Good Governance Practices in a Pandemic

National Centre for Good Governance
(Department of Administrative Reforms & Public Grievances)
Government of India

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Foreword

Pandemics in general are not merely serious public health concern, rather these trigger disastrous socio-economic and political crises in the infected countries. The COVID-19 pandemic is considered as the most crucial global health calamity of the century and the greatest challenge that the humankind faced since the Second World War. It has rapidly spread around the world, posing enormous health, economic and social challenges to the entire human population. The coronavirus outbreak is severely disrupting the global economy. Almost all the nations are struggling to slow down the transmission of the disease by testing and treating patients, quarantining suspected persons through contact tracing, restricting large gatherings, maintaining complete or partial lock down etc and yes urging people to follow safety measures, such as washing hands and wearing masks.

For months, the coronavirus has crawled across the globe. From one person at a time, it has passed through millions, reaching every corner of the earth in less than a year time. And it has not only infected people, but every aspect of our human cultures. Policymakers and the public sector face their biggest test in generations as lives and livelihoods hang in a terrible, delicate balance. It is not just the disease that will have a human toll but the corresponding slowing of the global economy from the pandemic is leading to unemployment and food insecurity. For the first time in over 20 years, we expect that global poverty will rise. This, in turn, may roll back gains in nutrition, education, and preventative health.

To explore the Governance Practices in a Pandemic in India, a virtual seminar was organised by the National Centre for Good Governance on 15th July, 2020. Over 40 Universities including 100 Professors from various department i.e. Department of Public Administration, Centre for Public Policy, School of Humanities and Social Sciences, Department of Political Science, Department of

Geography, Department of Public Policy and Public Administration etc. have participated in this seminar. The participants have shared the challenges faced during the COVID-19 and their experience on how this pandemic has impacted also experiences shared on various sectors such as education, e-governance, ICT, governance practices etc. in different parts of India.

This book is a compendium of key papers presented during this the seminar that highlights the challenges faced during the pandemic in India and various measures taken to address this crisis. Thus, there are sharing on impact of COVID-19 on various sectors, innovations and interventions, administrative responses, State specific experiences, ICT strategies and lessons learned. The authors of these key papers are experienced sector practitioners and policy makers and have great experiences which they have highlighted in their respective papers.

This book provides most up to date and real-life experiences on COVID-19 issues in India and serves as a useful learning materials and toolkit for others, to know what has worked so far and what not to fight against this virus.

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Governance Practices in Pandemic

Global and Indian Perspective

Introduction

It's important to recognize the importance of Leadership roles Public Administrators have played in the COVID-19 pandemic. But before I delve into the subject, I would like to cover the broad spectrum of Civil Services.

As an Institution, the Civil Services particularly the All India Services have always commanded considerable respect from the people of India. Such respect emanates from a perception that decision-making would be neutral and unbiased and would enable the Nation to achieve the objectives outlined in the Preamble of the Constitution. The 21st century has witnessed a significant expansion of the Civil Services processes and responsibilities. Recruitment has become highly competitive, training norms more stringent, performance appraisal timely and constant evaluations have been introduced on the capacity of the civil servant to meet current challenges. There is greater emphasis on performance management practices. Effective management of public resources has necessitated open, transparent and accountable systems of delivery. The regulatory oversight by the Central Vigilance Commission, the Comptroller & Auditor General, the Central Bureau of Investigation has increased. Clearly accountability levels today are far higher than they ever were in the past.

It must be said that the monitoring levels in government have increased significantly. There are Central Prabhari Officers for most of the major centrally sponsored schemes to ensure quality implementation, high quality/ multiple indicator monitoring

dashboards like e-Samiksha, Aspirational Districts Program, constant reviews at highest levels through Pragati meetings and monitoring through Sectoral Groups of Secretaries and Empowered Groups. The Central Secretariat work culture has changed visibly.

In a broader sense, the challenges that civil servants face in the 21st century are no different from those of the 20th century - Commitment to the larger public good against all odds[1]. Further the New Age competency remains anchored in integrity, building credibility and trust in the institution of civil service. Even in a New Age India, these values are foundational and non-negotiable. You can hire skills, but leadership and faith in fairness and impartiality cannot be outsourced.

A New Age India 2022, envisages Civil Servants as agents of change, displaying personal characteristics of high morality, courage, independent decision-making, an intrinsic motivation and an inner desire to excel to contribute to policy making. Civil Servants are expected to be striving for radical reforms and transformational governance. Relentless pursuit of excellence can only be achieved with enormous amount of dedication and seriousness of purpose. There are simply no shortcuts to success. Institutions rise and fall with individuals.

The Global Policy Framework to the Coronavirus Pandemic

The global response to the coronavirus pandemic has seen most countries turn inward, travel bans pervade, there exist export restrictions and the marginalization of global institutions like the World Health Organization with the United States suspending its financial commitments. The weakening of the multilateral institutions of global governance has been a striking feature of the response to the coronavirus pandemic.

Important fora like the G7, G20, and the UNSC have not been very visible in this period. The G7 and G20 met in March 2020 nearly 3 months into the outbreak. China, which holds the presidency of the Security Council, has blocked any resolution about the pandemic. The

1. Dr. Duvvuri Subbarao in his book "Who moved my interest rate?" said that at the end of his tenure he adhered to the RBI dharma.

most promising multilateral initiative has been the US$ 2 billion fund announced by the UN Secretary General to mitigate the effects of the coronavirus on fragile and war torn states. However there has been a more concerted global movement in the recent months.

India has called for a restructuring of the WHO to ensure that its capabilities meet its mandate. The International Health Regulations post the SARS pandemic in 2015-16 had given the WHO the core legal prescriptions governing state conduct with respect to infectious disease. The Global Alliance for Vaccines and Immunization, the World Bank's Pandemic Emergency Financing Facility, and the Africa Centers for Disease Control and Prevention formed part of the 2020 global health infrastructure. With China being slow to report the magnitude of the pandemic, the horrific costs that it has entailed can be seen on the global community. There exist even more horrific costs if multilateral organizations don't rise up to this challenge. In 2008-10 when the United States led the multilateral efforts to coordinate the massive stimulus packages to fight the Global Economic Recession. At this stage multilateral cooperation seems abstract and is a felt need to prevent another global economic meltdown.

India has played a very constructive role in multilateralism in the coronavirus pandemic. India allowed export of HCQ to USA and Brazil, paracetamol/HCQ and other items were provided to over 100 countries. India led the SAARC cooperation to strategize the region's fight against COVID19. India also participated in the G20 and NAM contact group meetings.

The G20, the IMFC and the Development Banks have resolved to support the poorest and most vulnerable countries which do not have substantial market access. The Debt to GDP in Low Income Countries is expected to go up to 50 percent of GDP, 65 percent in Emerging Market Economies and 125 percent in Advanced Economies.

The 42nd IMFC in its communique[2] said that the crisis threatens to leave long lasting scars on the global economy, such as weaker productivity growth, heavier debt burdens, heightened financial vulnerabilities and higher poverty and inequality. To support the recovery the international community will sustain the extraordinary

2. Communique of the 42nd meeting of the IMFC chaired by Mr. Lesetja Kganyago, Governor of the South African Reserve Bank dated October 15, 2020.

and agile policy response, tailored to the different stages of the crisis and country specific circumstances. The IMFC has emphasized the need for international cooperation to accelerate research, development, manufacturing and distribution of COVID-19 diagnostics, therapeutics and vaccines with the aim of supporting equitable and affordable access to all.

The IMFC approved the following major measures

(a) Extension of debt service relief under the Catastrophe Containment Relief Trust (CCRT)
(b) Expansion of the loan resources under the Poverty Reduction and Growth Trust (PRGT)
(c) Extension of the Debt Service Suspension Initiative (DSSI) into 2021. However private creditors have not participated in the DSSI.

The G20[3] in its virtual meeting dated April 15, 2020 has supported a time bound suspension of debt service payments for countries that request forbearance. The G20 agreed on a coordinated approach with a common term sheet providing key features for the debt service suspension initiative. The G20 welcomed the Rapid Credit Facility and the Short Term Liquidity Line. The G20 called on the Financial Stability Board to continue monitoring the financial sector vulnerabilities. Further the G20 supported the IMF's USD 1 trillion lending capacity and the emergency response packages adopted by the World Bank and the Regional Development Banks amounting to USD 200 billion.

The G20 agreed on the principle of a 'common framework for debt treatment beyond DSSI" which has also been agreed to by the Paris Club. A comprehensive debt resolution by coordination of official and private creditors needs enhanced policy coordination across all international organizations at multilateral, regional and country levels.

The chair of G20, the Saudi Minister of Finance Mohammed Al Jadaan has said that 46 countries have benefitted from the DSSI of the 73 eligible countries. An extraordinary meeting of the G20 has

3. Communique, G20 Finance Ministers and Central Bank Governors Meeting April 15, 2020

been convened in November 2020 to update the G20 action plan, and committed to avail all possible policy options and inclusive growth.

The G24[4] appreciated the efforts of the IMF to provide lending to more than 80 countries and the efforts to boost the resources of the Poverty Reduction and Growth Trust (PRGT) and the Catastrophe Containment and Relief Trust (CCRT). The G24 also complemented the World Bank for a lending program of USD 160 billion over a 15 month period along with USD 12 billion initiative to procure vaccines to treat 1 billion people. The G24 said that debt restructuring is essential to ensure debt sustainability and there is a need for timely sovereign debt resolution. Effective debt standstills need to be worked out.

India's Finance Minister Smt. Nirmala Sitaraman has said that the looming debt crisis is a potential threat in the post COVID-19 recovery for low income countries. Debt sustainability should be an important agenda going forward. An area of growing concern is the lack of transparency and debt structures assuming multiple faces. Debt restructuring becomes meaningful only if we know the contours of the debt – who owes what, to whom and on what terms. Hence great effort is needed in ensuring transparency in all forms of debt. The role of international organizations is critical to steer this issue in order to have a more meaningful and pragmatic assessment of a country's distress and to suggest preventive measures for the incipient stages.

