve the

learning achievement even in post COVID19 period (Table 11). The role of self-learning by students, adults, and lifelong learning among teachers has come to the fore, as people of all ages learn new ways of managing a teaching-learning environment. We will address this issue in developing our strategy for teacher education for the future.

Table 11: Improvement in learning during Post-COVID Period

| District | Do you think their learning will improve in the post COVID period? | | | | | |
|--------------------------|--|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 38 | 97.4% | 1 | 2.6% | 39 | 6.9% |
| Bageshwar | 37 | 84.1% | 7 | 15.9% | 44 | 7.8% |
| Chamoli | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Champawat | 41 | 97.6% | 1 | 2.4% | 42 | 7.5% |
| Dehradun | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Haridwar | 46 | 90.2% | 5 | 9.8% | 51 | 9.1% |
| Nainital | 37 | 88.1% | 5 | 11.9% | 42 | 7.5% |
| Pauri Garhwal | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 45 | 95.7% | 2 | 4.3% | 47 | 8.3% |
| Tehri Garhwal | 57 | 98.3% | 1 | 1.7% | 58 | 10.3% |
| Udham Singh Nagar | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Uttarkashi | 29 | 72.5% | 11 | 27.5% | 40 | 7.1% |
| State | 522 | 92.7% | 41 | 7.3% | 563 | 100.0% |

The COVID-19 pandemic resulted in the closure of schools, universities, colleges, and other Uttarakhand institutions to reduce the spread of the pandemic among the students, especially the younger ones, and decreased fatalities. The policy assumed the threat to public health to be from face-to-face schooling. It was a situation where teachers and educational administrators were faced with the option of delivering 'emergency eLearning' at short notice. Given this crisis, it was encouraging to note that a positive vibe existed among teachers and learners. Learning will

improve by this online, remote learning experience even after the pandemic is over. A few scholars have globally expressed some concern that "hasty adoption of commercial digital learning solutions whose design might not always be driven by best pedagogical practices [and these practices were] ... redefining and reducing concepts of teaching and learning."³⁹

Education in the Future

The technological interventions that appeared during the COVID-19 period are expected to

³⁹ Teräs, M., Suoranta, J., Teräs, H., and Curcher, M. (2020). Post-Covid-19 Education and Education

Technology - 'Solutionism': a Seller's Market. In *Postdigital Science and Education*, 2, pp. 863–878.

leave some redefining marks on the pedagogical practices in the education sector across the world. Uttarakhand has also seen its share of technological and pedagogical interventions during the period. The stakeholders are largely hopeful that these will improve the teaching-learning scenario in the State in the post-COVID-19 period (as indicated in the previous section). The rapid survey further probed into some related aspects of this emerging hybrid nature of educational delivery. When asked about their

choice of continuing 'online education' and the physical classrooms after the pandemic, most of the respondents replied in favour of continuation of hybrid education approach (Table 12). Here again, we saw exceptions in two districts – *Rudraprayag* and *Tehri Garhwal*, where the majority seems to get on with the physical classes leaving the online platforms. A possible explanation could be the infrastructural difficulties (data, telecom, connectivity etc.) in the region.

Table 12: Willingness to continue the "Online" learning

| District | Do you think online learning should continue in the post COVID along with physical classroom learning? | | | | | |
|--------------------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 26 | 66.7% | 13 | 33.3% | 39 | 6.9% |
| Bageshwar | 33 | 75.0% | 11 | 25.0% | 44 | 7.8% |
| Chamoli | 22 | 55.0% | 18 | 45.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| Haridwar | 29 | 56.9% | 22 | 43.1% | 51 | 9.1% |
| Nainital | 36 | 85.7% | 6 | 14.3% | 42 | 7.5% |
| Pauri Garhwal | 26 | 65.0% | 14 | 35.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 17 | 36.2% | 30 | 63.8% | 47 | 8.3% |
| Tehri Garhwal | 22 | 37.9% | 36 | 62.1% | 58 | 10.3% |
| Udham Singh Nagar | 31 | 77.5% | 9 | 22.5% | 40 | 7.1% |
| Uttarkashi | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| State | 394 | 70.0% | 169 | 30.0% | 563 | 100.0% |

The difficulties of accessing stable broadband connectivity with an acceptable speed for an uninterrupted classroom seem real. We see many users resorting to re-use of the recorded classroom lectures (Table 13). Technologies have their risks of technical failures and repeated loss of connectivity might cause further frustration in following a class session in real-time. In such cases, both teachers and students might be eager to return to physical campuses once they reopen.

A lasting impression of online classroom platforms, assessment systems and teaching practices might usher in a major transformation in the education sector. However, many of the digitally 'disadvantaged' population might recognise the value additions of the traditional classrooms that were "providing for the wellbeing of children and youth, and in ensuring health and nutrition, alongside academic learning."⁴⁰

⁴⁰ Michael A. Peters et. al. (2020). Reimagining the new pedagogical possibilities for universities post-Covid-19: An

EPAT Collective Project. Philosophy of Education Society of Australasia. In *Educational Philosophy and Theory*; <https://doi.org/10.1080/00131857.2020.1777655>

Table 13: Use of Recorded Class

| District | Did you use recorded classes to learn or live online classes during COVID? | | | | | |
|-------------------|--|--------------|-----------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 35 | 89.7% | 4 | 10.3% | 39 | 6.9% |
| Bageshwar | 36 | 81.8% | 8 | 18.2% | 44 | 7.8% |
| Chamoli | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| Champawat | 41 | 97.6% | 1 | 2.4% | 42 | 7.5% |
| Dehradun | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Haridwar | 40 | 78.4% | 11 | 21.6% | 51 | 9.1% |
| Nainital | 33 | 78.6% | 9 | 21.4% | 42 | 7.5% |
| Pauri Garhwal | 34 | 85.0% | 6 | 15.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 37 | 78.7% | 10 | 21.3% | 47 | 8.3% |
| Tehri Garhwal | 56 | 96.6% | 2 | 3.4% | 58 | 10.3% |
| Udham Singh Nagar | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Uttarkashi | 34 | 85.0% | 6 | 15.0% | 40 | 7.1% |
| State | 495 | 87.9% | 68 | 12.1% | 563 | 100.0% |

This increased awareness and appreciation of new learning methods that the learners can use even after the pandemic, is reflected in the survey's next query. The majority of respondents felt that once they have become aware of the advantages, freedom of access, processing and storage of information would encourage the adoption of new learning methods (Table 14). The pandemic has compelled many students and

teachers to move away from the traditional systems and learn newer smart technological apps. However, the same cannot be the case for many in rural areas for whom the traditional school is the resource centre for learning materials (physical textbook, additional learning materials, guidance, and, sometimes, the only decent meal of the day)."⁴¹

Table 14: Adaption of New Materials

| District | Do you think that students will continue to adopt new learning methods even after COVID? | | | | | |
|-------------------|--|--------------|-----------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 36 | 92.3% | 3 | 7.7% | 39 | 6.9% |
| Bageshwar | 40 | 90.9% | 4 | 9.1% | 44 | 7.8% |
| Chamoli | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 33 | 82.5% | 7 | 17.5% | 40 | 7.1% |
| Haridwar | 46 | 90.2% | 5 | 9.8% | 51 | 9.1% |
| Nainital | 31 | 73.8% | 11 | 26.2% | 42 | 7.5% |
| Pauri Garhwal | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 41 | 87.2% | 6 | 12.8% | 47 | 8.3% |
| Tehri Garhwal | 35 | 60.3% | 23 | 39.7% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| State | 494 | 87.7% | 69 | 12.3% | 563 | 100.0% |

⁴¹ UNESCO (2020). Education in a post-COVID world: Nine ideas for public action. International Commission on the Futures of Education.

The shift to online classes had a disruptive impact on many students in rural, remote and weaker sections of society, as indicated earlier due to connectivity problems, lack of smartphones (devices) in households, staff expertise, and cost

of data. However, even after such disruption of their education, most of the respondents were overwhelmingly of the opinion that they would continue their education after the pandemic (Table 15).

Table 15: Disruption and continuation of education post COVID19

| District | Do you think students who discontinued their education during COVID will now continue their education? | | | | | |
|-------------------|--|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 36 | 92.3% | 3 | 7.7% | 39 | 6.9% |
| Bageshwar | 37 | 84.1% | 7 | 15.9% | 44 | 7.8% |
| Chamoli | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Haridwar | 49 | 96.1% | 2 | 3.9% | 51 | 9.1% |
| Nainital | 38 | 90.5% | 4 | 9.5% | 42 | 7.5% |
| Pauri Garhwal | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 41 | 87.2% | 6 | 12.8% | 47 | 8.3% |
| Tehri Garhwal | 56 | 96.6% | 2 | 3.4% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| State | 531 | 94.3% | 32 | 5.7% | 563 | 100.0% |

Pedagogical Issues

There have been pandemics in the long history of civilisations, and it is nothing new for the world to face another one. In recent times, three historically significant outbreaks occurred post 2000. These were the severe acute respiratory syndrome (SARS-CoV-1) in 2003, Middle East respiratory syndrome (MERS) in 2013 and Ebola virus disease in 2014.⁴² The first two were caused by Corona viruses and the third by an Ebola virus. Health scientists and professionals eventually mitigated all three. But in many ways, the COVID-19 pandemic was a new challenge for us. It is seen as a resurrection of the infections after developing some resistance in humans against viruses.⁴³ So, COVID19 is a kind of 'reassertion'

by the virus following an "ecological pattern of mutual accommodation between human hosts and parasites was almost sure to prevail."⁴⁴

Like in the past, human societies tried to find ways to overcome the onslaught of the disease in all its activities. In the wake of COVID- 19, most educational institutions were also transforming their classrooms to online remote learning modes. To continue the semesters and academic years without losing any time in students' career and progress, certifications and examinations were being conducted through new evaluation methods. These innovations in evaluations were developed during COVID-19 (Table 16), and these are perceived to improve the quality of education (Table 17).

⁴² COVID-19 Pandemic: A World in Turmoil (n.d.); <https://www.atrainceu.com/content/8-historical-context-sars-mers-and-ebola>

⁴³ Historian William McNeill termed it as the counteroffensive by infectious diseases against the

specifically modern growth of human resistance to pestilence and plague.

⁴⁴ As argued by William McNeill in his classic work *Plagues and Peoples* (Garden City, NY: Anchor Press, 1976).

Table 16: New Methods of Evaluations During COVID19

| District | Do you think that during COVID, new methods of evaluating students was developed? | | | | | |
|-------------------|---|--------------|-----------|-------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 38 | 97.4% | 1 | 2.6% | 39 | 6.9% |
| Bageshwar | 36 | 81.8% | 8 | 18.2% | 44 | 7.8% |
| Chamoli | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Haridwar | 48 | 94.1% | 3 | 5.9% | 51 | 9.1% |
| Nainital | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Pauri Garhwal | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 42 | 89.4% | 5 | 10.6% | 47 | 8.3% |
| Tehri Garhwal | 45 | 77.6% | 13 | 22.4% | 58 | 10.3% |
| Udham Singh Nagar | 33 | 82.5% | 7 | 17.5% | 40 | 7.1% |
| Uttarkashi | 34 | 85.0% | 6 | 15.0% | 40 | 7.1% |
| State | 512 | 90.9% | 51 | 9.1% | 563 | 100.0% |

Table 17: New Methods of Evaluation and Quality of Education

| District | Going forward, do you think these new methods of evaluation of student learning progress will improve the quality of learning? | | | | | |
|---------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 31 | 79.5% | 8 | 20.5% | 39 | 6.9% |
| Bageshwar | 36 | 81.8% | 8 | 18.2% | 44 | 7.8% |
| Chamoli | 22 | 55.0% | 18 | 45.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Haridwar | 27 | 52.9% | 24 | 47.1% | 51 | 9.1% |
| Nainital | 40 | 95.2% | 2 | 4.8% | 42 | 7.5% |
| Pauri Garhwal | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Pithoragarh | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Rudraprayag | 44 | 93.6% | 3 | 6.4% | 47 | 8.3% |
| Tehri Garhwal | 17 | 29.3% | 41 | 70.7% | 58 | 10.3% |
| USN | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Uttarkashi | 29 | 72.5% | 11 | 27.5% | 40 | 7.1% |
| State | 442 | 78.5% | 121 | 21.5% | 563 | 100.0% |

Overcoming geographical distance between teachers and learners was another area that added to the pedagogical assumptions during this period as most of the respondents said they could study irrespective of whether the teachers are residing in the same locality or not (Table 18).

Simultaneously, most of the respondents felt that the workload has increased after the pandemic (Table 19). This might be the impact of the technological barriers, additional time required in self-learning without a teacher physically present near them to advise at every step.

Table 18: Learning with teachers from outside the locality

| District | Do you think that students were able to study from teachers who did not reside in their locality? | | | | | |
|-----------|---|-------|----|-------|-------------|------|
| | Yes | | No | | Grand Total | |
| Almora | 27 | 69.2% | 12 | 30.8% | 39 | 6.9% |
| Bageshwar | 40 | 90.9% | 4 | 9.1% | 44 | 7.8% |
| Chamoli | 30 | 75.0% | 10 | 25.0% | 40 | 7.1% |

| | | | | | | |
|-------------------|------------|--------------|------------|--------------|------------|---------------|
| Champawat | 22 | 52.4% | 20 | 47.6% | 42 | 7.5% |
| Dehradun | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| Haridwar | 39 | 76.5% | 12 | 23.5% | 51 | 9.1% |
| Nainital | 32 | 76.2% | 10 | 23.8% | 42 | 7.5% |
| Pauri Garhwal | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Pithoragarh | 16 | 40.0% | 24 | 60.0% | 40 | 7.1% |
| Rudraprayag | 26 | 55.3% | 21 | 44.7% | 47 | 8.3% |
| Tehri Garhwal | 26 | 44.8% | 32 | 55.2% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 33 | 82.5% | 7 | 17.5% | 40 | 7.1% |
| State | 404 | 71.8% | 159 | 28.2% | 563 | 100.0% |

Table 19: Workload on Students after COVID19

| District | Do you think the student workload has increased after COVID? | | | | | |
|-------------------|--|--------------|-----------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 36 | 92.3% | 3 | 7.7% | 39 | 6.9% |
| Bageshwar | 26 | 59.1% | 18 | 40.9% | 44 | 7.8% |
| Chamoli | 31 | 77.5% | 9 | 22.5% | 40 | 7.1% |
| Champawat | 41 | 97.6% | 1 | 2.4% | 42 | 7.5% |
| Dehradun | 31 | 77.5% | 9 | 22.5% | 40 | 7.1% |
| Haridwar | 42 | 82.4% | 9 | 17.6% | 51 | 9.1% |
| Nainital | 22 | 52.4% | 20 | 47.6% | 42 | 7.5% |
| Pauri Garhwal | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Pithoragarh | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Rudraprayag | 44 | 93.6% | 3 | 6.4% | 47 | 8.3% |
| Tehri Garhwal | 58 | 100.0% | 0 | 0.0% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 23 | 57.5% | 17 | 42.5% | 40 | 7.1% |
| State | 472 | 83.8% | 91 | 16.2% | 563 | 100.0% |

Benefits for the Students

Online education, virtual classrooms or distance education launched out of compulsion during the nationwide lockdown in India has also resulted in several direct or indirect benefits for the students.

Respondents agreed that students benefitted from the online 'mentoring' (guidance) that the teachers provided during the period (Table 20). The students learnt several new activities to contribute to their overall development (Table 21).