The COVID-19 Pandemic - Redefining National Governance

The coronavirus pandemic has redefined India's governance models. Getting to live with the coronavirus has meant less contact governance, officials having to work in masks and gloves and adoption of work from home policies for nearly 66-75 percent workforce. Institutions have become very important in the regulatory governance model with emphasis on cooperative federalism. The contributions of MHA, MOHFW, NDMA, NITI, DARPG, ICMR, Railways, Posts, Air India, AIIMS has become highly visible. There has also been an increased focus on centrally sponsored schemes with

4. Intergovernmental Group of Twenty-Four on International Monetary Affairs and Development October 13, 2020.

enhanced health sector spending under the National Health Mission and job creation under MGNREGS.

There has been a lot of emphasis on digital decision making in the central secretariat. Virtual offices were possible in those Departments where e-Office was implemented. Web-room meetings and new protocols were put in place, as the Central Secretariat shifted to a digital mode, the attached, autonomous and subordinate offices adopted digital practices. Virtual private networks and home working policies have become more streamlined.

The implementation experience has been successful. 75 Ministries adopted e-Office, with 57 Ministries achieving more than 80 percent of work on e-Office. Nearly 17 lac e-files have been created in the central secretariat. The Central Secretariat Manual of Office Procedure, 2019 enabled the digital central secretariat with virtual private network facility being delegated to Deputy Secretary level. Quite clearly many of India's digital infrastructure initiatives have borne fruit in this period as the Nation's administrative systems braced to fight the pandemic. The significant impact of Bharat Net, Megh Raj, e-Sign and Digi locker were seen in this period.

Another feature of the redefined governance has been the emphasis on integrated service portals. The DARPG created a portal for COVID-19 public grievances through which grievance redressal was provided to 1.5 lac citizens. As digital infrastructure became the core utility of every citizen, the focus was on ensuring high speed internet, providing unique digital identity and access to common service centers. E-Services had to be ensured on real time basis and government tried to provide integrated services across departments. The digital empowerment of citizens was most felt in online classrooms, literacy platforms and in participative governance. The benefits of several successful e-governance projects like e-Hospital, PMJDY, Aarogya Setu app, e-NAM, SWAYAM was seen.

There was a lot of emphasis on augmenting health care with production of hand sanitizers, PPE and swadeshi swab sticks to fight against COVID-19. Government created over 800 COVID-19 hospitals and increased COVID testing laboratories. The PM Cares Fund was established as a public charitable trust and moneys were used for augmenting supply of ventilators and vaccine development.

Shramik Expresses were operationalized to move migrant workers and other stranded persons during the lockdown. Government also successfully conducted the NEET and JEE examinations and completed the CSE interviews to ensure that the academic year is not lost for millions of students. A PIB Fact Check was launched to curb the spread of fake news. The Vande Bharat mission helped evacuation of 1.5 lac Indian Citizens stranded in foreign countries to return home safely. Armed forces were pressed into duty and their role was witnessed in Operation Samudra Setu and Lifeline UDAN missions. The Atma Nirbhar Bharat campaign formed the bulwark of the policy response for the economic stimulus focusing on land, labor, liquidity and laws.

The Corona virus Pandemic – Changing the face of State Governments

State Governments stood at the forefront of the battle against the corona virus pandemic. War rooms were created in State Secretariats for massive coordination with field formations. Health, Information Technology and Home Departments played the leadership role with Industries and Food departments handling issues of migrant labor. Several advanced e-Office systems were operationalized in State Secretariats – OSWAS in Odisha, RajKaaj in Rajasthan to name a few. The wifi facilities at village level and video conferencing facilities at Gram Panchayat level extremely useful for coordination.

Let me present 2 case studies.

The Karnataka government acted quickly and aggressively to stop the chain of virus transmission, and engaged with people with clear and simple communication. The State focused on honesty and transparency in reporting early signs of virus outbreak, which represented the key to limiting the spread of the virus. Implementable biological disaster and contingency plans were devised. Decisive decision-making remained an integral component as Government took decisions on stopping international flights from virus-affected countries and legally enforced the lockdown. An effective communication strategy was adopted with concise do's and don'ts to reassure the public. The responsiveness and resilience of health system in the State was tested in this period.

Karnataka moved to address shortages in ventilators, ICU's PPE kits, labs, drug shortages by scaling up of health infrastructure and human resource and health technology. Further a lot of emphasis on capacity building was necessary to upgrade the skills of students and NGO's, first responders, paramedics and doctors for swab collection etc. The State Government leveraged technology effectively – pharma and druggists app to monitor OTC drugs related to fever, KPME app to crowd source suspect cases, monitoring tool for COVID-19 hospitals, readiness indicator – an advisory tool for self assessment of workplace readiness, COVID unified portal as a single source of COVID-19 related information, were used in this period.

Tamil Nadu has India's best health systems with good public health and private health infrastructure and a long-standing procurement agency for drugs, surgical equipment and services. There was no shortage of qualified human resources like doctors, nurses and paramedics. However the challenges emerged in the shortages of RTPCR testing facilities and lack of infrastructure specific to COVID especially oxygen beds and lack of appreciation of people to strictly adopt preventive methods like masks and social distancing. Tamil Nadu witnessed 2 super spreader events – Tablighi meeting and the Koyambedu market, yet the strict implementation of protocols and involvement of local bodies enabled the State to fight back strongly. There was unwavering focus on testing, with RT PCR test being the gold standard and ramping up health infrastructure. The best practices introduced by Tamil Nadu included deployment of rapid response teams in districts, registration of stranded persons and e-pass system with web portals being launched to restrict people's mobility.

District Administration – Resilience, Courage and Conviction

The District Collectors have stood at the front end in the battle against Coronavirus pandemic. There are numerous success stories of resilience, courage, sacrifice and conviction that have emerged from the Districts. In many ways, the young officers who have stood in the frontlines have shown maturity and commitment well beyond their seniority, implementing the strict lockdown, promoting social distancing, ensuring mobilization of village level COVID-19

taskforces and above all ensuring that the rural societies adapt to the new normal.

Let me present 4 success stories.

In Pattanamthitta, Kerala, the containment strategy included trace, isolate, test and treatment. A regular surveillance was operated which consisted of contact tracing – in-depth interview with patients; involvement of field teams for contact tracing, spatio-temporal mapping, cell tower data. Call centers were also functional to monitor the outbreak of COVID-19 by addressing medical and non-medical needs, psychological support and counseling and symptom surveillance. Media surveillance was used for channeling ideas for policy decisions and addressing public needs. Community mobilization was undertaken through involvement of local self-governments were key to handle the pandemic, volunteer involvement and management of quarantine facilities. Additional human resources were recruited from private medical colleges and inter-sectoral convergence was achieved. Community halls and auditoriums were operationalized as COVID first line treatment centres with 5000 additional beds.

In Siricilla, Telangana, district officials were instructed to geo-tag the details of the people who were in home quarantines. The District administration appointed two special officers for every mandal to monitor the coronavirus situation. The District Collector conducted review meetings with the officials of various departments to discuss the COVID –19 situations in the district. Special officers were instructed to record the details of home quarantine persons in a prescribed form along with their present photographs through village secretaries. It was the responsibility of special officers to see that the price escalation did not happen. Also the need to maintain social distancing at vegetable markets and shops were a must for all. Further measures were undertaken to ensure physical patrolling, information flow, logistics, telemedicine and managing expectations. In respect of Migrant labour, 5000 families were surveyed to ensure they were provided work and ensure availability of food to them. Regular counselling was given to migrant labor families. Local measures have also been taken as precaution to this pandemic as use of Umbrellas; community radio; election infrastructure; kala jataras;

public appeals; local manufacturing; sanitation; and prevention – diet and exercise.

In Ranchi, Jharkhand, a taskforce for perimeter surveillance was established along with decentralised health screening. Dedicated COVID hospitals were created and in-house production of masks and sanitizers were ramped up. Food security was taken care of with mega community kitchens through SHGs and collaboration with religious institutions. Mobile ATMs and initiatives like rations kits distribution, milk/vegetables on wheels prevented any kind of scarcity. Robust contact tracing and dedicated emergency response mechanism along with a helpdesk for logistics eased COVID governance. Post lockdown efforts are aimed at public awareness of new normal, reorienting unemployment, addressing food security, access to digital education, increasing focus on co-morbidity management and sharing best practices.

In Cachar, Assam the COVID strategy employed by the district was highly successful in controlling the COVID situation. The strategy involved screening, swab collection, quarantine centers, contact tracing, community targeted surveillance and creation of urban and block level PHC in hub and spoke model coordinated through a district control room. The dedicated COVID hospitals, transparent networking and procuring of equipment along with local manufacturing of masks made a huge difference. Immense work was done by "Pratirodhibondhu and aapdamitras" facilitated by the multipurpose worker training along with dissemination of schemes like "Project Aastha" for psychosocial support which led people cope with the exigencies better. To rope in the good work of the civil society, a whatsapp group by the name GO NGO was created to coordinate the working of all NGOs. Awareness campaigns were organised with important stakeholders and price management of essential commodities were also undertaken.

Districts have utilized e-Governance in a big way – in my interactions with 117 District Collectors of Aspirational Districts on Good Governance Practices in a Pandemic on September 4, 2020, the overwhelming message was that districts have leveraged technology and synergized developmental programs. Most districts adopted multiple surveillance practices – sero-surveillance, digital-

surveillance, thermal screening were widely used. New technology practices included use of IVRS systems, e-Sanjeevani app, Aarogya Setu app and e-Pass. Raichur district in Karnataka had developed 10 new apps. MGNREGS payments were made through online portals. Several districts not only coped with the pandemic but also with challenges like landslides as in the case of Wayanad.