Table 20: Benefits of Online Mentoring

| District | Do you think that students benefited from online mentoring that was provided to them? | | | | | |
|---------------|---|--------|----|-------|-------------|-------|
| | Yes | | No | | Grand Total | |
| Almora | 30 | 76.9% | 9 | 23.1% | 39 | 6.9% |
| Bageshwar | 41 | 93.2% | 3 | 6.8% | 44 | 7.8% |
| Chamoli | 23 | 57.5% | 17 | 42.5% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Haridwar | 28 | 54.9% | 23 | 45.1% | 51 | 9.1% |
| Nainital | 41 | 97.6% | 1 | 2.4% | 42 | 7.5% |
| Pauri Garhwal | 28 | 70.0% | 12 | 30.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 37 | 78.7% | 10 | 21.3% | 47 | 8.3% |
| Tehri Garhwal | 9 | 15.5% | 49 | 84.5% | 58 | 10.3% |

| | | | | | | |
|--------------------------|------------|--------------|------------|--------------|------------|---------------|
| Udham Singh Nagar | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Uttarkashi | 29 | 72.5% | 11 | 27.5% | 40 | 7.1% |
| State | 420 | 74.6% | 143 | 25.4% | 563 | 100.0% |

Table 21: New Activities Online

| District | Were students able to learn several new activities online that will contribute to their overall development? | | | | | |
|--------------------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 39 | 100.0% | 0 | 0.0% | 39 | 6.9% |
| Bageshwar | 42 | 95.5% | 2 | 4.5% | 44 | 7.8% |
| Chamoli | 21 | 52.5% | 19 | 47.5% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |
| Dehradun | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Haridwar | 24 | 47.1% | 27 | 52.9% | 51 | 9.1% |
| Nainital | 34 | 81.0% | 8 | 19.0% | 42 | 7.5% |
| Pauri Garhwal | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 42 | 89.4% | 5 | 10.6% | 47 | 8.3% |
| Tehri Garhwal | 13 | 22.4% | 45 | 77.6% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 37 | 92.5% | 3 | 7.5% | 40 | 7.1% |
| State | 450 | 79.9% | 113 | 20.1% | 563 | 100.0% |

The distance education methods, especially the advent of the Massive Open Online Courses (MOOC),⁴⁵ in recent years, are expected to change the face of education delivery and certification regimes across the globe. Though online and open education has been lauded by many, the verdict still favours the traditional mode of physical institutions. The social and cultural learning aspects of education are said to be neglected in remote learning. Learners

themselves and teachers stay apart in their silos where interactions are supposedly 'virtual'. During pandemic situations, these pedagogic and cultural issues were recognised more evidently. Still, the basic presumption that emotional health will have a major setback among the learners, appear to be unfounded in the survey (Table 22). Majority of the respondents across the districts rather asserted that students' mental health would improve in the post-COVID19 situation.

Table 22: Emotional Health in Post COVID19

| District | Do you think that the emotional health of the students will improve in the post COVID world? | | | | | |
|------------------|--|--------|----|------|-------------|------|
| | Yes | | No | | Grand Total | |
| Almora | 38 | 97.4% | 1 | 2.6% | 39 | 6.9% |
| Bageshwar | 43 | 97.7% | 1 | 2.3% | 44 | 7.8% |
| Chamoli | 38 | 95.0% | 2 | 5.0% | 40 | 7.1% |
| Champawat | 42 | 100.0% | 0 | 0.0% | 42 | 7.5% |

⁴⁵ MOOC is an online course aimed at large-scale participation and open (mostly free) access via the internet for anyone to enrol. MOOCs provide an affordable and flexible way to learn new skills, advance your career and deliver quality educational experiences at scale. Millions of people around the world use MOOCs to learn for a variety of reasons, including: career development, changing careers, college preparations, supplemental learning,

lifelong learning, corporate eLearning and training, and more.

| | | | | | | |
|--------------------------|------------|--------------|-----------|-------------|------------|---------------|
| Dehradun | 34 | 85.0% | 6 | 15.0% | 40 | 7.1% |
| Haridwar | 47 | 92.2% | 4 | 7.8% | 51 | 9.1% |
| Nainital | 36 | 85.7% | 6 | 14.3% | 42 | 7.5% |
| Pauri Garhwal | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Pithoragarh | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Rudraprayag | 46 | 97.9% | 1 | 2.1% | 47 | 8.3% |
| Tehri Garhwal | 57 | 98.3% | 1 | 1.7% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| State | 539 | 95.7% | 24 | 4.3% | 563 | 100.0% |

The overall impression that we gathered from the rapid survey is that the Government's online remote learning efforts reached many a corner of the hilly State (Table 23). Schools and other educational institutions at different levels in Uttarakhand were not left in the dark during the Covid-19 pandemic. Teaching and learning efforts continued even though with challenges in implementation. Parents appreciated operative measures taken by the teachers and

administrators of these institutions as well as the government officials during discussions. Colleges had to prepare for a similar situation. Many teachers' unpreparedness to handle the technological tools, applications, and devices and their gradual tackling of the situation by adopting new methods, approaches, and techniques during the period perhaps made many leaps in the history of pedagogical experiments.

Table 23: Beneficiaries of Education Programmes of the Government

| District | Have you or anyone around you been the beneficiary of the education program of the Government? | | | | | |
|--------------------------|--|--------------|------------|--------------|-------------|---------------|
| | Yes | | No | | Grand Total | |
| Almora | 19 | 48.7% | 20 | 51.3% | 39 | 6.9% |
| Bageshwar | 41 | 93.2% | 3 | 6.8% | 44 | 7.8% |
| Chamoli | 19 | 47.5% | 21 | 52.5% | 40 | 7.1% |
| Champawat | 37 | 88.1% | 5 | 11.9% | 42 | 7.5% |
| Dehradun | 36 | 90.0% | 4 | 10.0% | 40 | 7.1% |
| Haridwar | 25 | 49.0% | 26 | 51.0% | 51 | 9.1% |
| Nainital | 31 | 73.8% | 11 | 26.2% | 42 | 7.5% |
| Pauri Garhwal | 35 | 87.5% | 5 | 12.5% | 40 | 7.1% |
| Pithoragarh | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| Rudraprayag | 10 | 21.3% | 37 | 78.7% | 47 | 8.3% |
| Tehri Garhwal | 6 | 10.3% | 52 | 89.7% | 58 | 10.3% |
| Udham Singh Nagar | 40 | 100.0% | 0 | 0.0% | 40 | 7.1% |
| Uttarkashi | 39 | 97.5% | 1 | 2.5% | 40 | 7.1% |
| State | 377 | 67.0% | 186 | 33.0% | 563 | 100.0% |

In the education sector across the levels, COVID19 has accelerated many processes, led to innovations in classrooms to become much more demand-driven and broken many myths of traditional educational systems. What started as a disaster management effort and an attempt to sustain rudimentary educational practices to engage children locked in respective homes, emerged as new frontiers of remote learning,

pedagogic innovations and a field of action-research for all. Teachers, support staff and their supervisors spent hours negotiating their conventional curriculum, realigning them with the new online apps and platforms and ushered in an era of truly open learning which is perhaps here to stay for a long time, much after we have overcome the pandemic.

STRATEGIC POLICY DIRECTIONS FOR THE FUTURE

COVID19 pandemic has shown us that the world might never be the same again, though we would overcome this challenge through collective efforts of the State's people and its Government. In the meantime, many of our traditional processes, methods, approaches, techniques, and implementation strategies would have changed in all areas of life – including education. Some of the inherent inequalities and disparities had become more evident during this period when a section of people struggled on a digital society's peripheries. Some institutions utilised the national knowledge network (NKN) connectivity

of 1 GB, while others in remote villages faced problems conducting seamless online classes through an erratic mobile Internet. While all appreciated educational and pedagogic innovations, it will be perhaps the biggest policy challenge in the post-COVID19 scenario to rethink education infrastructure, delivery mechanisms, teacher training and mobilise additional resources for these initiatives. The pandemic has flagged the digital and capacity inequalities within the institutions at different levels, from schools to universities. In that case, we can adopt policies to learn from the emergency operations and develop the education sector on a futuristic 21st-century agenda.

Figure 1: Nine Ideas for Public Action



In this regard, we may draw from the post-COVID action framework developed by the International Commission on the Futures of Education⁴⁶ and see that the sustainable Development Goals in tandem with Uttarakhand's vision are aligned with a set of strategic actions in the education sector. Based on

the 2030 Agenda for Sustainable Development, UNESCO has proposed nine ideas (Figure 1) for a focused action plan that will shape tomorrow's education.⁴⁷ Based on this framework, it is recommended that Uttarakhand may adopt a set of concrete policy directions and re-energise its education sector.

⁴⁶ The International Commission on the Futures of Education was established by UNESCO in 2019 to reimagine how knowledge and learning can shape the future of humanity and the planet. The initiative incorporates extensive public and expert engagement and aims to catalyse a global debate on how education needs to be

rethought in a world of increasing complexity, uncertainty, and fragility. For further details see: <https://en.unesco.org/futuresofeducation/>

⁴⁷ UNESCO (2020). Education in a post-COVID world: Nine ideas for public action. International Commission on the Futures of Education

| POLICY POINT | | POTENTIAL ACTION |
|--------------|--|--|
| 1 | Education as Common Good | Increase the rural connectivity by providing broadband Internet and other associated equipment support to the rural schools utilising the infrastructure of <i>Bharatmala</i> project of the Government of India and through CSR support from industry. |
| 2 | Right to Education | Right to education needs to include a minimum set of facilities to access online resources like a virtual classroom, open-access materials through "common digital classroom facility centres" in all schools. |
| 3 | Teacher Champions | Identification and special training of individual teachers in all institutions who will be focal points as frontline educators in the digital world to adopt an institutional level plan to retain the virtual classrooms' benefits. |
| 4 | Stakeholder Participation | Ensure students' involvement and that of local communities in developing institution-specific future action plans to adopt, retain, and enhance the innovations, alternative methodologies, and learnings developed during the COVID restrictions. |
| 5 | Recreate Social Space | Physical classrooms and instructions need to be recreated as a social space for interaction. With a hybrid approach in mind, institutions should plan more interactions among the learners through action-based learning in classrooms leaving room for self-learning (through continued digital platforms). |
| 6 | Open Source Tools | To economise on the cost of applications and technologies, open-source materials and platforms should encourage teachers and students. Emphasis should allow the teachers and students to co-create local culture-based content using these open-source platforms. |
| 7 | Scientific Literacy | Institutions should put additional effort to develop enabling scientific content in the curriculum that promotes faster technology adoption among students and teachers. |
| 8 | Ensure Funds for Public Education | Develop new funding partnerships with other stakeholders, communities and industry to ensure that the public education system is strengthened and developed further to benefit the most disadvantaged in the society. |
| 9 | Decrease Inequality | Adopt a 'common humanitarian' approach in education where those on the periphery get an equal opportunity to access quality education – both in physical and virtual modes. |

Education sector has faced real challenges during the COVID19 crisis, and it should now shoulder additional responsibilities to discuss these suggested ideas based on a global plan and engage in further debate, discussion and common action by governments, NGOs, civil society, educational professionals, as well as corporates at all levels. The future of education lies in not only

access to schools, colleges and universities as physical facilities for the students but a common workspace "to drive economic progress, sustainable development and lasting peace."⁴⁸ In line with a global framework⁴⁹ to mitigate the potentially devastating consequences of the COVID-19 pandemic, the Government to pursue the following policy directions:

| | | |
|----------|---------------------------------------|---|
| 1 | HEALTH SAFETY AFTER RE=OPENING | Measures need to be taken in collaboration with the health department to suppress transmission of the virus to prevent local outbreaks. This will be the top priority once the institutions are reopened, adopt a 'safety of all' policy. |
|----------|---------------------------------------|---|

⁴⁸ To date, a Global Education Coalition comprised of United Nations agencies, international organizations, private sector entities and civil society representatives, mobilized by UNESCO, have been engaging actively to support national COVID-19 education responses. For more information on A new campaign, entitled *Save our Future*

see <https://en.unesco.org/covid19/educationresponse/globalcoalition>.

⁴⁹ United Nations (August 2020). *Policy Brief: Education during COVID-19 and beyond*

| | | |
|---|---|--|
| 2 | ENSURE FUNDING SUPPORT TO EDUCATION AS A COMMON GOOD | To safeguard education for all as a 'common good' and protect it from the potential economic challenges (decreasing GDP, global recession etc.), public financing of the education sector should be continued. In collaboration with others partners like corporates wherever necessary, the Government needs to ensure education financing through various avenues and allocate a priority share to education expenditure. |
| 3 | EDUCATION FOR EQUITABLE AND SUSTAINABLE DEVELOPMENT | Build education sector capacity to ensure the resilience of the implementation systems that will demand additional care after reopening of institutions. Focusing on equity and inclusion among children from different backgrounds, the institutions must be trained to enhance their risk management capacities further, build local institutional leadership, and establish community networks and communication mechanisms. |
| 4 | RELOOK INTO EXISTING TEACHING AND LEARNING PROCESSES | Changes came by default across the education systems, levels and modes during the COVID19 crisis. With or without teething troubles, the education sector in Uttarakhand has more or less withstood the challenge. In the post-COVID period, it will be a great opportunity to challenge new modes of teaching-learning and adopt an implementation strategy for the future. Specific attention should be given to the dropouts, children from the weaker sections, and students from families facing financial crises due to the parent's job loss. |

CONCLUSION

The COVID-19 crisis has unfortunately dealt a severe blow to many of our plans and targets in the education sector. With threats to their regular income during the period, people on the margins have also been instrumental in a curtailment in many children's education. Professional education, especially those which are self-financed through bank loans, also seen a period of crisis. However, against all odds, multiple actors in the education sector played a very pro-active role in continuing the system without much disruption. The technological thrust on online delivery of education impacted the poorer and remote communities, but overall, the systems showed significant resilience and inherent capacities to adapt and rebound.

Some learning disruptions, dropouts and exclusion from online classrooms are noted. But perhaps it has done a great service to us to highlight the loopholes in the digital world and the vulnerabilities of the marginalised (social, economic, geographic). Therefore, we have to develop a futuristic education delivery system based on minimal connectivity and an inclusive plan to cover the last mile. The crisis has underlined an emerging world that would need to include the dreams of all the people in a society.

There is unlimited drive, and untapped resources, we can count on for the restoration, not only of education's essential services, but of its fundamental aspirations. It is the responsibility of governments and the international community to stay true to principles and carryout reforms, so that, not only will the children and youth regain their promised future, but all education stakeholders find their role in making it happen. (United Nations)

The support and the responses from our teachers, institutional administrators and officials, students and communities during the present crisis needs to be leveraged in the post-COVID period to shoulder "the collective responsibility for the education of everyone everywhere." A road map in terms of nine-point agenda and four-point guiding policy directions are presented here. The way forward now is to embark in mission mode to actively seek change-champions in every institution, engage them, build community-based people's networks, identify pilot projects, support action research, and encourage further public dialogue about the challenges of a digital world.

Chapter 09

Environment and Solid Waste Management (SWM)

Abstract

The COVID-19 induced lockdown leading to shut down of polluting business activities was expected to reduce the greenhouse gas (GHG) emission. The reduced vehicular traffic in particular, may have resulted in substantial lower air pollutants. The tourism and manufacturing sectors in the State suffered economically, however, there are some positives for the environment. It is reported that the availability of water has increased; wildlife is flourishing, among others but at the same time, organic waste has increased, there is more generation of non-recyclable waste, and difficulty in waste management.

Solid waste management has become a major environmental issue in India. Uttarakhand, placed in an extremely fragile ecological zone, is currently reeling under enormous quantity of waste being generated by its towns and cities, which are also urbanizing at a rapid pace added with extra pressure from floating population due to tourism, one of the most critical sectors of the State economy.

This chapter while highlighting the positives on the environment in the State, focusses on the problems related to solid waste management. Given the underlying causal factors of the problem, adequate sanitation measures are important to minimise the sources of infection. A list of programmes and initiatives for enhancing efficiency in SWM services in the State are described and few successful schemes and initiatives undertaken by other Indian States discussed to check their feasibility. The chapter elaborates allocation and disbursement of funds and highlight the major achievements of the State in the Swachh Sarvekshan. With special reference to COVID -19, the problems and challenges faced by the urban local bodies in the State are analysed to prepare a road map for the hill State.

ULBs in Uttarakhand are plagued by problems like budget constraints, manpower shortage, lack of technical expertise, inadequate political legitimacy which makes it difficult for them to execute their routine civic tasks. Most of the districts in the State are hilly and are highly neglected in terms of solid waste management as most of the facilities are available in the plains in Dehradun, Haridwar and Haldwani. The hilly terrains make waste management significantly difficult however, such reasons should not hinder development of waste infrastructures in the hilly areas as these are home to a large floating population generating waste in enormous quantities which should be addressed on an urgent basis.

Most of the ULBs in the State do not comply with the MSW Rules, 2016. Although it has been professed that door-to-door collection of solid waste is practiced in all the wards but the segregation of waste at source is not carried out in all wards. Appropriate technology is often not adopted for disposal and processing of wastes owing to limited number of treatment plants. The solid waste is collected partially, transported in open vehicles and dumped without segregation. Moreover, only 37 percent of the collected solid waste was processed in Uttarakhand in 2018-19.

With limited financial resources, technical capacities and land availability, urban local bodies in the State are constantly striving to meet this challenge. Hence, far sighted policies are required to meet the burgeoning challenge of solid waste management in the State.

Introduction

Rapid urbanisation is creating demand for hard and soft infrastructure. The 2011 Census estimates the population of the country living in cities to be 31 percent and it is projected to reach 50 percent by 2050. With this increase in population, municipal solid waste management (MSWM) will become even more challenging because of the projected volume of municipal solid waste (MSW) and the associated concerns related to environment and aesthetics. The Central Pollution Control Board (CPCB) estimates that 1,52,076.7 tonnes per day (TPD) of MSW was generated in 2018-19 with an average waste of 300 grams per-capita per-day. Of the total MSW, approximately 1,49,748.6 TPD (98 percent) was collected, while only 55,759.6 TPD (37 percent) was processed or treated and 50,161.33 TPD went to the landfills. Segregation at source, transportation, treatment, and scientific disposal of waste has largely remained insufficient leading to degradation of the environment and poor quality of life.

Solid Waste Management (SWM) is one of the essential obligatory functions of the Urban Local Bodies (ULBs) in the country. However, supply of these services is falling short of demand, often inefficiency drives dis-satisfaction and limited provisioning further result in deterioration of health and lower standards of sanitation. Poor management of solid waste has affected urban areas in the country and the situation remains grim in Uttarakhand as well as where the topography and the geographical features add to the challenges. Due to lack of serious efforts by town/city authorities, garbage and its management has become a tenacious problem despite fact that the largest part of municipal expenditures are earmarked for it. Barring a few progressive municipal corporations in the country, the ULBs suffer mostly because of non-availability of adequate expertise and experience, skilled officers, processing plants, sanitary landfills and lack of adequate awareness. Therefore, a need to handle this problem in a concerted manner and adoption of strategies to tackle all aspects of waste management

scientifically through involvement of the private sector wherever necessary, is need of the hour.

There has been a thrust to the management of waste in the country and the situation is improving steadily, with the introduction of new schemes to cater to sanitation and waste management namely, Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities, and Jawaharlal Nehru National Urban Renewal Mission (JNNURM). SBM has been a flagship programme that aims to make the country Open Defecation Free (ODF). In addition, the programme is aimed at strict monitoring of solid waste management with the help of State level and District level solid waste initiatives. Swachhta Survekshan, Swachhta Pakhwada and Garbage Free Cities programmes complement SBM. The aim is to encourage effective engagement of multiple and allied government agencies in SWM by creating an environment of competitiveness. In 2016, Government of India enacted the Solid Waste Management Rules, 2016 and stipulated compliance criteria for segregation, collection, storage, transportation, processing and disposal of municipal solid wastes. These rules are therefore applicable throughout the country. The Solid Waste Management Rules, 2016 were updated based on the MSW (Management and Handling) Rules, 2000.

Uttarakhand, often referred as “Dev Bhumi” was carved out of the Himalayas and adjoining North-Western districts of Uttar Pradesh on November 09, 2000, along with Chhattisgarh and Jharkhand. The State is a popular choice among tourists around the world, a destination of choice for treks and mountaineering expeditions other than the State’s religious importance and attractions. The floating population in the State is more than double the total population of the State in a given year. Therefore, the effective management of waste and maintenance of hygienic conditions in every city and town in the State is a big challenge for the State Government. Limited resources (both financial and physical) and lack of land availability, further exacerbates the problem.

Nine out of 13 districts, having roughly 53 percent of the State's population are in the hills. The management of waste is more challenging in the hills as compared to the plains. The Government is committed to improve health, sanitation and hygiene conditions prevailing in the State, yet certain challenges, especially with respect to land availability, prevents achievement of desired outcomes. The objective of this chapter is to highlight the initiatives of the State in delivery of SWM services and identify the challenges it faces.

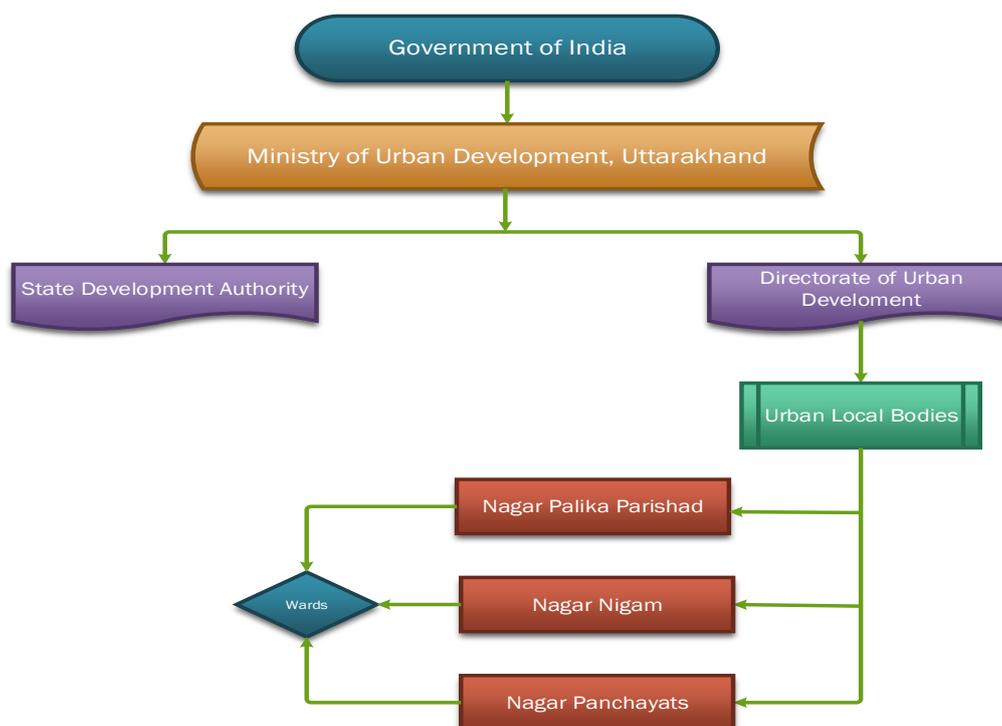
In the following sections, the chapter presents a brief overview of the management of MSW in Uttarakhand, especially in settlements along the river Ganga and its tributaries, the economics of solid waste management, the state of solid waste management in the State, highlighting some of the flagship programmes and concluding with the major challenges and threats to the environment.

Management of Municipal Solid Waste in Uttarakhand

Ministry of Urban Development, Government of Uttarakhand and the Municipal Corporation Dehradun are the responsible agencies to

undertake effective solid waste management in the State and the State capital respectively. All the urban wards in the State are classified under Nagar Palika Parishad, Nagar Nigam and Nagar Panchayats referred to as the ULBs. The ULBs are answerable to the Directorate of Urban Development which works under the aegis of the Ministry of Urban Development, Uttarakhand. This administrative setup of the waste management organisation is depicted in Figure 1. The SWM Strategy of the State is to ensure hygienic, clean and litter free environment, where waste is treated as a resource and managed scientifically, in a sustainable manner. The SWM Rules 2016 guide the ULBs towards Sustainable Solid Waste management. In this direction, emphasis is on the principles of 5Rs namely, Reduce, Reuse, Recycle, Recover and Rethink. An effective system of waste segregation, collection, transportation, processing, treatment, and disposal in complete harmony with the environment and in line with prevalent regulations is necessary. Annexure 1 provides a list of the environmental legislations prevalent in the country concerning management of waste and the environment.

Figure 1: Waste Management Administrative Setup in Uttarakhand



Source: Ministry of Urban Development, Government of Uttarakhand

The MSW rules came into effect in 2000. There was no MSW action plan in place in the State for the first fifteen years. In March 2015, the Uttarakhand Urban Development Directorate (UDD) in active consultation with all stake holders namely, State Pollution Control Board (SPCB), ULBs and Department of Environment and Forests prepared the draft State Level Action Plan (2015) for the management, handling and disposal of MSW. The action plan was revised in consultation with GIZ in 2017. The action plan predicted the urban solid waste generation in the State to be more than 2300 metric tonnes per day in the next three decades and planned to achieve 100 percent scientific disposal of solid waste by

the year 2025. Fifty-eight projects were proposed in the State to be implemented in three phases, all of which were to be completed by 2021. Noteworthy, the lack of suitable land for these projects is a constraint. Migration in Dehradun, Rishikesh, Haridwar, Haldwani-Kathgodam, Ramnagar, and Kotdwar calls for enhancement of infrastructural capacity. The increasing population directly influences the MSW generated in the surrounding areas. Therefore, handling of MSW is becoming a major organisational, financial and environmental challenge. In Uttarakhand there are 90 ULBs and 09 Cantonment Boards. The ULBs are plotted in Figure 2.

Figure 2: Location of Urban Local Bodies in Uttarakhand



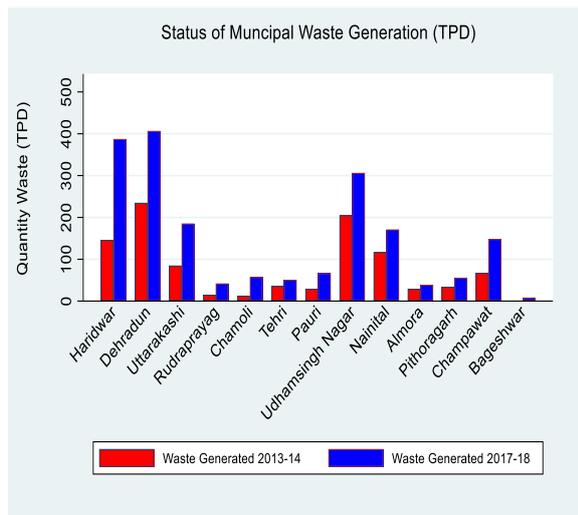
Source: Author's own creation

Figure 3 shows the district-wise generation of MSW in the State. The MSW collection in Uttarakhand is not well organized due to lack of infrastructure, poor awareness, and scarcity of trained manpower. The practice of littering and burning of waste is quite common that aggravates air quality. The Himalayan State does not have any facility for processing of MSW except for

Dehradun and Haridwar. In the present scenario, door to door collection and segregation of solid waste is practiced by few ULBs with most of them still practicing the traditional method of disposing their waste in the illegal dumpsites or nearby vacant lands. These practices are unscientific with irreversible impact on health.

The experience of management of waste varies across different locales, especially along a river and those distant from it. In the next few paragraphs, the chapter focusses on SWM in major dwellings along the river Ganga. It is observed that in settlements along the river Ganga, the solid waste generated in the ghats ultimately pollutes the river. The National Mission for Clean Ganga (NMCG) has taken up solid waste management under the Namami Gange Programme. River Ganga passes through seven districts. The project includes sweeping, cleaning, and washing of ghats in settlements along the river. Source segregation of waste is carried out (into green waste and recyclables). The segregated waste is transported and disposed by the respective ULBs.

Figure 3: Status of Municipal Waste Generation the Districts of Uttarakhand



Source: Author’s own representation using data from the Annual Reports of CPCB

An inspection of ten selected towns under seven Nagar Palika Panchayats reveal that scientific disposal of the MSW was practiced only in Gopeshwar and Muni-Ki-Reti (CAG, 2016). There was no segregation of garbage into bio-degradable and non-bio-degradable waste nor composting was practiced. In three out of ten selected towns, un-segregated MSW was being indiscriminately dumped on the slopes of the hills that ultimately fell into the river Ganga and its tributaries particularly during rainy season. Figure 4 highlights the condition of waste

management in the State as banks of river Alaknanda at Karnprayag and Devprayag are used as dumping sites. Similar conditions may be noted in several places where the streams and rivulets have been used as waste dumpsites in the State.

The Govt. of Uttarakhand is making efforts towards addressing the issues and challenges related to solid waste management in the settlements adjacent to river Ganga. 24 ULBs in the proximity to Ganga (Ganga River Basin Cities) have prepared City Sanitation Plans in coordination with GIZ – German Technical Cooperation, which is extending technical support to National Urban Sanitation Policy to cater to the issues of MSW. Before proceeding to discuss the economics of MSW, it is important to define “waste”. Any material is termed non-usable after its complete utilization for an individual purpose and therefore called a waste (Kumar, 2016). Any garbage or refuse found in a solid or semisolid physical state is termed solid waste. Sources of solid waste include households, public places, commercial institutions, hospitals, industries, semisolid waste from wastewater plants, electronic industries, and so on. MSW is trash that consists of everyday items useful for public use that have been discarded, such as plastics, paper, rags, green waste, electronic waste, inert waste such as construction and demolition debris, etc. MSW generally consists of three types (Kumar, 2016):

1. Residential waste that is generated by individual households located in inland areas.
2. Commercial waste generated from large single sources such as schools, colleges, and hotels.
3. Waste from municipal services, such as streets, public gardens, among others.

Figure 4: Waste Dumped on River Banks

A. Dumping site on the riverbank at Devprayag Karnprayag



Source:

A:https://cag.gov.in/webroot/uploads/download_audit_report/2016/Report_No_1_of_2016_Uttarakhand.pdf

B:<https://www.tribuneindia.com/news/archive/features/srinagar-dev-prayag-towns-add-to-problem-150469>

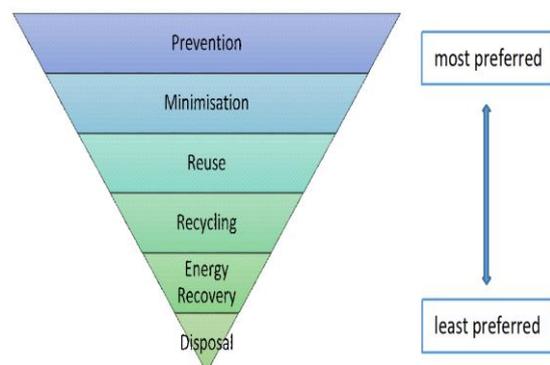
Waste produced from various sources such as households, commercial buildings, street sweeping, and parks is first collected and stored at a primary storage point, such as street containers. Then the waste is transferred to secondary storage points in cities where waste is stored and segregated before it is sent for processing and final disposal. After that, the inert portion of the waste is sent to landfill for final disposal, and organics are sent to various processing facilities, such as composting, bi-methanation, incineration, pyrolysis, among others.

According to Figure 5, management of solid waste ranges from the least preferred option, that is, direct disposal in landfill to the most preferred option involving prevention of creation of excess waste in the first place. Another concept towards promoting waste minimization is the 3R concept, namely *reuse*, *reduce*, and *recycle*. Recycling is defined as a process of modifying waste material into a raw product (Hang et al, 2016). This practice involves reducing consumption of fresh raw material as well as reducing waste disposal rates (Murphy, 1993). The process of recycling includes collection, sorting and rinsing. Although recycling involves reduction in the consumption of new raw material, it consumes energy for its process. Therefore, another preferred option is to ‘reuse’ than to recycle. The term ‘reuse’ involves reusing an item after it has been used. The reused product may assume same functionality or may

be re-modified to put to some alternative use. This practice reportedly saves energy and promotes cost saving in economic activities.