District Collectors showed resilience in ensuring proper cremations in COVID-19 death cases. Young Keerthi Jalli said she attended the cremations to ensure streamlining of procedures at cremation grounds. Several District Collectors ensured that online education even in remote areas – the vidya-varathi app being an outstanding example, distributing library books and mid-day meals through village volunteers. District Collectors ensured students reached home safely, as in the case of Kota, Rajasthan. To help farmers, District Collectors mobilized NRLM's self help groups to identify progressive farmers and provide effective market linkages under e-NAM. Many District Collectors also worked with SHG's to ensure door step delivery of services, some also worked with big businesses like Swiggy and Zomato to supply vegetables.

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Attracting Investments to India during the COVID19 Pandemic

Innovations and Interventions

In the wake of COVID19, as travel restrictions were put in place, it became a challenge to attract investments to India through regular investor outreach events. As such, pursuing activities such as investment roadshows in countries of interest, along with one-on-one meetings with potential investors on the side lines of these outreach events became a challenge, as did continuing regular interface with investors through mutual visits.

At the same time, it was also a challenge for investors to undertake site visits, interact with the State Governments to learn more about their investment policies, incentives offered, and generally get to know the investment eco-system better. Besides, it was no longer possible for Central and State Governments to organise investment summits where investors could be invited to be informed about various Government initiatives, State investment policies, incentives offered and subsequently sign MoUs for investments.

The world of virtual roadshows

The Government response to this challenge for bridging the gap with potential investors was through shifting the investor interface activities and interactions on to digital platforms. A series of webinars were done with countries like Japan, Taiwan, South Korea, Singapore, Philippines, Italy, Germany, US and so on, along with virtual roadshows. The investment facilitation agency of the Government of India, namely Invest India, also organized various Investment Summits, as for instance a widely-attended digital roadshow with Japanese investors, to present an update on India's

investment policies and reforms and thereby send a positive message to potential investors.

A GIS enabled land bank for potential investors

Having made good use of the time during the lockdown starting end-March 2020 onwards, coordination work with State governments was taken up intensively to finalize the framework for a GIS-enabled land bank at the National level. Detailed information on about 3400 industrial parks and Special Economic Zones (SEZs) in the country was already available on the Industrial Information System (IIS) of the Department for Promotion of Industry and Internal Trade (DPIIT); it was decided to onboard the GIS land bank portals of the States on to the IIS platform. This was a humongous task, as it involved integrating disparate information technology platforms of various States to the National portal. The IT support for this ambitious task of establishing the country's first GIS-enabled land bank at National level was provided by MeitY[1] and BiSAG[2].

The IIS mapped 4.76 lakh hectare of land across India, and is now integrated with industry-based GIS systems of 6 states - Goa, Uttar Pradesh, Gujarat, Haryana, Odisha and Telangana. This integration also ensured data was updated on real time basis by the States themselves. Phase 1 of the GIS land bank was launched in August 2020, with the six States, and further integration with another eight States was initiated, to onboard the industrially advanced States of Maharashtra, Karnataka, Tamil Nadu, followed by Andhra Pradesh, Punjab, Jharkhand, and the hilly States of Himachal Pradesh and Uttarakhand by October 2020.

The GIS land bank portal today is a one-stop-shop on information on vacant plots in industrial parks, along with size of land, details on nodal points of connectivity, line of activity of plots in the parks and relevant contact details. Also, heat maps on available raw material, GIS layers on forest and drainage, sectors of parks with allowed level of pollution clearances are available. A mobile app is also ready to be launched by end-October 2020, with the GIS land banks of the

1. Ministry of Electronics and Information Technology (MeitY)
2. Bhaskaracharya Institute for Space Applications and Geoinformatics, facilitates map based Geo Spatial Information Systems and is a State level agency of Government of Gujarat

on boarded 14 States, making it easy for the investors anywhere in the world to look for available plots in industrial parks & refine their search as per state/sector/available land size. The investor can thus view the various industrial plots which are vacant for possible occupation in the various industrial parks of the country. The states are also uploading information of their available Plug and Play facilities on the IIS, making it further investor friendly.

A National level, IT-enabled single window for clearances

At the same time, the Government has started work on the Investment Clearance Cell, which is a budgetary announcement of Union Budget 2020-21. Accordingly, a digital solution is being put in place, which will bring together Central & State level clearances required for setting up business in India on a single digital platform, called the Investment Clearance Cell. This cell will take care of the need for investors to visit multiple platforms in order to get clearances, while making it possible for potential investors to get clearances online, and also tracking the progress of clearances within prescribed timelines.

To take this work ahead, Invest India prepared information packs on clearances required by investors by each Ministry and Department of Government of India, and these were shared with about 43 Ministries/Departments of Government of India to verify and streamline. A technical partner was on boarded to synchronize the existing IT portals of different Ministries/Departments with an over-arching portal of a National Clearance Cell – again, a challenging technical task to integrate disparate technical systems and end up with a common application form that suited the needs of every investor from every conceivable sector. Simultaneously, work started with State Governments, as well, to onboard their single window clearance systems onto the National Investment Clearance Cell and create a truly integrated, genuine single window system facilitating investment clearances at the national level[3].

3. The Investment Clearance Cell is scheduled for completion by April 2021.

An Industrial Park Rating System to guide investment decision-making

DPIIT is also working on the second phase of the Industrial Park Rating System (IPRS) with technical support from the Asian Development Bank (ADB). The IPRS is a subset of the Industrial Information System (IIS) of the Department, which strengthens the scope of the IIS portal with qualitative & inclusive assessment of various parameters of the industrial parks. The parks are being rated under the four main pillars of (i) Internal Infrastructure & Utilities, (ii) External Infrastructure, (iii) Business Support Services, and (iv) Environment & Safety Management. The Special Economic Zones (SEZs) will be ranked, as well, as a separate category from the industrial parks.

IPRS 2.0 will include private industrial parks and tenant feedback for overall assessment for the first time. This rating of the industrial parks will come together with the IT architecture of the GIS land bank, the Investment Clearance Cell, and together be powerful tools for investors located anywhere in the world to make informed choices and decisions[4].

Establishment of Institutional Mechanism to handhold and fast-track Investments

To fast track investments in the country during these challenging times, an institutional mechanism has also been put in place, consisting of the creation of the Empowered Group of Secretaries (EGoS) which has Secretaries of all the important critical Ministries as members, and is chaired by the Cabinet Secretary, the highest civil servant of the country. The mandate of the EGoS is to coordinate investments. At the same time, Project Development Cells (PDCs) have been institutionalized in all the Ministries and Departments that deal with investors. The mandate of each PDC is to hand hold investors, address issues relating to any gaps in policy, systematic issues, clearances which are held up across the Ministries and Departments of Government of India, and State Governments, and even prepare Project Reports to attract investors to specific sectors in

4. The IPRS 2.0 is scheduled for completion by March 2021.

the country. The establishment of the EGoS and the PDCs has gone a long way in creating an institutional mechanism to address the issues of potential investors, interact with them, and facilitate their investments to the country on a fast-track.

At a time, when the global economy is facing economic challenges, it has become imperative to attract investors in the country through upgrading clusters in specific key sectors. The Industrial Cluster Upgradation scheme is being conceived to attract investments in well-established brown field industrial clusters where a certain critical mass of investments is already there, and the eco-system for backward and forward linkages to support the supply chains is already existing.

Further, the COVID-19 pandemic has created a consciousness of India's dependence on import of certain critical products such as Active Pharmaceutical Ingredients (APIs), Medical Devices and other components for feeding the product supply chain. The Government announced a range of measures to make India self-reliant – *'Aatma Nirbhar'*, and to provide a thriving environment for industrial units to boost manufacturing in India. The *AatmaNirbhar* financial package of INR 20.97 lakh crore was announced in May 2020, along with reforms in a number of sectors to fast-track investments, and to address the problem faced due to the low level of investments in the wake of challenges posed by the COVID-19 pandemic.

In addition, it was announced that there will be a ranking of the states on investment attractiveness to compete for new investments. This would enable the states to compete with each other. *AatmaNirbhar* Bharat initiative aims aims for a 'vocal for local' approach to manufacturing, and would lead to promotion of new Champion Sectors, such as PV manufacturing, advanced cell battery storage, electronics, textiles, leather, food processing, fisheries, auto components, steel, ceramics, medical devices, sporting goods, and so on.

Simultaneously, to tap the true economic potential of rural India and to make India *'AatmaNirbhar'*, Ministry of Commerce and Industry is in process of putting in place an institutional mechanism to propagate One-District-One-Product (ODOP) as a movement in the country with the help of all the State governments and Union

Territories. The objective of One-District-One-Product movement is to identify one product, per district, based on the potential and strength of a district, India's national priorities, and to develop a cluster for that product in the respective district to facilitate the production of world-class products with quality, scalability and a brand.

Facilitation for Business Continuity & Grievance Redressal

A Control Room was established in DPIIT during the pandemic-related lockdown, to monitor issues related to manufacturing of essential commodities and food products, including facilitating issues related to movement of raw-materials, labour and logistics related to such manufacturing activity. At the same time, the control room also monitored the movement of essential commodities to the retail outlets in various states of the country, including related logistical aspects for effective distribution of these essential commodities. This mechanism played a key role in resolving field level difficulties by facilitating inter-Ministerial as well as inter-State coordination on logistical matter.

During the pandemic, Invest India established a 'Business Immunity Platform' (BIP), which is a comprehensive tool to help businesses and investors get real time information on areas of concern in relation to the pandemic. As a dynamic platform, the BIP regularly updated developments with respect to reforms related to COVID-19, while providing latest information on Government's initiatives, reforms and interventions. It also served as a 24/7 grievance redressal tool for issues faced by business people and potential investors.

To support the businesses, Invest India also undertook the following initiatives: -

- Organizing State and Sector specific webinars to attract International stakeholders and hold discussions with key industry players.
- Operationalize a stakeholder outreach team to bridge global and domestic stakeholders and reach out to foreign mission.

- Setup specialized internal teams to hand hold with logistics issues, business restructuring issues, investor related issues, etc.