Just above the least preferred option in the waste management hierarchy is the energy recovery option. It is the process of generating energy in the form of electricity and/or heat through incineration. Incineration involves combustion of solid waste, which converts waste into ashes, flue gases and heat. The least preferred option is the disposal method comprising of collection of waste from the source by the municipalities to be finally transported to a dumping site, popularly known as landfill. Landfills are of two types, either sanitary landfill or open dumpsites. The former is often regarded as the most cost-efficient method while the latter is the most unfriendly practice of treating waste, accompanied by various harmful impact on health and environment. Of course, one may argue that the suitability of the options depend on the cost-benefit analysis and therefore the hierarchy for SWM reflects the results

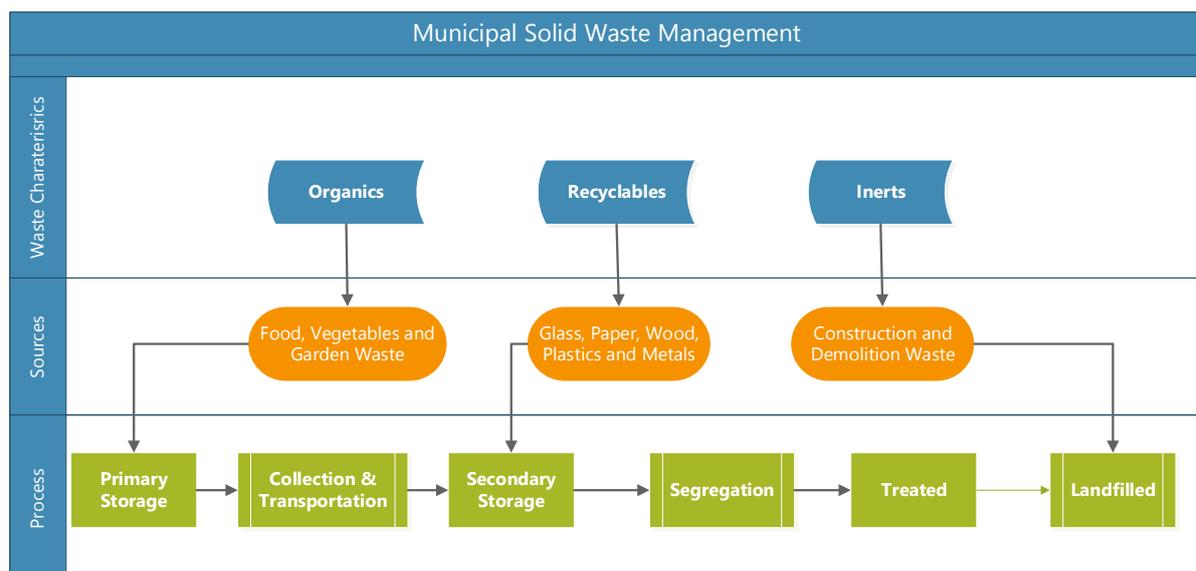
Figure 5: Hierarchical Order of Solid Waste Management



Source: Adapted from Hong et al. (2016)

The functional system of MSW involves the management of waste from the point of generation, waste handling, sorting, storage, and processing at source along with transfer, transport, and disposal as presented in Figure 6. The next section presents a brief discussion on the UN SDGs and the priority actions towards SWM. In Annexure 2, the general practices that needs to be adopted for waste disposal concerning the various sources of MSW is presented.

Figure 6: Municipal Solid Waste Management



Source: Author's own representation

Solid Waste Management and the Sustainable Development Goals

Solid Waste Management (SWM) is a cross-cutting issue that affects various areas of sustainable development, particularly the ecology, economy, and the society (Rodic and Wilson, 2017). The affected areas include living conditions, public health and sanitation, responsible production and consumption and marine and terrestrial ecosystems. Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development have similar driving forces as that of the SWM activities, namely, public health, environmental concerns, and resource value. Hence, there are a few SDGs whose pertinent targets have direct link to SWM.

SDG 11 (Sustainable Cities and Communities) includes Target 11.1 that aims to ensure access to adequate, safe and affordable waste collection services to all. Target 11.6 focuses on reducing the adverse per capita environmental impacts of cities, by paying special attention to the air quality and waste management issues. SDG 3 aims to incorporate good health and well-being by putting an end to preventive death of children under 5 (Target 3.2), combat malaria and other water borne diseases (Target 3.3) and reduce illness from contamination of water and air (Target 3.9). Waste clogs the drains, which

exacerbates floods, keeping water stagnant for longer duration thereby contributing to water-borne diseases. Since, children are amongst the most vulnerable, so they are affected the most. The goal of SDG 6 (Clean Water and Sanitation) is improving water quality by reducing pollution and eliminating dumping. Wastes are often dumped illegally along riverbanks making it unfit for drinking to the people residing downstream. Proper treatment and disposal of waste can ensure access to clean water. SDG 12 aims to achieve responsible consumption and production. Eliminating uncontrolled dumping and open burning can be the first step to achieve environmentally sound SWM practices (Target 12.3). Waste generation can be substantially reduced through prevention and 3Rs (Reduce, Reuse and Recycle) (Target 12.5). Eliminating uncontrolled dumping will also prevent waste from ending up in the oceans, particularly plastics (SDG 14).

The Uttarakhand Vision 2030 document lays emphasis on greater need for management of solid waste to ensure sustainable urbanization. The document acknowledges waste management to be an important challenge especially for growing cities and towns. It stresses on the need for maintaining cleanliness and switch to cleaner technologies to meet the challenges for

sanitation. It promotes waste recycling, which would also create employment and increase the life cycle of a product. To meet Target 6.2 and Target 6.3 of the vision document that focusses on sanitation, the Govt. of Uttarakhand aims the following:

- To focus on eradicating manual scavenging
- Adopting modern and scientific waste management practices
- Usher behavioural change regarding healthy sanitation practices
- Generating awareness about sanitation and linking it with public health
- Augmenting the capacity of the ULBs and
- Encouraging private participation in this sector.

Economics of Solid Waste Management

An understanding of the marginal social costs and marginal social benefits is useful to determine optimal waste management. The marginal social cost includes the costs incurred due to negative health and environmental impacts. Various methods, such as the travel cost method, hedonic pricing method among others may be used to determine such costs. The marginal social benefits, on the other hand, is the benefit accruing as a result of better health and environmental standards. Such benefits are reflected in the lower instances of diseases, increase in the aesthetic value of nature, among others. Optimal waste management is obtained at a point where marginal social cost equals marginal social benefit. In India, urban local bodies (ULBs) are responsible for providing civic and infrastructural services. The ULBs spend on city and town planning which includes construction and maintenance of roads and pavements, bridges and flyovers, street lighting, primary health care, water supply, sewerage and solid waste management among others. On the other hand,

ULBs earn through own tax revenues that includes property tax, octroi⁵⁰, advertisement tax, municipal fees, sale and hire charges, user charges, profession tax, surcharge on stamp duty, entertainment taxes among others. In addition to this, plan and non-plan grants, including grants-in-aid from The Finance Commission, are made available to the ULBs through financial transfers under various projects, programmes and schemes. It has been observed that property tax and grants in aid are the primary sources of revenue to the urban local bodies (based on broader observation available in ICRIER, 2018). Other means of revenue such as, octroi, advertisement tax, municipal fees, sale and hire charges, user charges, profession tax, surcharge on stamp duty, and entertainment tax form a minimal portion of the entire ULBs' income. In recent years more emphasis is on user charges so that the ULBs can aim towards being self-reliant and self-sufficient in meeting their expenses. The economic instruments for managing waste are listed below:

a) Taxes and Subsidies

The economic instruments like tax and/or subsidy are advocated on the ground that these would determine the right balance between recycling, disposal and incineration. Various economic instruments can be used to balance the marginal costs and benefits of recycling to arrive at an optimum level of recycling. The costs of recycling include, marginal cost of separate collection, marginal financial cost of recycling, marginal environmental cost of recycling. On the other hand, the benefits of recycling include, price of recycled material, avoided marginal cost of disposal, avoided marginal environmental cost of disposal. Thus, the socially desirable recycling occurs when the marginal costs of recycling are just equal to the marginal benefits obtained from recycling. Economists even argue that policy

⁵⁰ Octroi is an indirect tax levied on certain categories of goods as they a municipality or local area for consumption or sale.

measures based on waste hierarchy must be accepted only after calculating the social costs and benefits of these options, regardless of their assumed place in the hierarchy.

b) Unit pricing for Garbage Collection:

The most direct way to internalize the external cost of garbage disposal is to tax each bag of garbage. However, it has been observed that in developing as well as developed countries where there is provision of user charges, the amount levied, in general remains constant, regardless of the amount disposed of. Such system often leads to increased disposal of waste since the households do not face any extra charge for the additional unit of garbage dumped. Hence, there is lack of financial incentive to consider disposal cost in purchasing or recycling decision of the households. This, in addition, does not provide producers with an adequate incentive to produce goods that are less costly to dispose off.

c) Advance Disposal Fees and Deposit – Refund system:

Advance disposal fee (ADF) is a tax on goods levied at the time of sale, based on the cost of ultimate disposal of goods. The rationale behind such fee is that when goods are exchanged, the externality from disposal of these goods are not reflected in the product's price. Collecting the disposal cost in advance would correctly raise product prices to reflect the true costs to society, leading to reduced consumption of goods that are waste generating in nature.

Status of SWM in Uttarakhand

The Govt. of India launched JnNURM in 2005, as a city modernisation scheme under the Ministry of Urban Development. In the same year, Uttarakhand initiated three pilot projects for SWM in Dehradun, Haridwar and Nainital respectively with a total budget of Rs 50.63 crores aimed at benefitting an estimated population of 9 lakh residents. The first two projects remained incomplete owing to non-availability of land and

surge in the operational expenses. The projects were subsequently merged with Swachh Bharat Abhiyan.

In addition to this, the govt. identified 47 ULBs to restructure their SWM systems through Special Plan Assistance (SPA). 22 ULBs are in the plains and 25 ULBs are in the hilly regions. However, the number of ULBs was later reduced to 26 ULBs with 7 ULBs in the Kumaon region and 19 ULBs in the Garhwal region. The total cost of the project was Rs 1609.85 lakhs, utilised mostly to procure vehicles, equipment and create infrastructure required for SWM. Remaining ULBs manage their municipal waste from the funds made available to them from the Finance Commission and their own resources. The infrastructure for efficient SWM was inadequate and failed to comply with the SWM Rules 2016.

The Govt. of Uttarakhand made efforts to implement proper management of waste and ensure good practices to be followed in all of its ULBs, thus the waste collection and processing of waste has also increased considerably from the past. Yet, more than 40 percent waste remains unmanaged or unattended by the ULBs and finally ends into landfills.

To ensure processing and disposal of solid waste, a SWM plant with capacity of 350 MTPD is functional in Dehradun (Sheeshambada). This plant also caters to the SWM of nearby areas namely, Mussoorie, Vikasnagar, and Herbertpur. Similar plants are operational in Haridwar and Haldwani cluster (Haldwani, Rudrapur, Lalkuan, Kiccha, Nainital, Bhowali and Bhimtal).

Door to door collection of waste is practiced in all the 1170 wards of 92 ULBs and 9 Cantonment Boards in the State. The govt. aims to ensure scientific management of solid waste in all the ULBs by 2022. To facilitate scientific processing and disposal of solid waste, processing plants will be built at 63 locations. Separate plants will be allocated in the ULBs to deal with the disposal of legacy waste. In the first phase, DPR (Detailed Project Report) for disposal of legacy waste will be initiated in 12 ULBs. The ULBs are encouraged to ensure source segregation and built

Material Recovery Facility Plant in all the wards. Source segregation is practiced in 733 wards. At present, all the 92 ULBs have been declared (Open Defecation Free) ODF status, 08 ULBs have achieved ODF+ status and 02 ULBs (Chamba and Dehradun) have achieved ODF++ status. ODF status is a priority for all ULBs and it is evident from the fact that all the ULBs in the State have achieved ODF status. Now the ULBs are preparing to achieve ODF+ and ODF++ status.

A total allocation of Rs. 37.26 crores have been allocated for SWM for the financial year 2020-21 (UDD, 2020-21). As a part of its first instalment, Rs. 11.60 crores have been received by the UDD, all of which have been released for the 18 ULBs (Chamoli-Gopeshwar, Augustmuni, Mahuakherganj, Rudraprayag, Karnprayag, Pokhri, Joshimath, Gauchar, Kap Koth, Lohaghat, Almora, Barkot, Dev Prayag, Kirti Nagar, Muni-Ki-Reti, Badrinath, Sitarganj, and Tehri-Chamba). In addition to this, 4 ULBs have been granted access to this programme. For rest of the ULBs, the DPRs are being readied for approval. In order to meet the financial requirements to execute SWM in the State, all the ULBs have notified User Charges in all the wards. According to Dirgha Darshika (2020-21) published by UDD, 27 ULBs already have bye-laws for user charges, 8 ULBs are still in the process to sanction bye-laws for user charges but still 57 ULBs do not have any bye-laws for user charges.

According to a survey conducted by Saxena (2019) in Dehradun to understand the behaviour of the general public towards waste management, it was observed that 75 percent of the households did not have any idea regarding the policies and practices of waste management in the State. Further, 85 percent of the households did not practice segregation of waste at the household level owing to lack of knowledge about biodegradable and non-biodegradable wastes. Moreover, 60 percent of the households were not aware of the process of composting and 35 percent of them had no knowledge about what happens to their waste once it gets off their home.

Implementation of SWM Rules 2016 in Uttarakhand: Current Status

- Urban Development Department has prepared and submitted the State Action Plan 2017 for the management of solid waste in the entire State. 'State Policy and Solid Waste Management Strategy, 2018 has also been promulgated.
- "The Anti Littering and Anti Spitting Act, 2016" has been promulgated with a provision of fine/penalty of Rs 200 to Rs. 5000 and/or six months' imprisonment.
- Out of 1170 wards in the State, door to door collection of waste is being done in all 1170 (100 percent) wards. Source segregation has been started in 600 (51.30 percent) wards and remaining is targeted to be catered to at the earliest.
- Out of total 90 ULBs, 68 ULBs have identified and procured land under Cluster I standalone approach for SWM treatment and disposal site. 5 ULBs have managed land on rent for SWM purpose and remaining 17 have identified and initiated the process for land transfer.
- For disposal of MSW/ RDF (Refused Derived Fuel), Waste to Energy Policy 2019 has been notified. RFP is prepared and is under examination.
- The Monitoring Committee Report (2018) constituted by the NGT observed that the settlements dump waste on the banks of Alakananda from Badrinath to Devprayag/Haridwar and on Manadakini from Gangotri and downstream leading to soil and water pollution in the nearby areas. No town or urban settlement was exception to this situation.
- From the total of 15 towns situated on the mainstream of river Ganga, Detailed Project Report (DPR) on SWM was prepared for 13 towns, out of which 11 are approved and first instalment for the same has been released. Around 55.80 percent of waste near Ganga settlements are treated on a daily basis. For remaining, directions have been issued to all

ULBs for replicating the Nathuwala solid waste management model⁵¹.

Nathuwala Model:

Nathuwala is a ward in capital city Dehradun, where a sanitation park and processing unit has been established and almost all solid waste is being managed in decentralized way. Solid waste from all 3268 Households is being collected every day in four segregated categories i.e. Organic/ Wet Waste, Inorganic/ recyclables/ Dry waste, Bio medical waste and hazardous waste, and being treated & processed locally. For smaller ULBs 'Nathuwala Model' is replicable and appears to be financially viable with 'Capital Support'.

- First unit of Sanitary Landfill (SLF) has been developed at Sarai, Haridwar. For developing second phase of SLF and other facilities, Rs. 476.00 Lakhs has been requested from Govt. of India to be released under the Swachh Bharat Mission.
- Regarding legacy waste treatment at Chandighat and Sarai site, a DPR of Rs. 26.63 crores has been prepared. Expression of interest (EOI) has been invited, 12 proposals have been received and are being examined at UDD, Dehradun.
- A SWM plant is proposed to be incorporated in the Rishikesh Cluster for scientific waste processing and disposal at Lalpani. DPR of Rishikesh Cluster covering 5 ULBs (Rishikesh, Muni ki Reti, Swargashram, Narendra Nagar, Doiwala) costing Rs. 41.27 crores has been prepared.
- The NGT Monitoring Committee (2018) further observed that waste disposal at Ramnagar and Kashipur is being done near the banks of river Kosi. In this regard, DPR costing Rs. 584.26 lakhs has been approved by the State for waste

disposal site/plant and funds are awaited from the Govt. of India under the Swachh Bharat Mission. Directions have been issued to Nagar Nigam Kashipur and Ramnagar for SWM treatment and disposal at site as per the provisions of SWM Rules 2016.

Swachh Bharat Mission (SBM)

MSW management in urban areas has emerged as one of the biggest challenges facing the country today, not only in terms of environmental and aesthetic impacts but also as a potential threat to public health, resulting from improper and unscientific management and handling of MSW. Acknowledging the magnitude of this challenge, the Govt. of India launched the Swachh Bharat Mission on 2nd October 2014 with the goal to make the country clean and open defecation free by 2nd October 2019 as a mark of tribute to father of the nation Mahatma Gandhi on his 150th birth anniversary. With the launch of the Swachh Bharat Mission (SBM), the issue of cleanliness and sanitation has emerged as a central issue in the overall process of development of our towns and cities.

Statistics available from the Newsletter (recently renamed as *Swachhata Sandesh*) SBM (Urban) 2015, reveals that sanitation emerged as one of the foremost challenges for the ULBs in India as more than 50 percent (650 million) population in the country practiced open defecation making them vulnerable to risk of diseases like cholera, diarrhoea, typhoid, etc. Lack of toilets also exposed one-third of the country's women to the risk/fear of sexual abuse/assault. Only 31 percent sewage generated in the cities was treated and 48 percent of the urban households depended on septic tanks and pit latrines to meet their sanitation needs. Furthermore, 91 percent of the MSW collected by the ULBs were either dumped in open or in unscientific landfill sites. Against this backdrop, the mission aims at elimination of open defecation, eradication of manual scavenging, promote modern and scientific

⁵¹ Nathuwala is a ward in the capital city Dehradun, where a sanitation park and processing

unit has been established and almost all solid waste is being managed in decentralised manner.

MSWM. The Government has taken several initiatives to achieve these objectives.

Under SBM-Urban, 100 percent scientific management of MSW has been identified as one of the critical objectives encompassing primary waste collection, secondary storage, transportation, processing, and final disposal in scientific landfills.

Uttarakhand is dedicated to meet the objectives of the Mission in a phased manner. Following are the achievements of the State with regard to SBM as presented in the Swachh Survekshan 2019-20 published by MoHUA:

- 100 Cities achieved ODF Status (data compiled up to 2018)
- 14623 individual household latrines (IHHL) built
- 755 Community/Public toilets built
- User charges promulgated for door to door collection of solid waste in 98 ULBs
- Door to door collection facilitated in 914 wards (total wards 1139) in all ULBs.
- Land identified for SWM in 44 ULBs
- Plan for SWM prepared in 45 ULBs
- Project on Solid waste has begun in Haridwar
- Solid waste plant project approved in Haldwani

The Mission, so far, has been successful in the addressing the issues of sanitation and solid waste management in the State in general. Significant progress has been made with innovative approaches adopted to not only improve service delivery but also to make the mission a mass movement. The mission is an inclusive model of cleanliness where people can come forward to contribute their part in the sanitation drive. It aims to achieve its objectives through a participatory approach of citizen involvement. People are the key to bringing a change. The participation of every segment of society is necessary to make the cleanliness mission a success and pave way for a Swachh Bharat (Priyadarshi and Jain 2018; Dandabathula et al. 2019 and Suthar et al. 2019).

Swachh Survekshan

Swachh Survekshan is an annual survey of cleanliness, hygiene and sanitation across towns and cities in India. Launched as a part of the Swachh Bharat Abhiyan, it is the biggest competition among the ULBs with respect to cleanliness and sanitation. The first survey was undertaken in 2016 covering 73 cities and by 2020 the survey covered 4242 cities making it the largest cleanliness survey in the world. The objective of the survey is to encourage large scale participation by towns and cities, ensure sustainability of initiatives adopted towards garbage free and ODF cities, institutionalise existing systems and spread awareness about the importance of working together to make the cities and towns more sustainable and achieve a cleaner neighbourhood.

All the ULBs from the Uttarakhand participated in Swachh Survekshan 2020 and were thereby monitored following the norms of the programme. Six cities from Uttarakhand were included in the Swachh Survekshan ranking. None figured in the list of top 100 cleanest cities of the country. At 395th rank, Haldwani-Kathgodam was the dirtiest city, while Roorkee (218 rank) was the cleanest city in the State. The capital city Dehradun was ranked 316th and the much-frequented hill town of Nainital was placed at the 330th spot. The other States that performed poorly are Arunachal Pradesh, Odisha, Jammu and Kashmir, Jharkhand, Haryana and West Bengal. On the other hand, by treating 67 percent of the solid waste generated everyday, Telangana was the best performing State, followed by Sikkim (66 percent), Goa (62 percent) and Chhattisgarh (60 percent). In 2017, Dehradun did not even figure in the top 300 cleanest cities of India. In 2018, it slipped to 384th rank in the list of 425 cities across the country. The State wise score of Uttarakhand was 200 which was much less in comparison to Himachal Pradesh (500), Uttar Pradesh (304.08), Jharkhand (372.73) and Chhattisgarh (855.56). The score is prepared on the basis of ODF status obtained and performance in garbage free cities programme.

Uttarakhand also performed poorly in comparison to its counterparts in terms of SWM average points with 321.43 points whereas Himachal Pradesh scored 1049.78, Uttar Pradesh scored 416.15, Jharkhand scored 356.86 and Chhattisgarh scored 1049.62 points. None of the ULBs from Uttarakhand and Himachal Pradesh appeared in top 100 ULBs. On the contrary 9 ULBs appeared from Chhattisgarh with Ambikapur bagging the rank of second cleanest city in the country just preceded by Indore, 5 ULBs appeared from Jharkhand and Uttar Pradesh respectively.

Urban Municipal Solid Waste Management Action Plan for the State of Uttarakhand

The National Green Tribunal in OA No. 199 of 2014 (Almitra H. Patel Vs Union of India) on 5th February 2015 directed the Central Pollution Control Board to submit its independent comment in relation to formulation of a national policy with regard to collection and disposal of a MSW. In response to the directives, the CPCB came out with the “Action Plan for Management of Municipal Solid Waste” in 2015 incorporating the suggestions from the NGT. The Ministry of Environment, Forest and Climate Change (MoEFCC), enacted “Solid Waste Management Rules, 2016” stipulating compliance criteria for MSW management in the country. In accordance with the said SWM Rules 2016, the urban development departments in all the Indian States were directed to prepare State specific action plans and strategies on SWM. The UDD, Govt. of Uttarakhand in consultation with all stakeholders including SPCB, ULBs and Department of Environment and Forests prepared draft State Level Action Plan 2015 for the management, handling and disposal of MSW which was followed by a revised action plan 2017 in compliance with the SWM Rules 2016. The Plan broadly identifies the gap between current municipal waste generation, collection, transportation and its disposal focussing on the challenges and the constraints of the ULBs in the management of waste. It also aims to provide solutions and strategies that are feasible, measurable, practical and sustainable to fill the

existing gap. The plan aims to provision sustainable door to door municipal waste collection in all the wards in the State and ensure that all the collected waste is transported efficiently to the treatment plants and the residual waste is disposed in an environmentally sound and socially responsible manner, thereby improving the current scenario of waste management in the State.

In order to ensure the whole plan to be viable and financially sustainable, the flow of funds should be channelled in a phased manner. The operation and maintenance cost will be borne by National Ganga River Basin Authority under the “Namami Gange” Mission. Provision of user fee will be incorporated to ensure recovery of expenses, resource recovery by maximising recycling, subsidised services and external funding. In addition to this, some of the funds will be arranged from the Central Government under Swachh Bharat Mission, Finance Commission and Asian Development Bank.

A component of the Plan also provides for capacity building of the ULBs and involves extensive IEC (Information, Education and Communication) campaigns to inculcate “Civic Sense” among the citizens as no programme can be successfully implemented without active participation of the citizens themselves. It is expected that if the plan is executed efficiently in a phased manner, it will cater to the MSW management needs of the entire population in the State ensuring 100 percent solid waste management.

Key Challenges in SWM in the State

Uttarakhand has approximately 93 percent area in the hilly terrains and 65 percent area under forest cover. Land available for planning and development of infrastructure and industries in the urban areas is only 35 percent. It is a challenge for the ULBs to identify suitable land for MSW management in line with the MSW Rules 2016. Moreover, if any land is identified, the transfer of the same becomes a tedious task owing to compliance issues with the norms of SWM Rules, since most of the lands are either situated on the

banks of a river, or stream or tributaries. As of 2017, 42 percent of the ULBs are yet to identify suitable land for setting up landfill and processing facilities and 22 percent of the ULBs who have identified some land from the forest area. In effect, only 10 percent of the ULBs in the State have adequate land available to them. Therefore, scarcity and suitability of land for development of waste management infrastructure is one of the key concerns for the ULBs. According to the current practices, only high value dry recyclables, such as newspaper, plastic and glass bottles and metal scraps may be segregated from the waste as they may be sold to the scrap dealers for monetary benefits. Other than this, segregation at source generally remains absent and the benefits of “circular economy” is yet to be harnessed.

It is commonly observed that other forms of waste including bio-medical waste, hazardous waste, industrial waste, e-waste and construction waste is dumped at the same dumpsite as the municipal waste which eventually gets mixed with it, rendering it difficult to be segregated or put to other use. It is the result of lack of awareness about the segregation of waste at source amongst the waste generators as well as the aggregators. Therefore, along with the hard infrastructures, soft skills also need to be developed through structured training programmes, workshops and awareness drives

According to report by the Central Pollution Control Board (CPCB) published in 2018, Uttarakhand is one of the worst States in the country in terms of SWM because it does not have a single functional solid waste management plant or sanitary landfill (Figure A1). The report further reveals the abysmal State of waste collection and disposal in the Himalayan State. The report also mentions that Himalayan States such as Jammu and Kashmir as well as Himachal Pradesh fare much better than Uttarakhand in terms of waste treated as well as number of landfills. Uttarakhand’s urban population across 92 ULBs, as noted in the CPCB report (2018), produces around 1400 metric tonnes of solid waste per day. According to Urban Development

Secretary, only 20 percent of the total waste generated is treated.

Garbage is often dumped in storm water drains known as “gadheras” in hills thereby choking the flow of water as well as contaminating drinking water. According to Niti Aayog (2017), more than 60 percent of the water supply in Uttarakhand is spring fed and garbage dumping in storm water drains may pollute all the water sources including those used for drinking purposes.

Uttarkashi Nagar Palika Parishad dumps its municipal waste illegally into the Bhagirathi river, a tributary of Ganga as shown in Figure 7a. This shows that sustainable management of waste remains a mounting challenge for rapidly urbanizing towns and cities in the Himalayan State. The situation is of grave concern also because Uttarkashi featured in the 15 priority towns along the river Ganga which was allocated Rs. 885 crores from the Namami Gange Programme to ensure waste management along with other towns like Badrinath, Joshimath, Srinagar, Rishikesh and Haridwar.

A report by the Comptroller and Auditor General of India (CAG) published in 2016-17 identified Haridwar and Dehradun not following the MSW rules. The report highlighted that while segregation at source was absent, the disposal and processing of waste was not optimum. This is also reported by Dehradun News (Figure 7b) which highlights that waste disposal rules are being flouted in Dehradun and Haridwar. The collected waste is dumped in the trenching grounds without segregation and processing. The report indicate burning of waste in the trenches near Haridwar and Dehradun and as such amounting to gross violations of the instructions of the NGT as well as the State govt.’s directives on SWM. Finally, the report States that the capacity of the processing plant at Sheeshambada in Dehradun is 200 MTPD whereas the actual generation of waste was 257 MTPD. The capacity of the waste processing plant at Sarai in Haridwar is 100 MTPD however the average waste generation is around 250 MTPD. An estimated 12

to 22 percent waste in Dehradun and 24 to 29 percent waste in Haridwar remained uncollected respectively. However, the reports of SPCB and UDD claim that 100 percent collection of waste in all wards in the State was achieved. The Dehradun Municipal Corporation blames lack of

resources such as shortage of manpower, bins and vehicles to be responsible for insufficient waste collection, processing and disposal while The Haridwar Municipal Corporation link the failure to the lack of scientific landfill in the district.

Figure 7: News clippings on SW dumped in Uttarakhand rivers

Dumping ground near Bhagirathi

Dumping waste right into Bhagirathi: What Uttarkashi's garbage problem tells us

May 21, 2019 Rishabh Shrivastava

WASTE MANAGEMENT LAPSES IN UTTARAKHAND



<https://citizenmatters.in/uttarkashi-waste-management-dumping-in-bhagirathi-12881#:~:text=WASTE%20MANAGEMENT%20LAPSES%20IN%20UTTARAKHAND&text=Uttarkashi%20was%20recently%20in%20the,river%2C%20a%20tributary%20of%20Ganga.>

According to a report by the Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), the waste collected from the Kotdwar Nagar Nigam was disposed at Paniyali Talli in Ratanpur. The site used by the Nagar Nigam was not developed scientifically. The leachate from the dump site reportedly seeps into the river during rain. In addition, there is also a waste disposal dump yard on the bank of river Khoh in Kotdwar district. Such mismanagement is the primary reason for water pollution in the State.

Waste Disposal rules being flouted at Haridwar and Dehradun

DEHRADUN NEWS

Dehradun, Haridwar ULBs flout waste disposal rules, says CAG

Report says collected waste was dumped in trenching grounds without segregation or processing.

By Nihi Sharma | Hindustan Times, Dehradun, Dehradun
UPDATED ON SEP 21, 2018 11:50 PM IST



<https://www.hindustantimes.com/dehradun/dehradun-haridwar-ulbs-flout-waste-disposal-rules-says-cag/story-Dqfbt0GkL42Ogpjg7HG46J.html>

Significant efforts are not made to ensure resource recovery from waste. Although compactor systems for recyclable waste has been installed in 16 ULBs, yet most of these remain unutilised. Similarly, no compost is generated from the organic waste though NADEP (Narayan Deorao Pandharipande) pits have been constructed at various sites.

The Complaint Redressal cell of the most of the ULBs lack proper administrative and infrastructure setup. According to a survey report

submitted to the UDD (2017)⁵² it was found that most of the ULBs in the State are operating without skilled staff including executive officer, sanitary inspectors, and support staffs like JE, Account Officer or Clerks. The manpower requirement of the ULBs along with skill enhancement of those existing staff is the need of the hour if the State plans to achieve various targets under different national missions.

Strategies for Effective SWM in the State

The State aims to achieve Zero Waste by 2040. To achieve this goal all the sectors need to adopt methods and strategies to ensure increased prevention, reduction and recycling of waste. The goal to zero waste also involves changes in the people's lifestyles and practices to emulate sustainable natural cycles such that discarded materials can be redesigned as a resource for others to use. It may help extend the life of the existing landfills that are already limited in number and thus must be utilised judiciously. Zero waste can be attained by following the principles of integrated SWM hierarchy as identified in the MSW (Management & Handling) Rules 2016 such as composting the biodegradables and maximising the recycling of waste at each level by all the stakeholders namely ULBs, recyclers and manufacturers. A concise list is presented below:

- The ULBs shall ensure door to door collection of segregated solid waste from the households, commercial and institutional buildings, and other non-residential premises. The waste shall be collected in three segregated streams namely *wet waste* (biodegradable), *dry waste* (non-biodegradable) and *domestic hazardous waste* (which includes paints, batteries, e-waste etc.). *Sanitary waste* needs to be collected from all the premises separately daily. At least one collection system per ward shall be mandatory.
- There should be a system for segregated transportation of waste at every ward. The waste collected from different premises in the

city from every ward should ideally be transported in a segregated manner to the processing facility.