During the pandemic, the national industry associations such as, Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce & Industry (FICCI) amongst others, undertook investment promotion activities on digital platforms. The main events conducted by CII for instance during this time includes events such as 'India and the World' Series of Business-to-Government (B2G) engagements with Indian Missions in G20 countries, Digital Bilateral Economic and Trade sessions, such as India-Singapore Townhall series, Annual CEOs Mission with UK for Economic Partnership, India-Africa Project Partnership and other events.

Lessons Learnt and Way Forward

One of the most critical lessons learnt from the Pandemic was the importance of digitalization. It was amply clear that the companies which digitalized their operations were able to reduce the impact of COVID-19 on their business. As such, many large companies have fast-forwarded digitalizing their operations post COVID19.

During the lockdown, the country witnessed the phenomenon of reverse migration of workers from urban geographies to their native rural areas. This has presented an opportunity for the Government to work on creating an ecosystem closer to their homes through attracting industries to set up their operations near semi/peri-urban rural areas.

As widely recognized, some of the other major lessons learnt and way forward are listed below:-

- Create and scale the country's domestic capacity to indigenize the entire value chain for making finished products within India and become a global supplier of the same in the world market
- Create/Improve and scale county's logistics capabilities to ensure the supply of essential items in minimal time at the time of the emergency period as well as during normal times

- Review India's dependence on Global Value Chain (GVC) for critical components, essential equipment, tools, and machinery
- Undertake appropriate measures to revive the domestic manufacturing-related activities to meet the domestic demand and create the capacity for global demand
- Build strong industry-academia linkages to foster globally competitive research in new areas to give India a technological edge
- Create a pool of skilled human resources to cater to the demands of the specialized sectors along with meeting the needs of the dynamically transforming industrial ecosystem
- Identify & leverage new export opportunities
- Improve quality and technical certification procedures
- Tap global opportunities (in partnership with Overseas Missions and Export Promotion Councils)
- Embed 'Digitized Workplace Technologies'; upgrade digital infrastructure in respective departments and ensure network security to support remote working
- Develop/subscribe to effective digital tools for virtual workplace

COVID 19 has created serious disruptions in the global economy, and ripples are being felt in India as well. However, there is also the opportunity to expedite the digitization of industrial operations as well as to adapt to the latest industrial trends. At the same time, it has also made the country recognize the need to be more resilient to cope with the challenges of a 'New World' order emerging out of the COVID19 pandemic. Through consistent efforts, we will be able to achieve sustainable growth and development, and adapt to the new reality of a changed global business order.

3

INDERJEET SINGH SODHI

Crisis Management for Covid-19 Pandemic in India

Administrative Response

Abstract

The COVID-19 has posed health, social and economic challenges to almost every country in the world. India, second most populated countries in the world, is struggling to provide basic healthcare facilities and essential services to its people. Policy and strategic efforts for crisis management have been initiated by the central, state and local governments. Government has announced several packages to help the poor, labourers, women and old persons in this pandemic situation. The Prime Minister of India has shown crisis leadership by establishing task forces, constituting ministerial committees at macro and micro level for big and small states, launching Aarogya Setu mobile app, and making direct contacts with the key personnel who are working on COVID-19 management. The way the Indian inter-organizational emergency system, despite of second largest population, uncleanliness, lacking infrastructure and poverty, has managed and controlled the COVID-19 holds the lessons for the coronavirus affected countries.

Keywords: Covid-19, Coronavirus, Crisis Management, Pandemic, India, Issues, Administrative Response

Introduction

The COVID-19, a global pandemic, has posed health, social and economic challenges to almost every country in the world. India, second most populated countries in the world, is struggling to provide basic healthcare facilities and essential services to its people.

The Government of India is doing its best in responding to the crisis, as it has earlier managed and controlled many disasters both natural and man-made, whether be it earthquake, tsunami, landslide, drought, flood, etc.

As second highest populated countries in the world, India has taken a number of initiatives to manage and control the spread of coronavirus among its citizens. Health security of the citizens is a major challenge before the government. Policy and strategic efforts for crisis management have been initiated by the central, state and local governments in India. Government has announced several packages to help the poor, labourers, women, physical handicapped, destitute and old persons in this pandemic situation.

Staring mid of March, 2020, but more purposefully from 25 March 2020 onwards, India has been mounting a major effort to raise awareness and persuade people to be socially responsible and physically distance themselves. The government's disaster management capacity is being utilised, with in tandem by the central government agencies/bodies/organizations with the state governments and local bodies. The Home Ministry, Health Ministry, Defence Ministry and other concerned ministries and departments as well as various institutes and organizations like National Institute of Disaster Management, Indian Council of Medical Research are playing their role efficiently and effectively to manage the COVID-19 emergency response.

In context of morbidity and mortality due to COVID-19, India is placed at best at the world level. India handled the COVID-19 very maturely—with speed, scale and determination pre-emptively, proactively and in a graded manner. From time to time, central government in coordination with States/ Union Territories is reviewing its health and medical facilities: testing, treatment and isolation—in context of the geographical, social, economic and cultural aspects at the national and international level.

Government ministries and departments as well as public agencies/bodies have emphasised on physical distancing as one of the important strategy to combat with coronavirus[1]. Strategies and

1. Harsh Vardhan, Indian Express, May 2 , 2020 https://indianexpress.com/article/india/covid-19-coronavirus-india-lockdown-harsh-vardhan-interview-6389693/

measures including lockdown helped in the management and control of its wider spread and impact. India strengthened its machineries and made attempts for scrutinising, isolating and safeguarding the people.

Status of COVID-19 in India

The World Health Organization, on the basis of speed and scale of coronavirus as well as the experiences, pronounced COVID-19 as the "defining global health crisis of our time". The COVID-19, initially started in China, has spread to more than 200 countries in the world. On 19th November, 2020, according to World Health Organization (WHO), there were 55,659, 785 confirmed cases of COVID-19 including 1,33,769 deaths at the global level[2]. In India, upto 19th November, 2020, the active cases were 443303 (4.95%), discharge affected persons were 8383602 (93.58%), whereas deaths were only 131578 (1.47%) which is very low at the global level[3].

Classification of the districts as Red, Orange and Green Zones

Policy initiatives and strategies are aimed at preventing and controlling coronavirus pandemic and reducing its impact on the health and well-being of the people as well as on the economy of the country. To facilitate the policy initiatives and identifying the response levels, all the 733 districts of the country have been divided into three zones—red zone, orange zone and green zone. The classification is based on factors: number of affected COVID persons; doubling rate of COVID; availability of test, screening and surveillance. Red Zones have more COVID cases and a high doubling rate; Orange Zones have relatively less cases and Green Zones have no cases in the last 21 days.

Red zones: Cycle and auto rickshaws, taxis and cabs, public transport, barber shops, spas, and salons will remain shut. Offices could be opened with a third of the staff. E-commerce may be permitted for essential products.

2. https://covid19.who.int/, retrieved on 19th November, 2020.
3. https://www.mohfw.gov.in/, retrieved on 20th November, 2020.

Orange zones: Four wheelers, including taxis, with one driver and two passengers may be allowed. Buses will not be allowed. Liquor shops may be given permission to sell and e-commerce may be permitted for both essential and non-essential commodities.

Green zones: All activities except those prohibited nationwide have been allowed. Buses could be driven at 50 per cent of total numbers.

On May 1, 2020, there were 130 red zone districts (reduced from 170 districts in just two weeks), 284 orange districts (increased from earlier 207) and 319 green zone districts (from the earlier 353, implying that some districts where there were no cases earlier might have reported cases).

The restrictions have been imposed on the movement of people and supply of commodities from one place to another determined on the classification of zones. The zones are not fixed and are regularly updated every week on the bases of classification factors. The Red, Orange or Green Zone classification of a district will determine what kinds of activities are permitted there. Containment areas within Red and Orange Zones will have additional restrictions. A few activities have not been allowed nation-wide without looking into the classification.

Every state government and Union Territory is free to determine for the classification or reclassification of any district as red, orange or green zone based on the factors, but not allowed for lowering the zone classification for the district. Certain activities have not been allowed at the national level, mainly air, train and metro as well as inter and intra state bus services for the common persons, allowed only for emergency cases including health issues. Government has issued the orders for closures of educational institutions including schools, colleges and universities. Social, cultural and religious activities are not allowed.

District bodies have been allowed for the identification of clusters as containment zones where a number of restrictions have to be imposed for the safety of people. These clusters could be housing colonies or townships or wards in an urbanized area; and blocks or villages in a rural area.

Policy Initiatives for Inter-organizational Emergency Management in India

A few research studies has focused on inter-organizational emergency management (Andrew and Carr 2013; Choi and Brower 2006; Guo and Kapucu 2015; Kapucu 2006; Kapucu and Hu 2016; Waugh 2003; Waugh and Streib 2006) during disaster, whereas some studies have looked into the relations (Hu, Knox, and Kapucu 2014) during the disaster. The Government of India has given emphasis on inter-organizational emergency management by involving every agency and stakeholders. There are a number of committees, task forces and working groups established from the central/national level to the state to the local level with multi-sectoral involvement of ministries, departments, international/national organizations and institutes including health and research institutes as well as labs both public and private.

"Forging direct ties with other emergency management organizations drives the stronger structural benefits of a clustered structure, highlighting associated benefits such as technical resource sharing and the coordination of consensus-based joint activities" (Jung, Song and Park, 2019). The NGOs and civil society organizations are contributing a lot by engaging them in awareness campaign and providing essential services including free food. The government is making provisions for free food to the poor and labourers until the situation gets better.

Major Initiatives and Response for Crisis Management

Covid-19 is like a disaster. Any disaster shows that there persist grave challenges to the government coordination and that crisis generates chain of challenges for the government agencies/ bodies (Carayannopoulos, 2017). A number of studies has been conducted on crisis management (Boin et al. 2005; Boin and Paul 't Hart 2003; Comfort, 2007; Comfort et.al., 2012; Moynihan, 2008) which gives emphasis on managing and controlling the crisis in planned way. Crisis management is a continuous, systematic, well-ordered and methodical procedure that ascertains "an organization's vulnerabilities to a wide range of issues and challenges to prevent crises from occurring" (Brown and Lampen, 2012).

Some crisis like COVID-19 is difficult to manage by any government. There is basic difficulty of learning under crisis conditions (Moynihan, 2008). Government structure and its legality have impact on the crisis management (Christensen, Laegrei and Rykkja, 2016) of any country. Crisis management has to be adaptive, collaborative and citizen engaging (Farazmand, 2007). Intergovernmental crisis management (Comfort, 2007) is important in context of crisis like Covid1-19 in every country. The crisis events like Covid-19 have changed the perspectives of the government for planning, preparing and responding to an issue. Question arises what steps have been taken for crisis management in India.

India has observed four lockdowns: first phase[4] announced on the night of 24th March, 2020, was from 24th March to 14th April, 2020, second phase[5] from 15th April to 3rd May, 2020 and the third phase[6], announced on 2nd May, 2020, started from 4th May, 2020 to 17th May, 2020 and the last fourth lockdown from 18th May to 31st May, 2020. The continuous lockdown has helped in controlling the spread of coronavirus and limiting the number of COVID-19 affected people in India.

The Government of India, from time to time, has taken a number of initiatives for the control of coronavirus. Important initiatives are:

1. Guidelines for Lockdown
2. Establishment of Task Force
3. Macro and Micro
4. Appointing Ministers for the states at macro and micro level
5. Ministerial Committee
6. Aarogya setu mobile app

Main Task Forces to tackle COVID-19 established in India are: (i) National level Task Force under the chairpersonship of Prime

4. https://www.pmindia.gov.in/en/news_updates/pms-address-to-the-nation-on-vital-aspects-relating-to-the-menace-of-covid-19/?tag_term=pmspeech&comment=disable

5. https://static.mygov.in/rest/s3fs-public/mygov_158694130451307401.pdf and Press Information Bureau, Ministry of Home Affairs, Government of India. https://pib.gov.in/PressReleasePage.aspx?PRID=1614481 and http://164.100.117.97/WriteReadData/userfiles/MHA%20Order%20Dt.%2014.4.2020%20for%20extending%20the%20Lockdown%20Period%20till%203.5.2020.pdf

6. https://static.mygov.in/rest/s3fs-public/mygov_15883406691.pdf

Minister (ii) Economic Response Task Force under the Finance Minister and (iii) Task Force to research on coronavirus.

On 29th March, 2020, a task force was established under the chairmanship of Shri Narendra Modi ji, Prime Minister of India[7] which look into the commanding, controlling and executing the COVID-19 related issues. This task force consists of key civil servants and administrators who are active and sharp-minded and already proved their ability during a number of disaster situation. This task force is performing multi-dimensional activities related to COVID-19 crisis.

It collates information from the two important groups set up by the government—one of ministers and another of secretaries, the Prime Minister has taken appropriate decisions based on the factual data and experiences. It has been realised that most instructions come from the PM. His acquaintance and familiarity with technical issues is remarkable.

India has formed a high level task force to research on coronavirus which is developing vaccine for the corona treatment. The task force will also coordinate with international community on vaccine development process for coronavirus. The task force is being co-chaired by Member, NITI Aayog, and Principal Scientific Adviser to the Government of India. AYUSH, ICMR, Department of Science and Technology (DST), Department of Biotechnology (DBT), CSIR, DRDO, DG-Health Services, and Drug Controller General of India are also members of the task force. Department of Biotechnology (DBT) are the central coordinating authority of the task force; its main task is to establish a system for COVID-19 vaccine development. This task force has Department of Biotechnology (DBT) as central coordinating authority.

The task force is making a list of national and international organizations working on vaccine development. DBT is regularly monitoring the progress of research works and also facilitating the process. About 70 clinical trials are taking place over the world to find a vaccine for coronavirus. At least five have entered the human trial stage. Indian companies, including the Serum Institute, Zydus

7. https://www.indiatoday.in/india-today-insight/story/inside-pm-modi-s-covid-19-task-force-1665239-2020-04-09

Cadila, Bharat Biotech and Biological E are also working on the vaccine, they are in final stage. The task force is trying to create clinical cohorts focusing on long term follow-up of people for better understanding of the disease. There was proposal to collect bio-specimens which will form the basis for further trials of drugs and vaccines. This will be different from sample testing protocols.

For the macro level, the Government of India has assigned some Union Ministers as guardian ministers of definite states for reporting on the steps taken for COVID-19, whereas for the micro level, some ministers have been given responsibility to look into other small states which consists of fifteen ministers who have been assigned duty of specific coronavirus related districts. The assignment of districts to the concerned ministers is based on a number of factors including acquaintance with the area as well as the ability and capacity of the ministers.

The ministerial committee performs in relationship with secretary level committee to oversee the steps taken for management of coronavirus pandemic. Every day a brief consolidated report having data and information on COVID-19 is presented by the ministerial committee to the Prime Minister so that he could take appropriate decision and action.

Prime Minister of India has set up a COVID-19 Economic Response Task Force chaired by Mrs. Nirmala Sitharaman as Finance Minister of India, which is exploring the economic opportunities which could be created to tackle the challenges of economic recession. This task force has interacted and discussed with bankers, financers, industrialists and business persons so that strategy could be charted out to improve the economy. It is expected that this economic task force may suggest for economic packages for the dwindling economic sectors particularly the small and medium enterprises and smaller businessman as well as to the informal sectors. Even, this task force is looking into how to solve the issue of non-Performing Asset (NPA), extension of tax remittance and liquidation. A plan is on the anvil how to support the persons who are engaged in the unorganized sectors.

India's Aarogya Setu Mobile App[8], launched on 2nd April, 2020, being promoted aggressively by the government, is an important intervention in the battle against coronavirus. It does track coronavirus positive patients and alerts you if you are close to one- the information which may help in the identification of the people so that restrictions could be imposed at the right time by isolation, stigmatization or quarantine.

India has initiated an integrated response to overcome unprecedented corona pandemic. Indian research & development (R& D) institutes, both public and private institutes, from the development of indigenous vaccines, novel point of care diagnostics and therapeutic formulations based on traditional knowledge, to establishing research resources and offering services, are working relentlessly to develop effective interventions for combating the corona. Initially, the Indian Council of Medical Research (ICMR) selected 12 institutes for clinical trials of Covid-19 vaccine.

Indian pharma firm Biological E (BE) has initiated a Phase I/ II clinical trial to evaluate the safety and immunogenicity of its Covid-19 subunit vaccine candidate. The move comes after the company obtained approval from the Drugs Controller General of India (DGCI). India is hosting clinical trials for all the major vaccines, and about two vaccines are in advanced stage of development. COVAXIN developed through ICMR-Bharat Biotech Collaboration and COVISHIELD from the Serum Institute of India are in phase 3rd clinical stage. It is expected that soon vaccines may be made available for the COVID-19.

Conclusion

Research studies have shown that crisis leadership (Blyth, 2012) leads to appropriate decision making and effective policy initiatives which may bring more confidence among the citizens of the nation. The Prime Minister of India has shown crisis leadership by establishing task forces, constituting ministerial committees and making direct contacts with the key personnel who are working on COVID-19 management. Given this situation, the task force has to

8. https://dopt.gov.in/sites/default/files/covid.PDF

take some drastic measures. Economists and industry experts have been looking for some economic package from the government to come out of the slump, especially since other affected countries have recently announced stimulus packages. They suggest that central government should take steps on both monetary and fiscal fronts, as well as work in co-ordination with the states to tide over the situation. Some of the proposed drastic measures include rate cuts and relaxation in NPA norms for sectors impacted by the coronavirus outbreak.

The central, state and local governments have made sincere efforts and launched effective measures to tackle the menace of coronavirus pandemic. For empowering the citizens, the ministries, departments and government agencies/bodies as well as the NGOs, civil society organizations and private sectors are creating awareness campaigns and providing information through internet and social media for the COVID-19. Even the Aarogya setu mobile app has been an innovative step for identifying and controlling the coronavirus. The crisis management approach for the COVID-19 under the able leadership of Prime Minister has been successful in India.

The way the Indian inter-organizational emergency system, despite of second largest population, uncleanliness, lacking infrastructure and poverty, has managed and controlled the COVID-19 holds the lessons for the coronavirus affected countries. It shows how the approach of crisis management has been implemented in India. Government has to consider for paying attention to overcoming deficiencies through political and administrative action. There is need to give priority to the economic growth and development along with physical and mental health of the people. A balanced crisis management and inter-organizational emergency management as policy initiatives may help in proper management and control of COVID-19 in India.

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4

HITASHI LOMASH

Implementation of the ICT Strategy and Challenges during COVID

Overview of COVID-19 in India

The leadership of the state, according to Boin et al. 2005, has to deal with decision making, public information, sense-making, accountability, learning and reforms during the unprecedented times like COVID 19 that we are facing in the current scenario. The state cannot confront the challenge of new times without the collaboration and interdependence of

1. public policies (old and the emergency policies to deal with the crisis),
2. the interactions of individuals, groups, coalitions and networks, and
3. contextual contexts (Weibel et. al, 2020).

At such a critical time, ICT became a thread to connect and weave the hope to deal with the challenging times. Therefore it is of utmost importance to understand how ICT has helped in response to the situation and ICT related issues that can be addressed for effective governance in future. Gautam Chikarmane (2020) an Indian economic expert, in his analysis of the handling of the COVID situation, discussed that India had adopted strategies covering areas from physical (Lockdown), fiscal (Relief package), to monetary (Reserve Bank of India), executive (in Union and the States), legislature and judiciary, state and non-state actors (Companies, manufacturers, Distributors, Banks, Not for profit Organizations, Media, Think tanks). It was with the help of ICT that players at a different level were able to manage the situation. The interdependence of different individuals, groups in the country of more than 135 billion people

itself shows how India attempted to collaborate at every level and worked as a national unit. The conclusive statement of Chikarmane (2020) also reiterated the fact that whether passively (work from home in different sectors, Education sector) or as a forefront runner (like health professionals, government officers), India and Indians, institutions, and Individuals worked together like never before and emphasized that "we need to study and think about how this unity can be leveraged to deliver deeper governance, a better citizenry and higher economic growth".