- The informal sector comprising of scrap dealers, rag pickers' organisations among others may be included and integrated in the waste management practices. The concerned ULBs along with the Urban Development Department should establish a system to promote and recognise the contributions by the informal organisations to integrate them in an organised system. Secondary storage systems may be developed to ensure the authorised waste collectors to separate recyclables from waste at the source of generation or material recovery facilities.
- Decentralised system of waste management needs promotion. The concerned ULBs should ensure implementation of decentralised system in the city by providing technical expertise and regular monitoring of such facilities with the help of local NGOs, technical institutes or service providers, to mention a few. Initially the system should include commercial establishments, restaurants, hotels, government premises and educational institutes in compliance to the SWM Rules 2016 and eventually should cover all the user groups including individual households.
- An Extended Producer Responsibility (EPR) policy should be implemented in the State in accordance with the nationwide EPR regulation formulated by the Govt. of India. EPR is a policy approach under which producers are given a significant responsibility, financial and/or physical, concerning the treatment or disposal of goods at the post-consumer stage of a product's life cycle. A State level authority formed with the purpose of monitoring the recycling rates so that the State could achieve the aim of maximum recycling and allied material management goals.

⁵² The title of the report was "Urban Municipal Solid Waste Management Action Plan for the State of Uttarakhand"

submitted to the Urban Development Directorate, August 2017.

- According to the figures from the Ministry of Tourism, the tourist inflow in Uttarakhand in 2010-11 was between 2.5-3.1 crores per annum. The number was almost 2.5 times the total population of the State. Considering this significant amount of floating population visiting the State every year, it was advised that the ULBs with higher influx of tourists may levy a per capita user charge for the management of waste. Such charges may be collected along with the other charges that is levied by most of the tourist destinations at their points of entry. The amount should be used only for the management of waste, operation and maintenance of the waste infrastructure.
- The SWM Rules, 2016 have imposed restrictions on construction of landfills in the hilly areas. Thus, the State may facilitate regional landfills or treatment centres at such places. Cluster formation has already been accomplished in the State and the clusters formed include ULBs as well as villages from the nearby areas. A transfer station would be setup within the ULBs to collect residual wastes from the processing facilities and transfer to the regional facility to be treated and disposed accordingly.
- The role and responsibilities of the various stakeholders should be duly determined in compliance with the SWM Rules, 2016 to ensure effective implementation of the programmes and schemes in the State. The most important role is conferred to the District Administration followed by SPCB and the Urban Development Department.
- Capacity building of ULBs is indispensable for setting up of good system of waste management. It involves training all levels and dissemination of knowledge with respect to latest technologies and methods.
- One of the important aspects of any proposed SWM project is the financial self-sustainability of that project. It may be ensured when the waste as a resource could be fully capitalized

via sale of compost, recyclables, RDF, material recovery of waste and implementing 100 percent user charges on the waste generators under Polluters Pay principle. Most of the SWM projects are shut down owing to financial incapability to run the projects in the long-run.

Achievements of the State

- *All the ULBs have achieved ODF status.*
- *14623 Individual household latrines built.*
- *755 Community/Public toilets built.*
- *User charges promulgated for door-to-door collection of solid waste in 98 ULBs.*
- *The door to door collection facilitated in 914 wards (out of 1162) in all ULBs.*
- *Land identified for SWM in 44 ULBs.*
- *Plan for SWM prepared in 45 ULBs.*
- *Project on Solid waste is in its final stage in Haridwar.*
- *Solid waste plant approved in Haldwani.*
- *Waste-to-energy plant to be built in Haridwar and Roorkee.*

Source: UDD (2020-21) Dirgha Darshika

A total of Rs. 62,000 crores were allocated under SBM for ODF and SWM. Uttarakhand received only 52 percent of the total mission allocated funds until December 2019.

Only 5 States and UTs had received their entire Mission allocations for SWM, including: Andhra Pradesh, Assam, Gujarat, and Tamil Nadu. In contrast, releases were below 50 per cent in 10 States and UTs, including Uttar Pradesh (45 per cent), Kerala (43 per cent), West Bengal (41 per cent), and Uttarakhand (22 per cent). A total of Rs. 112 crores were released to the State under Swachh Bharat Mission (Urban), which was distributed in the following manner: Rs. 30.30 crores towards individual household latrines (IHHL), Rs. 1.59 crores for Community toilets, Rs. 57.57 crores for SWM, Rs. 18.03 crores for IEC activities and Rs. 4.51 crores for initiating Capacity building in the State. Out of total allocation, only Rs. 76.5 crores have been allocated so far and the rest Rs. 35.5 crores still remained to be allocated.

Table 1: Key Financial Parameters for ULBs to Achieve SWM Programme Needs:

| | Total Amount Received | Received Share of Centre | Received Share of State | Allocated to ULBs |
|--|------------------------------|---------------------------------|--------------------------------|--------------------------|
| Solid Waste Management | | | | |
| 2018 | 550 | 500 | 50 | 550 |
| 2019 | 550 | 500 | 50 | 550 |
| 2020 | 1953.52 | 1903.52 | 50 | 1205.29 |
| Total | 3053.52 | 2903.52 | 150 | 2305.29 |
| Capacity Building | | | | |
| 2018 | 102.35 | 169.15 | 1.70 | 102.35 |
| 2019 | 187.76 | 169.15 | 18.61 | 179.45 |
| 2020 | 187.76 | 169.15 | 18.61 | 185 |
| Total | 477.87 | 507.45 | 38.29 | 466.8 |
| Public Awareness & Information, Education and Communication (IEC) | | | | |
| 2018 | 380 | 343.42 | 6.6 | 218 |
| 2019 | 380.84 | 343.42 | 37.42 | 367.39 |
| 2020 | 180.84 | 343.42 | 37.42 | 378 |
| Total | 941.68 | 1030.26 | 81.44 | 622.81 |
| Construction of Individual Household Latrines (IHHL) | | | | |
| 2018 | 700 | 650 | 350 | 825 |
| 2019 | 700 | 650 | 380 | 860 |
| 2020 | 3020.06 | 2640.06 | 380 | 2770.05 |
| Total | 4420.06 | 3940.06 | 1110 | 4455.05 |
| Construction of Public Toilets | | | | |
| 2018 | 159 | 332.40 | 498.60 | 765.38 |
| 2019 | 195 | 489.74 | 695 | 663 |
| 2020 | 2477.76 | 973.07 | 1504.68 | 2057.28 |
| Total | 2831.76 | 1795.21 | 2698.28 | 3485.66 |
| Public Urinals | | | | |
| 2019 | 80 | 32 | 48 | 20.80 |
| 2020 | 240 | 96 | 144 | 173.54 |
| Total | 320 | 128 | 192 | 194.34 |

Source: Compiled from Dirgha Darshika published by UDD

The Govt. of Uttarakhand approved Rs 28 crores for the construction of SWM facilities and decentralised segregation in various municipal

bodies and Nagar Panchayats in 2020-21 (Smart Cities Council). The first instalment of Rs. 4.82 crores from the same has been released in 2020-

21. An amount of Rs 32.46 lakh was released for the construction of SWM facility and decentralised segregation hall in Dharchula Nagar Palika Parishad; Rs 31.86 lakh for Chinyalisaur Nagar Palika Parishad; Rs 45.19 lakh for Uttarkashi cluster (Uttarkashi and Gangotri); Rs 73.79 lakh for Tanakpur cluster (Tanakpur, Banbasa); Rs 89.88 lakh for Ramnagar Nagar Palika Parishad; Rs 79 lakh has been released for Devprayag; Rs. 1.84 crore for Kirtinagar; Rs 75 lakh for Joshimath; Rs 49.59 lakh for Kapkot; Rs. 1.21 crore for Badkot; Rs 60 lakh for Agastyamuni; Rs. 74.29 lakh for Pokhari; Rs 75 lakh for Chamoli and Rs 2.04 crore for Almora. Table 1 provides a brief statistic on key financial allocations to the ULBs from the Centre and the State for specific activities and deliverables.

Analysis of the funds received, and expenditure incurred reveals that the ULBs have not rationalised expenditures incurred on various heads intended for SWM to ensure cohesive SWM. Haridwar and Dehradun has spent only 20 percent and 40 percent respectively of their total expenditure on SWM related infrastructure development during the period 2016-17. Rs. 2675 lakhs were allocated to the Directorate for building individual household toilets and from March 2017 to February 2020, 14955 individual household toilets have been built. Prior to 2018, Rs. 5333 were allocated per unit of individual household toilets which was increased to Rs. 12000 per toilet from 2018. Rs. 1858.60 lakhs were allocated to the Directorate to build community/public toilets and 800 seats capacity community toilets have been built.

Most of the ULBs spend more than 90 percent of their total expenditure on salary of ULB staff members. For example, the Haridwar Nagar Nigam spent 92 percent, 74 percent and 59 percent of their total expenditure on salary for the years 2014-15, 2015-16 and 2016-17 respectively. Similarly, the total expenditure of Dehradun Nagar Nigam on salary was more than 90 percent of their total expenditure over the same period. The meagre amount spent on

infrastructure was largely responsible for non-achievement of intended SWM targets.

Performance of Uttarakhand and its Contemporaries

According to the Ministry of Housing and Urban Affairs (MoHUA) (2018-19), Himachal Pradesh and Uttarakhand achieved 100 percent door-to-door collection of solid waste. Further, source segregation of waste is practised in all the wards in Himachal Pradesh whereas 65 percent of wards practices source segregation in Uttarakhand. Himachal Pradesh processes 369.46 tonnes per day (TPD) or 98 percent of waste generated while Uttarakhand process 37 percent of the waste generated. Comparison of the selected States based on the key parameters used in SWM is presented in Table 2.

Chhattisgarh:

There are 168 ULBs responsible for the implementation of the SWM Rules, 2016. The ULBs jointly treated 91.7 percent of solid waste collected and only 8.3 percent of it was sent to the landfill. The MoHUA notified the Ambikapur Model implemented by the Govt. of Chhattisgarh as an example of source segregation resulting in value increase.

Himachal Pradesh:

There are 54 ULBs consisting of two Municipal Corporations, 31 Municipal Council, 21 Nagar Panchayats and 7 Cantonment Boards. Since 1st April 2019, door to door garbage collection was initiated in 486 wards out of 497 wards and segregation at source began in 471 wards. Municipal Corporation Shimla has established a Waste to Energy plant at Bhariyal on gasification technology with a capacity of generating 1.75 MW of electricity per day.

Jharkhand:

In Jharkhand, 42 ULBs are responsible for MSW management in the State. Good practices such as house to house collection, segregation, storage and covered transportation of waste is practiced in all the 42 ULBs. There are a total of 35 landfill sites in the State as on 2018-19. Land for sanitary

landfill site as well as processing facility has been identified and is available in 35 ULBs. In

remaining 7 ULBs, transfer/purchase of land is under process.

Table 2: Status of Solid Waste Generated, Collected, Treated and Landfilled

| States | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|-------------------------------------|---------|---------|---------|----------|
| Solid Waste Generation (TPD) | | | | |
| Uttarakhand | 917 | 1180 | 1099 | 1527.458 |
| Himachal Pradesh | 276 | 342.35 | 276 | 389 |
| Jharkhand | 3570 | NA | 3570 | 2205 |
| Chhattisgarh | 2245.25 | 6000 | 2000 | 1650 |
| Solid Waste Collection (TPD) | | | | |
| Uttarakhand | 917 | 1180 | 1099 | 1437.4 |
| Himachal Pradesh | 207 | NA | 207 | 340 |
| Jharkhand | 3570 | | 3570 | 2043.4 |
| Chhattisgarh | 2036.97 | 4200 | 1680 | 1386 |
| Solid Waste Treated (TPD) | | | | |
| Uttarakhand | 0 | NA | NA | 913.4 |
| Himachal Pradesh | 125 | NA | 125 | 150 |
| Jharkhand | 65 | NA | 65 | 836.69 |
| Chhattisgarh | 828.18 | 20 | 1411.2 | 1271 |
| Solid Waste Landfilled (TPD) | | | | |
| Uttarakhand | 0 | NA | NA | 524 |
| Himachal Pradesh | 150 | NA | 150 | 190 |
| Jharkhand | 3505 | NA | 0 | 0 |
| Chhattisgarh | 1294.97 | 4180 | 268.8 | 115 |

Source: Author's own compilation based on CPCB Annual Reports; TPD is Tonnes per Day

Uttarakhand:

There are total 90 ULBs and 9 Cantonment Boards in the State. Good practices are implemented in the towns of Dehradun and Haridwar. Door to door waste collection is initiated in 1106 wards out of total 1170 wards. Source segregation of waste is being carried out in 366 wards. There are two composting facilities in the State. 13 landfill sites are identified in the State, 2 landfill sites have been constructed (Nagar Nigam Dehradun and Nagar Nigam Haridwar) while 2 landfill sites are in operation. Total number of existing dumpsites in the States are 42.

Legacy Waste & its Impact on Environment:

Legacy wastes are the wastes that have been collected and kept for years at an open place dedicated as a landfill site. It can be grouped into four categories namely, contaminated, and stored waste, buried waste, contaminated soil and groundwater and building and structure wastes. Uncontrolled and continuous dumping of MSW

has led to mountains of legacy waste mostly located on the outskirts of big cities. After decades of being neglected these open dumps have not only grown larger but also higher thereby acting as point sources of pollution. These large heaps of legacy waste produce leachate contaminating the surrounding groundwater. The large stack of garbage produces methane, a greenhouse gas responsible for causing 21 times more global warming than carbon dioxide, thereby contaminating the air quality. The methane produced at solid waste disposal sites contributes approximately 3 percent to 4 percent to the annual global greenhouse gas emissions.

The NGT has taken cognizance of the volume of waste and directed the CPCB to implement bio-mining and bioremediation of legacy waste. There are two major challenges of SWM as reported by CPCB (2019):

- Managing the continuous flow of solid waste daily, and

- Dealing with the legacy of neglect which has resulted in garbage heaps having been built up at dumpsites that were meant for waste processing and landfills.

The sites for landfills were originally located outside of the cities, but as the cities expanded the dumpsites are now within the cities. It is

estimated that more than 10,000 hectares of urban land is locked in these dumpsites in India. Uttarakhand has approximately 20.15 lakh cubic metres of legacy waste that has collected over last 20 years. The government has set a one-year deadline to completely dispose the legacy waste from the State.

Case Study: Solid Waste Management in Hill Station: Mussoorie

Uttarakhand is home to some beautiful landscapes which attract mountain tourists across the globe. However, the mountain tourists on treks and mountaineering expeditions contribute to the increasing volume of solid waste observed in many of the remote regions and higher mountain peaks. This surge in tourists visiting popular mountain regions, and the following waste issues can be staggering. The most severe problems arise because of the indiscriminate garbage dumping over unprotected soil, and heavy rainfall thereby enabling the leachate to percolate through the soil and degrade the water tables. It has been observed that for most part of the hill towns there is lack of proper infrastructure for collection, transportation, processing, and scientific disposal of waste owing to various operational issues. It is also noticed that the tourist points are not serviced and taken care of on a regular basis. As a result, there are piles of garbage stacked up in these areas. The current waste processing in Mussoorie is only 20%. The hill station has several garbage points and spots of illegal dumping near the ecological trails and the valleys. The sanitation activities including solid waste management among others are not planned and executed in a transparent manner.