Though India has endeavored to deal with the pandemic effectively, but the crisis is not over yet. The impact of a long pandemic on Socio economic factors, health, agriculture, would be far reaching than imagined. It is necessary at this juncture to have a critical look at how ICT was used and can be utilized for the recovery of the economy. Therefore the objectives of this paper are to

a) analyze the how the states used technology in managing crisis during COVID.
b) understand what were the hindrances and challenges of applying ICT in managing the COVID situation.
c) suggest some policy measure that can help in managing pandemics in future.

With the above mentioned objectives to understand the role of ICT public administrators in the states, this paper would be focusing on the following dimensions of the implications of implementing ICT during COVID-19.

1. Positive Outcomes of the technology led crisis management
2. Hindrances and challenges:
3. Future policy related questions.

1. Positive Outcomes of the technology led crisis management

ICT came to the forein fighting the COVID-19 situation in India. Due to the physical lock down of the country, this crisis had accelerated the process of digitization of many services and businesses including health care services, education, online delivery of goods and services, online payments, and work from home keeping

our societies functional. This pandemic has compelled everyone to take a digital approach to be an employee, friend, or family member.

The latest ICT tools offered a plethora of solutions to every aspect of the response to the pandemic, particularly identification, isolation, contact tracing, and treatment. Mobile and web technology was helpful for spreading awareness about COVID-19, facilitating contact tracing, notifying individuals who had come in close proximity to suspected carriers, tracking COVID-19 suspects in quarantine, real time tracking of crowds, remote monitoring of COVID-19 patients and much more. Drones were being used for enforcing strict quarantine and social distancing and for disinfection purposes. Robots were used in treating COVID-19 patients and sanitizing COVID-19 wards. Telemedicine is providing solutions for e-health checkups. Big data and Artificial Intelligence is being used for Research and Development (R&D) purposes.

To assess the Covid situation, various national, international agencies, think tanks, NGOs have collaborated with the government and were working to evaluate continuous evolution of the COVID-19 readiness and response of states of India (Microsave report 2020). According to the Microsave report, emerging technologies used by the state governments are:

a) Open-source architecture (used to develop, test, contact tracing, telemedicine)
b) Geo tagging and GIS (used for information on containment zones, hotspots, location of patients
c) Analytics and artificial intelligence (chatbot used to answer queries on COVID-19 in multiple languages)
d) Tele-ICU (remote monitoring of patients through audio visual tools)

Geospatial has listed top government apps that are Aarogya Setu, COVID 19 Feedback, MyGov, SAHYOG, COVID-19 Quarantine Monitor — Tamil Nadu, COVA Punjab, Test Yourself Goa in handling Covid effectively (Geospatial 2020). Below is the tabulated data on the applications used by all the state governments along with the category for which it is used, purpose and how many users have downloaded the apps.

Table No. 4.1

Shows state-wise information of the application, category (informative, tracking, etc.) under which it falls, purpose and the number of downloads (adapted from Microsave report 2020)

State	*Application Name*	*Category*	*Purpose*	*Downloads*
Andhra Pradesh	COVID-19 Andhra Pradesh	Informative	Provides information about the status of the district, mandal, or village as well as dos and don'ts, announcements and media bulletins	100k+
Assam	COVAAS	Informative	Brings together all initiatives of the state under a single platform. Provides information on donations, e-pass	10k+
			volunteer, emergency support	
Bihar	No info available	N/A	N/A	N/A
Delhi	Delhi Corona	Informative	Provides information on donations, lockdown services, such as ration, shelter, e-pass, etc.	100k+
Gujarat	SMC COVID-19 tracker	Monitoring/ Tracing	Primarily used to track quarantined individuals. launched by the Surat Municipal Corporation and later adopted by the entire state.	100k+
Haryana	Jan Sahayak – Help Me App	Informative	Provides services, such as telemedicine, movement passes, assistance in procurement, delivery of dry ration and cooked food, education etc.	10k+
Jammu & Kashmir	No info available	N/A	N/A	N/A
Karnataka	Corona Watch (CW) Quarantine Watch (QW)	Informative, Tracking/ Monitoring	Provides information on the nearest hospitals, sample collection centers and testing labs, and locations of the cases. Self-reporting by individuals quarantined at home and their families (Quarantine Watch)	100k+ (CW) 50k+ (QW)

Kerala	GoK Direct	Informative	General awareness, quarantine protocols, advice to citizens and NRIs	100k+
Maharashtra	Mahakavach	Tracing/ Monitoring	citizens contribute and assist in tracing contacts with the potential risk of COVID-19	50k+
Odisha	Odisha COVID Dashboard (OCD) COVID-19 Odisha (CO)	Informative, Monitoring/ Tracing	general information, e-pass application, and self-assessment (Odisha COVID-19 Dashboard) Enables quarantine registration and quarantine reporting (COVID-19 Odisha)	50k+ (OCD) 10k+ (CO)
Punjab	COVA	Informative	preventive care, travel instructions, self screening, general awareness, nearby hospitals and the helpline etc.	1m+
Rajasthan	RajCovidInfo	Tracing/ Monitoring	COVID-19 guidelines and health advisory, location-based push alerts, list of hospitals, dos and don'ts, helpline etc.	100k+
Tamil Nadu	COVID-19	Informative	real time COVID-19 outbreak info,	100k+
	Care Tamil Nadu		statewide and district-wise spread, emergency contacts, containment zones etc.	
Telangana	T COVID'19	Informative	information on government and private hospitals with isolation wards, labs, telemedicine, helpline, Annapurna food location, essential services, announcements, etc.	50k+
West Bengal	COVID-19 West Bengal	Monitoring/ Tracing	Monitors individuals in home isolation and quarantine	100k+
Uttar Pradesh	Ayush Kavach – COVID	Informative	updates for a healthy lifestyle and measures to boost immunity, based on locally and easily available home remedies etc.	1m+

Besides the use of ICT in dealing with the crisis, States used ICT for providing essential services, helping in the recovery of economy by providing economic assistance to low income and small scale entrepreneurs and assisting poor families. Let us have a brief look at the usage of ICT in these interventions. The research report, which spanned over four phases, classified four major criteria for the assessment of readiness of the State governments following the criteria:

a) *Robustness of the essentials* (In phase I of the research, the focus was on the ease of access to utilities, essential items, financial services)
b) *Vulnerability assistance* (Support for migrant workers, homeless, and the destitute, disabled, elderly, children, women, and trans people)
c) *Health readiness* (Medical infrastructure Testing strategy COVID-19 management Government initiatives and IEC)
d) *Industry and livelihood support* (National and state focus to revive the economy)

The research claims that most Indian states (research data collected from 17 states and 1 UT) focused their efforts to balance economic recovery with health readiness and provide support to the vulnerable. The report also mentions that more than 90% of beneficiaries under the Public Distribution System (PDS) received ration either through their regular entitlement or both regular and PMGKY entitlement or only PMGKY entitlement. In an attempt to balance the pandemic and keeping the society functioning, listed below are the state government initiatives that have made an impact. The table classifies the areas, the states which have taken the initiatives and the action taken.

Table No. 4.2

Displays the areas of intervention, and the actions taken by the state governments of India (Microsave report 2020)

Areas	*States*	*Action*
Essentials		
a) Combining safety and accessibility	Gujarat, Kerala	- digital payments is for all home deliveries. - Kerala State Electricity Board (KSEB) used a consumer-number-based timetable to avoid over- crowding
b)Tariff rebates for weaker sections	Punjab, Gujarat	- tariff rebate from 1st June, 2020 to 31st March, 2021.
c)Innovative home delivery models	Odisha, Andhra Pradesh, Bihar	- "Mission Shakti" in Odisha operated dry ration and vegetable shops and mobile vans - Government of Andhra Pradesh home delivered essentials with Zomato - Bihar has launched a mobile app for home delivery offish
d)Easy access to ration for the excluded	Kerala	Kerala has started a facility of "e-ration cards" that can be issued by Akshaya centers
Financial services		
a)Financial services in remote areas	Uttar Pradesh, Odisha	- India Post and local administrations in UP organize camps to disburse cash through the Aadhaar-enabled payment system (AePS) - Odisha–Kendrapada district facilitated mobile ATM operated by the HDFC Bank to provide cash withdrawal services in rural areas.
b) Easy movement of migrant workers	Uttar Pradesh, AP	- "Jan Sunvayi" portal for better allocation and distribution of tickets for migrants entering and leaving the state.

Assistance to the poor and vulnerable: Key lessons and good practices from states		
a) Reforms in the agriculture sector	HR, UP, Rajasthan, Kerala	- Haryana launched a "distress ration token" facility to provide ration to poor households that do not have ration cards. - Uttar Pradesh issued ration cards to migrant workers. - Kerala started a facility of "e- ration cards" that can be issued by Akshaya centers (CSCs).
b) Targeted cash transfers	AP, Karnataka, TN, Assam	- AP and Karnataka are providing cash assistance of INR 10,000 and 5,000, respectively, to barbers, washermen, and auto and taxi drivers. - TN paid relief assistance of INR 1000-2000 to hairdressers, weavers, platform vendors, cine- workers, and ration-card-holders. - Assam paid INR 25,000 (one time) to critical patients of Assam and are stranded in other states.
c)Proactive support to women	TN, Telangana, J&K	- TN and Telangana allocated dedicated vehicles and ambulances for the transportation of pregnant women. - J and K provides 24X7 helpline to pregnant women.
d)Caring for the elderly & chronic patients	Kerala, Rajasthan, Telangana	- Kerala's "Prasanthi" program, the elderly who live alone can call and request for essential medicines, food, treatment and counseling. - Rajasthan – the availability of prescription-based
		Medicines to senior citizens and chronic patients until July 31, 2020. - Telangana – has added 17 more palliative health and home care vehicles to provide door-step services to immobile patients in 16 more districts.
e) Helping hand to disabled & destitute	Tamil Nadu, Uttar Pradesh	- TN–is distributing transparent facemasks for people with hearing impairments. - UP –is providing cash assistance of INR 1000 to the destitute and arranging for their treatment.

f) Being sensitive to children's needs	Delhi, Tamil Nadu, Odisha	- Delhi – provided milk packets, nutritious biscuits, and food supplements to children. - TN – distributed rehabilitation kits and special nutrition kits to children with autism - Odisha - "Bharosa" helpline helps students cope with stress amid COVID-19.
g)Recognizing the transgender	J&K, Tamil Nadu, Karnataka	- J and K – included transgenders in the Integrated Social Security Scheme. - - TN – is providing essential commodities to transgender citizens who do not possess the family card. - Karnataka – under the Mythri Yojana, provides cash assistance of INR 600 per month to transwomen above the age of 25.
Economic recovery: Key lessons and good practices from states		
a) Comprehensive packages for MSMEs	Kerala, Andhra Pradesh	- Kerala – a special package "Vyasasaya Bhadratha" worth an INR 3,434 crore (INR 34.34 billion) for MSMEs. - AP–came up with an INR1,110 crore (INR11.10billion) "ReSTART" policy to provide support to MSMEs.
b) Attracting foreign investments	TN, Maharashtra, UP	- TN –signed MoUs with 17 foreign companies with investments worth INR 15,128 crore (INR 151.28 billion) to manufacture heavy vehicles, electronics, footwear, energy, medical equipment, etc. - Maharashtra – signed MoUs with 12 Indian and foreign firms with investments worth INR 16,000 crore (INR 160 billion) in IT and IT-enabled services, automobiles, oil and gas, chemicals, and FMCG sectors. - UP – It is currently in discussion with a South Korean electronics major to set up a plant worth more than INR 5,000 crore (INR 50 billion) in the state.

c)Enacting the Doing Business reforms	MP, UP, Punjab, Karnataka,	- MP – decided to issue registrations or licenses under different labor laws in a single day through an online system. A provision to maintain a single register under the labor laws and self-certification. - UP –setup a nodal agency called "Invest UP" to clear all investment proposalsin-15days. - Punjab – decided to grant Consent to Establish (CTE) or Consent to Operate (CTO) to green category industries in a single day, based on self-certification.
d) Integrated services for the industry	Haryana, UP, Kerala	- Haryana – launched a Haryana Udhyam Memorandum Portal (HUM) to provide unique identification (UID) to all enterprises and grant all permissions and services in an integrated manner. - UP – integrated the services of the State Industrial Development Authority with the "Nivesh Mitra portal to have one-stop accessibility of services to all entrepreneurs. - Kerala – The Department for Promotion of Industry and Internal Trade in set up a to address the issues that industry faces.
e) Employment for migrant workers	Uttar Pradesh, Others	- UP – is mapping the skills of its almost 32 lakh (~3.2 million) migrant workers. The state has launched a Labour (Employment Exchange and Job) Commission for migrant workers to promote employment at the local level. Uttar Pradesh has also signed MoUs with four industrial bodies to employ around 11 lakh (1.1 million) migrant workers. - Madhya Pradesh, Rajasthan and Odisha have also launched portals and mobile apps to connect migrant workers to employers. - West Bengal, Telangana and Assam plan to start skilling programs for migrant workers.

f) Promotion of self- employment	Haryana, Gujarat	- Haryana – will facilitate loans of up to INR 15,000 through small business banks. Beneficiaries will be around 3 lakh (300,000) - Gujarat – offering an interest rate subsidyof4% for loans up to INR 2.5 lakh (INR 250,000) for business and shop owners.
g) Support for urban poor and weavers	Kerala, Odisha	- Odisha – launched an INR 100 crore (INR 1 billion) urban wage employment initiative. - Odisha – is providing interest-free loans to the Odisha State Handloom Weavers Cooperative Society - Kerala sanctioned INR 41 crore (INR 410 million) to "Ayyankali Urban Employment Guarantee Scheme (AUEGS)"
h) Sustaining self-help groups (SHGs)	AP, West Bengal, TN	- AP announced interest-free loans worth INR 1,400 crore (INR 14 billion) to the 8.78 lakh (878,000) SHGs that operate in the state. - WB- has decided to double the coverage of SHGs to nearly 10 lakh (1 million) in FY 21. Increase in loan target to SHG to INR 15,000 Crores (INR 150 billion) in FY 21. - TN – offered short-term loans with a duration of approximately one year to members of SHG at an interest of 10.4%.

Health readiness: Key lessons and good practices from states

a) Pool and mobile testing	UP, Punjab, TN, Delhi	- UP was the first state to start pool testing. Testing coverage extended through the installation of True NAT machines. - Kerala, Tamil Nadu, Andhra Pradesh, Assam, and Karnataka, Delhi started pool testing. - Punjab and Tamil Nadu have launched mobile testing labs to collect swab samples from rural and remote areas.

b)Expansion of random testing & fever clinics	Kerala, Bihar, MP	- Kerala has started sentinel surveillance or random testing to detect community transmission. - Bihar conducted random testing on migrant workers who returned to the Ananthology, Dissent on Aadhaar state. - Madhya Pradesh, Karnataka & Maharashtra running fever clinics.
c) Door-to-door screening	Karnataka, Assam, Others	- Karnataka conducted a statewide door-to-door survey to check for community transmission. - Assam - Punjab, - Delhi, - Rajasthan, and - Odisha have also initiated door-to-door screening to check for community transmission.
d) Strong focus on contact tracing	Karnataka, Kerala	- Karnataka - trained more than 10,000 field staff to conduct comprehensive contact tracing. - Kerala -The state uses both the Aarogya Setu app and its mobile application for contact tracing
e) Creativity in public awareness	Maharashtra, WB, J&K	- Maharashtra- pre-recorded announcements are made through auto-rickshaws and tempos. - West Bengal used folk songs and street plays to increase the awareness of COVID-19. - J and K started a telesession called Sukoon on YouTube to spread information on COVID-19

f) Engaging panchayats and local committees	UP, Telangana, AP, Karnataka	- UP surveillance of monitoring of home quarantine of migrant workers. - Telangana, - Andhra Pradesh, and - Karnataka partnered with the National Institute of Rural Development and UNICEF to train rural community leaders on controlling the spread of COVID- 19 in villages.
g)Boosting the immunity	Rajasthan, UP, Punjab, TN	Rajasthan distributed a decoction of ashwagandha and giloy to about 20 lakh (2 million) citizens to boost their immunity. - UP launched a mobile app called "Ayush Kavach" to spread awareness on enhancing immunity through homemade products. - Punjab – distributed Ayurveda medicines to boost the immunity of frontline workers. - Tamil Nadu – distributed a herbal concoction called "Kabasura Kudineer" to families located in containment zones.
h) Other notable interventions	Various states	- Karnataka – announced a cash assistance of INR 3,000 to all ASHA workers. - TN created human milk banks to help infants separated from their mothers who tested positive for COVID-19. - Kerala - West Bengal - Jammu and Kashmir - Madhya Pradesh - Bihar Delhi offer An anthology, Dissent on Aadhaar counseling and psychological help through helplines.

As mentioned above that interdependence of the social networks and government can help us to fight the uncertain times, besides government initiatives, certain Private enterprises, NGOs have done a commendable job in helping low income class people facing the covid crisis using ICT. According to WSIS (a publicly accessible system providing information on information and communication technology (ICT) related initiatives and projects with reference to Geneva Plan of Action.) Stocktaking Database (2020), some of the ICT initiatives from India who were selected by WSIS as having an impact on the rural low income families. Following are some of the private enterprises and NGOs who have used ICT for the benefit of the people.

(i) Country Contactless Camera Enabled Infrared Thermal Scanner by Birla Vishwakarma Mahavidhyalaya Academia India. The contactless infrared thermal scanner is a prototype which is able to scan the body temperature of a person and click its picture as well.

(ii) Project Saksham by Trust Civil Society India empowers persons-with-print-disabilities (PVIs) through technology-solutions, education and skill-development by using ICT - infrastructure/devices to remove environmental and attitudinal-barriers.

(iii) Project 'Freedom COVID-19' by ZMQ Civil society India has developed an 'Integrated COVID m Health System' for last-mile communities community health workers (ASHAs and VHTs), sub-centers (HC-II), PHCs (HC-III) and CHCs (HC-IV).

(iv) GramVaani Community Media had used a voice-based community media platform to support rural and low-income communities industrial laborers in urban cities. COVID-19 through Awareness building, countering misinformation, seeking community feedback, self-assessment survey and guidance and grievance being usedin80+ districtsin10 states and s being usedin80+ districts in 10 states and the ground situation, this is useful for policy makers. MV phone application accessed via smart phones provides an easy option to forward audios to those without internet.

(v) Project C-DERP (Covid 19-Digital Emergency Relief Program) by Digital Empowerment Foundation Civil Society, India. This project was initiated for low-income groups in rural India focused on complete Corona Prevention Care, Provision of SOS Food & Livelihood, Information, Awareness & Fighting Fake news and Access to Government's Covid-19 Entitlements. The 600+ digitally enabled information resource centers and 10,000+ foot soldiers across 25 states and union territories areaidt

(vi) Enabling IT literacy and health information dissemination in Covid times Spoken Tutorials, Indian Institute of Technology Bombay, Mumbai, India Academia, India.
During these COVID times, these tutorials bridge the prevalent gap of lack of information, lack of proper guidance for skill development and IT literacy, lack of infrastructure facilities available, and difficulty in understanding English. The project has also launched a toll-free helpline number where expert guidance is provided for queries pertaining to premature babies, under-nourished infants, child nutrition, breastfeeding and mother's nutrition.

(vii) Online Gaming and COVID 19 Alarming increase in Cyber threats against Children by Ada Lovelace Software Private limited.

Impact of digitization Post lockdown

Not only during the pandemic times, but post lock down as well, government is innovating and try to make the best use of technology in effective governance. One of the initiatives by the Goa government to maintain social distancing and hygienic work environment is in the news. Goa government is working on an alternative contactless bluetooth-enabled biometric attendance system for its employees post the lockdown.