A project has been proposed in Mussoorie by the Mussoorie Nagar Palika Parishad with a total grant of Rs. 3,73,07,960. The objective of the project is to make the city self-sustainable in the processing and disposal of its waste by employing climate resilient and State of the art technology solutions that are easy to operate and require minimal maintenance; to spread awareness at the local level and among tourists for promoting sustainable consumption through the concept of 5R's: reduce, reuse, recycle, recover and rethink; to promote and utilise local knowledge to formulate measures suited for local conditions; to promote decentralised composting as a community based alternative to landfills for organic wastes.

The project shall ensure 100% door to door collection and segregation at source. The aim is to develop a model that can process 90% of the collected waste. A bio-methanation plant with the capacity of 8 TPD will be installed to treat organic waste. A Dry Waste Collection Centre will also be established with the capacity of 1.8 MTPD. Focus will also be on creating awareness and capacity building programmes.

Source: CPCB (2019)

Conclusions

Solid waste management has become a major environmental issue in India. The per capita MSW generated daily, in India ranges from about 100 gm per capita per day in small towns to 500 gm per capita per day in large towns, although, there is no national level data available on MSW generation, collection, and disposal. Growth in MSW in the urban centres has outpaced population growth in recent years. The increasing

trend may be due to our changing lifestyles, food habits, and change in living standards.

SWM is an important aspect for maintaining proper cleanliness and healthy environment in an area. It involves collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful. The choice of a waste disposal site is equally important because such will have long-term environmental implications. The average collection efficiency for MSW in Indian cities is

about 72.5 percent and around 70 percent of the cities lack adequate waste transport capacities (Alam and Kulkarni, 2016). SWM remains a crucial area of intervention from development policy perspective and from the point of view of sustainability. *Uttarakhand, placed in an extremely fragile ecological zone, is currently reeling under enormous quantity of waste being generated by its towns and cities, which are also urbanizing at a rapid pace added with extra pressure from floating population due to tourism, one of the most critical sectors of the State economy.*

ULBs are responsible for carrying out effective Solid Waste Management system in their municipal area that would ensure prevention of diseases and control of pollution and overall maintenance of cleanliness and hygiene in that area. However, the ULBs in India are plagued by their own set of fundamental problems like budget constraints, manpower shortage, lack of technical expertise, inadequate political legitimacy which makes it difficult for them to execute their routine civic tasks.

The same issues have hampered the performance of ULBs in Uttarakhand. Most of the districts in the State are hilly and are highly neglected in terms of solid waste management as most of the facilities are available in the plains in Dehradun, Haridwar and Haldwani. The hilly terrains make waste management significantly difficult however, such reasons should not hinder development of waste infrastructures in the hilly areas as these are home to a large floating population generating waste in enormous quantities which should be addressed on an urgent basis. Unattended wastes for decades accumulate to form legacy waste which serves as additional burden on the ULBs, since these cannot be put to any alternative use, neither can they be used as compost, nor can they be recycled.

Most of the ULBs in the State do not comply with the MSW Rules, 2016. Although it has been professed that door-to-door collection of solid waste is practiced in all the wards but the

segregation of waste at source is not carried out in all wards. Appropriate technology is often not adopted for disposal and processing of wastes owing to limited number of treatment plants. The solid waste is collected partially, transported in open vehicles and dumped without segregation. Moreover, only 37 percent of the collected solid waste was processed in Uttarakhand in 2018-19. The staff engaged in the execution of the SWM work at the trenching ground are not trained and do not use safety kits. The monitoring mechanism was also deficient which resulted in delay and poor implementation of the programme.

All ULBs are required to meticulously plan, implement, and monitor all systems of urban service delivery especially that of MSW. With limited financial resources, technical capacities and land availability, urban local bodies are constantly striving to meet this challenge. Hence, far sighted policies are required to meet the challenge of increasing solid waste management in the State.

Way Forward

- **Behavioural Change at Community Level:** Public participation in SWM is very poor. Awareness and sensitization programmes should be conducted to create behavioural changes in the public towards waste management, including waste minimisation and reuse practices. People should be encouraged to keep segregated bins for wet, dry, and hazardous waste at the household level. Segregation of waste must be made compulsory in all government offices, commercial establishments, households, and so on, and a penalty should be charged for non-compliance.
- **Action at ULB Level:** ULBs should prepare comprehensive, sustainable and time-bound solid waste management plans for collection, segregation, storage, transportation, processing, and disposal of MSW effectively under SBM, in compliance with the MSW Rules, 2016, for their respective cities and work towards the concept of low waste to zero waste. Waste

management technologies should be adopted according to local needs in their respective areas. Monitoring and implementation of action plan is required at State, District and Municipal Level.

- **Capacity Building of the ULBS** should be initiated along with supportive legislations to ensure effective implementation of 100 percent handling and scientific disposal of MSW.
- **State Municipal Waste Management** should be focused on their duty and responsibility towards society, including creation of proper supply chain management from waste collection to waste disposal.
- **Technical Assistance and Capacity Development:** There should be an agency to technically assist the local bodies, at State and ULB level, to prepare the plans. Furthermore, a detailed assessment is required for how ULBs can meet targets of MSW rules, including financial requirements. There should be also some professional staff in ULBs for handling specific responsibilities for MSW management. Proper training should be given to ULB workers regarding segregation of waste and efficient use of resources. Technical reasons are the common excuse for non-operation of a waste treatment plant. These should be resolved in a time-bound

manner without hampering the operations of the project.

- **Adoption of District Specific Innovative Approaches:** should be encouraged to adopt innovative methods for scientific disposal and treatment of MSW which suit their local conditions the best. These techniques should be efficient, financially affordable, and environmentally compatible. Economic sustainability of the proposed system can be ensured by introducing public private partnership in MSW management.
- **Participation of Informal Sector:** To maximize the collection efficiency, the role of informal sector should be taken into consideration within the formal setup by ULBs and State governments. Informal sector should be integrated in the waste management system as directed by the MSW Rules, 2016.
- **Segregation, Transportation & Monitoring:** The solid waste should be categorized in an appropriate manner to prevent it from being mixed with non-biodegradable waste. The frequency of vehicles used for waste transportation should be maintained and monitored on daily basis. A mechanism of real time monitoring should be established to ensure proper delivery of waste from collection to disposal site.

Annexure 1: Environmental Legislations in India

| Year | Environmental Legislations |
|------|--|
| 1986 | <i>The Environmental (Protection) Rules</i> |
| 1989 | <i>The Hazardous Wastes (Management and Handling) Rules, Amendments, 2000, Draft Amendments 2002</i> |
| 1998 | <i>The Bio-Medical Waste (M&H), Rules</i> |
| 2000 | <i>Municipal Solid Waste (M&H) Rules</i> |
| 2001 | <i>Batteries (M&H) Rules</i> |
| 2001 | <i>The Energy Conservation Act.</i> |
| 2008 | <i>E-waste (management & handling) Rules, (Draft Rule)</i> |

| | |
|------|---|
| 2010 | <i>Batteries (M&H) Rules</i> |
| 2011 | <i>E-waste (Management and Handling) Rules, Biomedical Waste (Management and Handling) Rules, Plastics Waste Management Rules</i> |
| 2016 | <i>Solid Waste (Management) Rules Hazardous and Other Wastes (Management and Transboundary Movement) Rules Bio-medical Waste management Rules Construction and Demolition Waste Management Rules E-Waste (Management) Rules Plastics Waste Management Rules</i> |

Source: Adapted from Ghosh (2017)

Annexure 2: General Practices Adopted For Waste Disposal

| S. No. | Source of Waste | General Practices to follow |
|--------|--|--|
| 1 | Household waste | 1. Don't throw solid waste in the neighbourhood, on the streets, open spaces, and vacant lands, into the drains or water bodies. |
| | | 2. Keep food waste/ biodegradable waste in a non-corrosive container with a cover (lid). |
| | | 3. Keep dry, recyclable waste in a bin or bag or a sack. |
| 2 | Multi-storied buildings, commercial complexes, private societies | 1. Provide separate community bin or bins large enough to hold food/biodegradable waste and recyclable waste generated in the building or society. |
| | | 2. Direct the members of the association to deposit their waste in community bin. |
| 3 | Slums | 1. Use community bins provided by the local body for deposition of food and biodegradable waste. |
| 4 | Shops, offices, Institutions, etc. | 1. If situated in a commercial complex, put the waste in bins provided by the association. |
| | | 2. Keep dry and wet biodegradable waste separately. |
| 5 | Hotels & restaurants | 1. Adopt in-house composting and waste for 2000 Waste Disposal. |
| | | 2. Sell Non-biodegradable waste to end-user. |
| 6 | Vegetable & fruit markets | 1. Provide large containers, which match with transportation system of the local body. |
| | | 2. Shop keepers not to dispose of the waste in front of their shops or open spaces. |
| | | 3. Waste shall be used for composting. |
| | | 4. Deposit the waste as and when generated into the large container places in the market. |
| 7 | Meat & fish markets | 1. Not to throw any waste in front of their shops or open spaces around. |
| | | 2. Use waste for composting. |
| 8 | Street | 1. Not to throw any waste on the street. |

| S. No. | Source of Waste | General Practices to follow |
|--------|----------------------------------|--|
| 9 | Marriage halls, community halls. | 1. Not to throw any solid waste in their neighbourhood, on the streets, open spaces, and vacant lands, into the drains or water bodies. |
| | | 2. Provide a large container with lid, which may match with the transportation system of the local body and deposit all the waste generated in the premises in such containers. |
| 10 | Hospitals, nursing homes, etc. | 1. Not to deposit construction waste or debris on the streets, footpaths, pavements, open spaces, water bodies etc. |
| | | 2. Store the waste within the premises or with permission of the authorities just outside the premises without obstructing the traffic preferably in a container if available through the local body or private contractors. |
| 11 | Garden waste | 1. Compost the waste within the garden, if possible. Trim the garden waste once in a week on the days notified by the local body. |
| | | 2. Store the waste into large bags or bins for handling over to the municipal authorities appointed for the purpose on the day of collection notified. |

(Delhi, Hill, & Delhi, 2003)

Figure 1A: Problems of Landfills and Limited Waste Segregation in Uttarakhand

| | |
|---|--|
| <p>Uttarakhand among worst states in terms of waste management'</p> <p>Prashant Jha TNN Updated: Sep 14, 2018, 10:42 IST</p>  <p>DEHRADUN: A report prepared by the Central Pollution Control Board (CPCB), says that Uttarakhand is one of the worst states in the country in terms of Solid Waste Management (SWM) because it does not have a single functional solid waste management plant or sanitary landfill. The report which was released a few months ago accentuates what residents in most towns across the state including state capital Dehradun grapple with on a daily basis: the abysmal state of waste collection and disposal in the Himalayan state.</p> <p>What makes the report's findings even more damning is that other Himalayan states</p> | <p>How Solid Waste and Lack of its Segregation Destroying Ecologically Sensitive Himalayas</p>  <p>According to Niti Aayog, more than 60% of the water supply in Uttarakhand is spring fed and garbage dumping in storm water drains can pollute all the water sources.</p> <p>LAST UPDATED: DECEMBER 22, 2019, 17:51 IST</p> <p>FOLLOW US ON: Facebook, Twitter, Instagram, Telegram, Google News</p> <p>HRIDAYESH JOSHI</p> <p>Waste dumping in this mountain is cooking the spring water sources and causing flooding. (Photo credit: Hridayesh Joshi)</p> |
| <p>https://timesofindia.indiatimes.com/city/dehradun/ukhand-among-worst-States-in-terms-of-waste-management/articleshow/65801394.cms</p> | <p>https://www.news18.com/news/india/how-solid-waste-and-lack-of-its-segregation-destroying-ecologically-sensitive-himalayas-2432731.html</p> |

Chapter 10

Preparing for the Future

The COVID-19 pandemic is a brutal shock to the world, exposing several gaps in the governance systems of the economy, in allocation of resources for various sectors, preparedness for such disasters and ability to manage when faced with unexpected calamities. Uttarakhand is faced with similar challenges and is struggling to cope with the limited means at its disposal to kick start the sputtering State economy, which demands huge infusion of funds and superhuman efforts on the part of the government acting collectively with the society.

While several measures are being taken in a patchwork fashion to mitigate the impact of the pandemic on different sectors of the economy and the affected people, what is required is to pause and consider whether this is the opportunity for Uttarakhand to consider what kind of an economy does the State require, which leverages its resources and people's abilities, enhances the quality of life of all its citizens and supports achievement of collectively agreed goals. A comprehensive and strategic review is called for not just of what needs to be done to get the economy running again in the same old fashion but how the State economy should be redesigned to become more equitable and sensitive to the environment,

The underlying systems of the State economy need to become agile and highly responsive to emerging challenges and opportunities and acquire the ability to rework policies and systems to achieve what the State has set out to achieve, instead of becoming hostage to existing systems, which are no longer effective or do not support the State's endeavours and goals.

State institutions require to transform themselves to lead this change process and acquire the necessary skill sets amongst their teams to manage the critical process. They should be able to retain unwavering focus that all policies and activities are socially and environmentally

conscious in keeping with State's unique geography, culture and people. The State institutions should be able to develop management tools and content, with strong local context and specific to the requirements of the State and its 13 unique Districts. The institutions need to realign and become adept at convergent planning, cohesive action and minimising wastage of resources, with interests of the people of the State always at the centre of all thought and action. Abilities to gather real time data and evidence-based decision making should become the forte of State institutions.

Strategies, plans and actions for redesigning and reconstructing various sectors of the State economy should be socially conscious. We must design our plans right now when we are in the thick of the crisis.

Social businesses, such as cooperatives, farmers' and homestay owners and craftsmen and weavers' federations require to be strengthened, and supply chains built and made resilient to future disasters and calamities. Promoting investment in social business requires a strong policy mandate and resolute action to make it a reality in the State and become a beacon for the country.

There is a risk that with the advent of vaccines and perceived diminishing of the threat to people's health, accompanied with slight uplift of the economy, short-term measures would again rise to the top of the action lists with adverse environmental consequences. Such short-term measures could be such as - encouraging higher production of materials and goods which are a threat to the environment instead of encouraging recycling and optimal use, easing environmental safeguards and oversight and consciously or unconsciously encouraging use of fossil fuels at the cost of renewable energy.

Key Lessons of Covid-19 Pandemic and Preparing for The Future

1. It is Fatal to Ignore Evidence of Impending Disasters

COVID-19 is not the first pandemic, yet we were caught unprepared when it struck. The impact of COVID-19 was felt to a much lesser extent by countries such as South Korea, Vietnam and Taiwan, which had built more robust response systems to SARS and other epidemics. Climate Change is another example of approaching disaster, evidence of which is visible to all, calling for comprehensive and robust policy response.

Public Health and Climate Change are two areas which threaten the very existence of humans are yet not given due attention in terms of resources, strategies, systems and concerted action at the scale required. Continued ignorance of timely action can prove to be fatal.

If this pandemic prompts us to internalise our vulnerability to pandemics and climate-related disasters, and develop resilient systems to defend against next such catastrophe, we would be better prepared when it befalls us.

2. Individual is Important

The response to COVID-19 has brought home the need to care for the vulnerable, may they be the elderly, those with co-morbidities, the financially vulnerable or those affected by climate change. Work patterns are being redesigned by government as well as private businesses, protective gear to prevent infection are a new priority along with disinfectants and sanitizers. Most individuals are re-configuring their behaviour to practice social distancing, volunteering in health facilities, refraining from social gatherings demonstrating the commitment to protect the individual. This tsunami of care for the vulnerable needs to be harnessed for common good and extended to cover all aspects of the economy keeping the primacy of the individual at their core.

3. New Found Confidence in Data and Professional Expertise

The pandemic has brought home the value of knowledge in terms of epidemiological data, its analysis and interpretation by professionals such as public health specialists. Governments and people at large thirst for daily updates based upon real time data and alter their policies and strategies in response. This is one of the biggest lessons learnt, which if translated to cover all sectors of the State economy will result in sure and unprecedented transformation of the State for the benefit of its people. Systems to gather programme related data in real time, its analysis by experts to enable timely and fine tuning of policy and strategic response and quick deployment by programme managers, will have sustained and positive impact on the State's economy.

4. Cultural Shift is Possible With Focussed Approach

Focussed and sustained response to COVID-19 during the last one year has led to widespread culture change at a pace not witnessed earlier. Extensive efforts in the past to promote hand washing before and after use of toilets and meals did not have the desired impact as these efforts were scattered and sporadic. Earlier efforts lacked the focus and social mobilization bolstered by advocacy support from the very top, as seen during the current pandemic, for promotion of hand washing, maintaining physical distance and use of face masks. The pandemic caused a change in approach to managing behavior change issues. Countries and States went all out through multi-media campaigns, roping in all departments of the government and community-based organisations, to bring this about. Preliminary results are encouraging in terms of reduced morbidities due to infectious diseases such as influenza and diarrhoea. The challenge is to learn from this experience and use these tested methods to successfully address key public health, education, skills development and climate change issues.

5. How Work From Home Experience from COVID-19 Crisis is a Pointer to Urbanization Model Suitable for Uttarakhand

The work from home (WFH) and learn from home (LFH) trend, which was experimental in India and Uttarakhand, has swept the State, throwing up new challenges and opportunities. The work-from-home (WFH) experience from the COVID-19 pandemic shows an exciting direction to Uttarakhand to re-imagine its model of urbanisation.

The Business and Knowledge Process Outsourcing (BPO & KPO) industry showed us that tele-working could get many things done; IT companies established that you enterprise teams could be in different countries and maintain similar if not higher productivity. A 2016 survey by Randstad, reported that 53% of respondents from India preferred telecommuting. However, most industries were reluctant to explore this work style despite ever increasing rentals in major industrial hubs. The COVID-19 induced lockdown has compelled every company in every industry to embrace telecommuting to keep things going, and the results are beyond expectations in terms of productivity! This is the time to make a major transition and build upon the benefits of telecommuting and shifting focus to individual productivity instead of physical presence.

Policies and multiple strategies require to be developed in Uttarakhand to bring work, education and learning to the people instead of migrating for work. The trend needs to be harnessed to promote professionals to work from Uttarakhand, combining work with pleasure, as longer-term tourists to bolster the economy. Climate change being experienced in Uttarakhand has a chance to be reversed by adoption of appropriate policies and transformative and concerted action by all branches of the government in partnership with communities.

The experience of WFH, which is still developing, makes it possible to re-channelise

Uttarakhand's struggle against climate change and address concerns about workforce diversity at the same time, to catapult the State's economy to a higher plane and become more equitable at the same time.

Uttarakhand's unplanned urbanisation is a concern for policy makers and programme managers. Our urbanisation experience shows that we are woefully unprepared, with crumbling infrastructure such as solid and liquid waste management, sanitation, parking and public spaces, roads, public transport, water, power and pollution.

Our State has seen the unfolding process of urbanisation that includes movement of poor people from villages to small boomtowns nearby. Uttarakhand doesn't need to push all its investments into such over-crowded cities.

Uttarakhand's coronavirus lockdown experience with work-from-home should be considered as precursors of a new kind of urbanisation — where urban development and businesses can be dispersed and need not be concentrated. Mobile phones, broad-band Internet and renewable energy can help us plan for “decentralized urban growth without moving big numbers to the cities”. Work-from-home is a key ingredient of spreading out urbanisation dividends and become a more equitable society.

An important social benefit of remote working would be that Uttarakhand's workforce will be able to bring into its fold more women, people with disabilities, across class and caste and even the elderly, could be gainfully employed from home.

6. Healthcare Workers are First Line of Defence That Requires to be Strengthened

Healthcare workers are our first line of defence and they were unprepared when the COVID-19 pandemic struck without warning. This State of affairs needs to change and fast. The public health systems needs to be strengthened without delay, and capabilities of the system enhanced in terms of multi-skilling of healthcare workers, training in management of infectious diseases, isolation

protocols, prevention of infection, quarantine regimen and management, disaster management protocols, addressing mental health issues amongst patients, counselling skills etc.

The widespread dispensary network in the State, of any system of medicines, should be geared up to be able to respond in such medical emergencies through training, communications systems and adoption of standard disaster response protocols.

Emergency deployment of retired healthcare workers should be possible to augment the human resource capacities of the healthcare system. Each district needs to have not only updated databases of such personnel but also periodically train them in emergency response protocols. Private sector health care providers are prolific and especially practitioners of AYUSH systems of medicine are available where others are not. There is an urgent need to establish robust partnership fostering systems and train them in emergency support services when faced with medical emergencies.

7. Physical Infrastructure of Hospitals and Testing Labs in the State Require Urgent Upgradation

The physical infrastructure of hospitals and testing labs for management of infectious diseases requires to be upgraded having separate, well equipped and fully staffed facilities for patients. This is extremely important so that other patients do not suffer when whole hospitals (in some cases trauma centres were converted to COVID hospitals) become out of bounds for them when converted to isolation or quarantine facilities. The medical facilities require to be modernised and provided modern equipment to manage infectious diseases and natural disasters.

The State requires to establish a parallel network of isolation and quarantine facilities in each district and also on the outskirts of major cities and towns, which can be put to multiple uses in normal times including multi-skilling of health workers for management of infectious diseases, trauma care etc..

There is an urgent need for State-of-the-art network of testing labs in every district of the State to be able to handle the testing load in case of future such outbreaks and to concurrently screen reported cases, initiate swift containment action supported by evidence, if required.

8. Disease Surveillance A Priority

The State had to rapidly catch up to set up more State-of-the-art testing labs and centres for screening of the population for COVID-19 infection. This requires to be built upon and not allowed to wither as the pandemic ebbs. Testing capabilities require to be kept updated with latest testing methods and kits and be prepared for the next pandemic at all times.

The pandemic has brought home the fact that disease surveillance requires to be strengthened so that at the slightest sign of any unknown infection, standard protocols of testing, verification and necessary containment action are taken without loss of time to prevent spread of the contagion. This requires that, right from front line healthcare workers to para-medics, doctors and specialists are sensitised to the importance of surveillance, its protocols and their respective roles for early detection and swift containment action, as soon as signs of any infectious diseases are reported.

Epidemiologists need to be taken on board in the health department and charged with the responsibility to keep a close watch of any sign of new cases of any known or unknown infection in each district/block and village of the State.

9. Strong Governance Systems Backed with Sound Scientific Evidence Minimises Impact of Disasters

Well informed, timely and well-coordinated response to disasters has proven to save precious loss of life and livelihoods. This requires swift collection of information/data/evidence, its expert analysis without loss of time and appropriate and measured remedial action to minimise the impact of any disaster. All arms of the government down to the village level should be prepared to work in tandem as a well oiled

mechanism, to face up to future pandemics and be able to effectively contain the impact.

In case of COVID-19, if the news of COVID-19 infection in Kerala was taken seriously and timely action was taken to strictly regulate the movement of people from and to the State based upon their tests, widespread lockdown could have been prevented. Even later there was an opportunity to contain the spread when cases of COVID-19 infection were reported from within the State. This could have been done by creating containment zones in affected residential areas of cities and towns or villages or even buildings to stop the spread. While the State finally swung into action and was able to mitigate the impact of the virus in the State to a large extent, it could have fared much better if it was well prepared for such calamities and had managed the containment process as the emerging situation demanded.

It is extremely important to provide correct and useful information to the people and build their trust through regular and informative briefings to prevent panic reactions. Alarmist announcements should be avoided at all costs. The consequences of public announcements need to be thoroughly considered and preparations made to deal with emerging scenarios to prevent widespread hardship.

Fake news should be nipped swiftly and ruthlessly, loose talk by any functionary of the government and news leaks requires to be stopped with a strong hand.

One of the many lessons the Covid-19 pandemic has taught is that the home quarantine system should have been implemented sooner and tested when the number of infections were low. Good digital tools are needed to help monitor these patients under home quarantine. Proper assessment of each patient before deciding on institutional or home quarantine becomes very important because not everyone is suited to for home quarantine. Indecision on this aspect caused a lot of distress to a very large number of the people.

The screening and testing facilities at the entry points to the State need to have modern and well managed facilities to minimise hardship to visitors/returning residents. Makeshift and poor facilities leave unsavoury impression in public minds. The staff at the entry point facilities require to be well trained and have necessary soft skills.

The indecision to partner private healthcare sector to together respond to such situations should not be there. Respective roles should be pre-defined and personnel should be trained accordingly to work in tandem in a well-defined system.

Government could redirect non-Covid-19 patients to private facilities so that the public hospitals could focus on treating Covid-19 patients.

10. New Treatment Protocol In Hospitals

Drawing on the experience of tackling the pandemic during last one year, hospitals are pre-screening patients not just for Covid-19 but also other potential infectious diseases. For this, some hospitals have allocated separate infrastructure and personnel within the premises. This helps in providing right treatment and ensuring that other patients in the hospital and the staff are not put to risk of infection.

From creating isolation wards to providing emergency services, making intensive care units available and beds for treatment of Covid-19, the managements of hospitals are learning to deal with the pandemic more efficiently and the whole experience is making them to improve delivery of services.

All hospitals in future will be require to have pre-triaging area to be able to identify any potential infectious patients. The recommended best practice would be to universally screen all patients for any suspected infectious diseases.

Hospitals will have to create dedicated and differentiated pathways for normal patients and those with infectious diseases. Adequate isolation rooms with negative pressure areas will become a norm in most of the modern hospitals.

Adaptation of all patient care areas like operating rooms, diagnostic and radiology services to effectively segregate infectious patients while providing seamless services to other patients will have to be ensured.

The role of infectious disease experts will become pivotal in steering the entire emergency response mechanism, developing treatment protocols and training of nurses and support staff to handle emerging situations.

Video consultations and Out of the Hospital (OOH) care has seen wider acceptability during the Covid-19 lockdown. This trend is expected to show exponential growth, which maybe the opportunity to build a strong telemedicine backbone and take diagnostic and medical services to the remotest corners of the State.

11. Taking Care of The Frontline Workers

The pandemic drove home the realisation that most of us were quickly considered non-essential, while doctors, nurses, paramedics, community health workers, grocery store employees, delivery workers, police and many other essential workers who were doing their jobs to provide direct care to keep others alive, were over-worked, stressed, not well protected and sometimes not even paid in time. This must change and be replaced with policies and systems to ensure that such patchy response, at great human cost, does not happen again. Reserves of healthcare workers as a civil defence cadre need to be developed and trained in each district and kept ready for mobilisation when faced with such calamities. This cadre should be able to take on a large share of physical, non-clinical work that was being also managed by healthcare workers. Police personnel, delivery workers, public utility workers and others on whom we depend during such calamities require to be trained in standard response protocols, to be able to perform their functions while being protected and safe from the effects of such disasters.

12. The Supply Chains Can Snap

Pandemics can happen at any time, and our infrastructure, policies and technologies need to

have built-in resilience with alternative means of supply, when faced with sudden volatility.

The State should encourage the large industrial base in the State to be able to quickly switch over to producing essential equipment and supplies for local consumption in case of disruption/snapping of supply chains.

Companies manage to deal with supply risk by having more than one supplier for a commodity. Similarly, we should identify and keep alive alternate suppliers from within the State and different parts of neighbouring States to minimise disruption of supplies in case shutdowns or transportation restrictions in future.

Supply chains and inventories need to be strengthened. Building and maintaining stockpiles of medicines and supplies to effectively respond to future medical emergencies should be a priority, considering them to be as important, if not more than the strategic petroleum reserves built by countries, so that we do not run out of essentials and resort to panic buying. The stockpiles would need to be refreshed periodically be programmed release of stocks in the market while replenishing them from the market at the same time.

13. Nature Can Rebound

As cities have shut down around the country, we have seen peacocks dancing in Mumbai, leopards and Sambar Deer roaming freely on the streets of Chandigarh, animals reclaiming human spaces and a resurgence of nature in all its forms. Ganga was reported to be the cleanest in a long time.

Over the past 40 years, planet earth has lost 60% of its animal population and half the world's rainforests. The expansion of the human footprint through deforestation, agriculture and urban sprawl has increased the interactions between wildlife and humans, to the detriment of a large percentage of farmers of the State, increasing the risk of such wildlife diseases like coronaviruses in the future.

Rapid improvement in air quality is possible: On March 13th 2020, a team of scientists at a

climate satellite monitoring company, first noted how air pollution had fallen significantly.

Reduced activity during lockdowns has meant over 70% fewer car journeys on the road and 20% less generation from power stations, including 72% lower particulate emissions, and 50% lower carbon monoxide, with declines in other harmful greenhouse gasses such as carbon dioxide, methane and nitrogen. This rapid fall in transportation demand shows that it is possible to rapidly reduce air pollution when the world comes together.

Pollution is linked to human disease and corona viruses: Whilst there are many factors that impact the spread of the coronavirus (i.e., effectiveness of physical distancing, international travel, urban density, age of population), underlying health conditions also play a role as seen by the heightened risks among certain communities.

Nitrogen Dioxide is an air pollutant caused by burning fuels in power stations and vehicles. and has been linked to both inflammation and viral infection (key vectors for COVID-19). Epidemiologists have noted strong associations between Nitrogen Dioxide exposure, morbidity from viral diseases, and virus-exacerbated asthma.

While no one expects that a shutdown way of life will be the new normal and nature will get a chance to rejuvenate herself, but it is expected that we will seek solutions that ensure simultaneous well-being of the economy and ecology. If we continue our high polluting ways post the COVID-19 crisis, human kind is certainly headed for gradual decline and in the worst case even extinction.

14. Adoption of the Recycling Economy Needs To Accelerate

While recycling and reuse is integral to the Indian mindset, there is need to strengthen and foster this culture. The world is talking of Circular Economy as a concept that has gained mainstream traction only since 2015, calling for all materials in

manufacturing to be reused, recycled or biodegradable.

The coronavirus crisis has shone the spotlight on single use Personal Protective Equipment, resulting in sightings of discarded gloves and masks littering public areas, as governments were caught napping on how to manage the exponential increase in waste generated due to the pandemic, threatening to become a second wave of discarded single use plastic waste.

There is a need for new materials – ones that can be reused or more swiftly return to nature as biodegradable, non-toxic products. This also applies to the significant increase in cleaning products in response to the coronavirus, that will no doubt soon end up in waterways and reservoirs of the State.

The State needs to develop a policy response to recycling and put in place strategies and implement them to become a shining light of recycling ethos.

15. Tourism With Lower Carbon Footprint

Dispersed tourism approach, which moves away from vicious cycle made up of concentration of tourists in select locations, resulting in crowding, congestion, pollution, depletion of natural resources and degradation of the environment, finally ending up with tourist apathy and loss of tourists. Concentration of tourism in a few crowded sites in the State also leads to concentration of wealth in the hands of a few entrepreneurs who can afford the sky-rocketing property prices of the crowded tourist centres, while the poor in the surrounding villages and nearby districts are excluded and deprived of its benefits.

General public's mindset after the experience of COVID-19 pandemic is to move away from crowded areas and congestion. People now seek distance, open spaces and nature to keep themselves protected and safe from possibility of infection and ill effects of pollution.

This trend is bolstered by the willingness of employers to allow their workers to work from home, thus removing the leash that kept the

workers bound physically to live in the vicinity of workplaces of the employers.

It is this trend, strong signs of which are visible, that Uttarakhand needs to harness and take the early mover advantage in new avenue through strong policy direction and area specific strategies and plans to promote tourism with a low carbon footprint in the form of home-stays, workstation centres and plug and play facilities for professionals. By recognising this emerging trend and using it to its fullest, Uttarakhand will serve multiple key purposes – of protecting the

environment by decongesting the tourist centres, dispersing the benefits of tourism amongst its rural masses, providing them with alternative livelihood opportunities and attracting long stay tourists who are professionals and whose increasing presence in the State shall help in building a positive cycle with snowballing effect on growth of low carbon footprint tourism in the State, allowing the State to retain its precious natural environment, its biggest asset.



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