More options to implement the e-office concept across the departments of the state government, the e-mode of communication is preferred. As it will promote a virtual paperless environment. Efficacy and speed of accelerate the citizen grievance mechanism across the departments. E-ticket is being focused by the transport

department. More importantly promotion of digital literacy through PMGDISHA.

2. Hindrances and challenges

The way COVID situation has brought digitization in focus, so does it brings out the challenges, hindrances related to administration of ICT in public schemes. Policy researchers, NGOs have been pointing out at the issues ranging from administrative functioning to the technical reforms, flaws in the implementation of the policies, to the role of middle man, need for the technical assistance to the rural population. The key to effective implementation of ICT for the general welfare of society and management during the pandemic times lie in administrative reforms. As one of the objectives of this anthology is to seek the way forward for the impelling implementation of ICT for the welfare of the public, the following section would focus on the issues of ICT that lead to the delay in the transfer of benefits announced by the government during the pandemic times. Followed by the probable suggestions that can lead to effective governance using ICT for theountry. The IT department is exploring a few strategies to keep the momentum of social isolation and social distancing post lockdown. Example of Goa government has already been mentioned in the section above. Graam vaani (2020) in their research reports have mentioned in details about variety of issues faced by the rural, low-income, migrant-workers. The report covers issues related to technological failure, administrative lacunae, third party interference in the government schemes like the Public Distribution System, Direct Benefit Transfers, National Rural Employment Guarantee Act, Social protection for workers. Listing the ICT implementation issues mentioned by GraamVani (2020) during the lockdown.

1. Public distribution system
    a) Enrollment for ration cards
    c) Enrollment failures
    d) Aadhaar-based authentication
    e) Ration dealer related problems
2. Direct Benefit Transfers
    a) DBT linkages for welfare schemes
    b) Aadhaar based authentication

c) Overseeing transactions
d) Access to banking infrastructure
e) Financial literacy to guard against fraud

3. MNREGA – National Rural Employment Guarantee Act
   a) Enrollment and work demand
   b) Wage payments
   c) Wage rates
4. Social protection for workers
   a) Registration under different schemes:
   b) Withdrawal of funds
   c) Employer obligations
   d) Employer-led registration for social security

Suggestions

To put in simple words, major complaints from the rural population is their discomfort with the ICT, its usage and the information related to it. For rural people, technology makes things complex because of the above-mentioned reasons and therefore are being devoid of the benefits provided by the government. ICT in government schemes is not represented only by using apps or information dissemination source, it has a lot to do with the delivery of services (Public distribution system, Pension scheme etc.) for the rural population. Khera (2017) identified three broad themes for the PDS, NREGA, SSP and the MDM scheme,(i)recent evidence on corruption, (ii)the government's claims about Aadhaar's contribution to improved implementation of these schemes, (iii) and the emerging evidence on disruption due to Aadhaar-integration. It becomes more of an issue during the pandemic times. As briefly talked about various ICT issues that deters the benefits of major government schemes to reach the rural population, listed are some of the suggestions and recommendations at the administrative level for ICT usage for effective governance. The thumb rule in this reform should be "Make (ICT) it Simple".

1. Before the enrollment of the beneficiaries for various government schemes, the available data should be verified and used instead of separate enrollment for every new

scheme. This should be the administrative step while launching the scheme.

2. As most of the beneficiaries are not aware of the requirement of enrollment in various schemes, regular enrollment can be done at panchayat level from time to time. During the process, they can be educated and informed about the scheme(s) in detail.
3. To deal with the transaction-error logs, there should be a ICT facilitator cell. This cell should address the issues and make them comfortable in using the technology. Help them in understanding the meaning of alerts and tracing their transaction history.
4. The ICT facilitator cell can also help the beneficiaries by making them aware of their rights and entitlements.
5. Social auditing for the scheme can directly lead to effective governance.

3. Future policy related questions

As mentioned in the beginning of the chapter about the challenges during the pandemic Boin et al (2010) in his research on challenges for Crisis Management and Policy Making has mentioned that the large-scale crisis needs cohesion at three levels i.e Political and administrative, the fabric of society and policy making In this section an attempt has been made to explore important questions for the third factor that is policy changes. Two important policy related questions would be brought out. First is uncertainty of the emergence of the strategy and its continuation, second is who would paying for the loss and for how long.

(i) Uncertainty of the emergence of the strategy and its continuation:

Black Swan events like Covid 19 bring uncertainty along with them. Sheer surprise with which the world was taken over by its emergence, greater would be the uncertainty regarding the termination of the covid related administrative activities. How will initiatives and COVID affected administrative working would be terminated and political consequences of

reversing the decision. As the situation of Corona virus has changed as well as not changed. Lets understand it with an example, in case of functioning of educational institutes (School and colleges). As on today, Educational institutes are closed. Because of the struggle to know about the Coronavirus and lack of vaccine has led every government stay in the dark, At international level, Denmark and Israel are two different examples, where Denmark under the right to education policy opened up the school, and the consequences did not lead to increase in the number of cases of corona virus. On the other hand, Israel, after opening up the schools had to face the consequences that the minister had to resign from the post as it lead to the increase in the number of cases. It becomes crucial as to focus on the decision on for how long schools have to run this academic year from home. Are we technically equipped to run the academic activities without loosing the essence of learning?

(ii) Relief packages announced by the government: Its a policy question as who will be paying for the economic recovery of the nation, and most importantly for how long?

Addressing these preliminary questions will help us draw out a better plan for the future and can help in readiness to face the challenges.

Conclusion

ICT has undoubtedly enabled the government in dealing with the pandemic, but it is not a sovereign remedy to a pandemic. It is a catalyst which facilitated the combat. But it is the implementation of the policies that can help us win the war against the difficult times. As one of the ILO (2014) reports mentions "Response to be effective, an integrated approach is required which is not only explicitly oriented towards formalization but is also coherently linked. For any sector or informal economy group, a multiple policy approach will be required to address the many and varied dimensions of informality."

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5

MEERA RAJEEV KUMAR

Redefining Public Governance during Covid-19 Pandemic

Achievements of the Union Government and the State of Tamilnadu towards the "New Normal"

Introduction

India with a diverse geology, located in Southern Asia bordering the Arabian Sea and the Bay of Bengal, has Pakistan, Nepal, Bhutan, Burma and China as its neighbouring countries. As our Honourable Prime Minister, rightly pointed, Indian Constitution brings in a ray of HOPE – H for Harmony, O for Opportunity, P for People's Participation and E for Equality, to the people of India. Fundamental Rights (Part III), Directive Principles of State Policy (Part IV) and Fundamental Duties (Part IV- A) of the Indian Constitution encompasses the basic guidelines for the people, government and more beyond, the moral obligations of every citizen, respectively. With such laws and guidelines prevalent, the Government has to work for the people's welfare in normal situation and more strenuously with effective strategies and plans during emergency situations. The impact of disasters, natural or man-made creates havoc in the system and when the disaster is inexorable; it invites a drastic change in the system with new structural changes, new plans and strategies, new innovations and finally new policies incorporating these. Hence, these situations create awareness amongst the people on the differences between "Governance" and "Good Governance". As public administrators we have a responsible job of highlighting the differences and enable the people to understand the need for Good governance and reach out to them. Governance is a traditional concept which revolves around the process of decision making and

implementation of decision making. The advent of Liberalisation, Privatisation and Globalisation has created this new concept of Good Governance. The characteristics of Good Governance such as *Participatory, Consensus oriented, Accountable, Transparent, Responsive, Effective and Efficient, Equitable and Inclusive and abiding rule of law*, suffices the meaning Good Governance. Good governance enables the government to minimize corruption and reach the vulnerable sections of the society. Good governance can be achieved only if there prevails cooperation and support from the people.

This paper unfolds

- Role of cooperative federalism
- Steps taken by the TamilNadu government pertaining to Chennai and Chengelpet districts
- The issues and challenges faced by the people during the pandemic
- e-governance initiatives undertaken by various sectors to reach the people through ICT
- Redefining governance through good governance for sustainable development of India

Outbreak of novel coronavirus (2019-n CoV)

On 30th January 2020, Director General WHO declared that the outbreak of novel coronavirus constitutes a Public Health Emergency of International Concern (PHEIC) as per the advice of International Health Regulations (IHR) Emergency Committee. The epicentre of the outbreak was initially in Wuhan City but then the pandemic spread to 19 countries caused by the travel history from China. These countries are Australia (9), Cambodia (1), Canada (3), Finland (1), France (6), Germany (5), India (1), Italy (2), Japan (14), Malaysia (8), Nepal (1), Philippines (1), Singapore (13), South Korea (11), Sri Lanka (1), Thailand (14), UAE (4), USA (6), and Vietnam (5)[1].

The first laboratory confirmed case of 2019 – nCoV was reported in Kerala, on 30th January 2020.

1. https://www.who.int/docs/default-source/wrindia/india-situation-report "Novel Coronavirus-Situation Report 1"

Concised meaning of Contagious Corona

Coronaviruses cause diseases in a wide variety of animal species and this disease spreads when there is human to human transmission either through droplets or contact. The Covid-19 virus spreads through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. Most people infected with the Covid-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Elderly people with medical problems and other chronic ailments have chances to develop serious illness. The best way to prevent and slow down the transmission is by practicing respiratory etiquette (sneeze on the flexed elbow), wash hands with soap or use hand sanitizers, follow physical distancing and cover faces with masks.[2]

India's immediate response to first case of coronavirus

The moment the first case of corona emerged in Kerala, the Prime Minister's Office and the Ministry of Health, Family and Welfare (MoH) closely monitored and intensified the preparedness and response efforts. Public health preparedness including surveillance, diagnostics, hospital preparedness, infection prevention and control, logistics and risk communication were constantly reviewed by the National and State health authorities. The Ministry of Health and Family Welfare and the Ministry of Civil Aviation had initiated inflight announcements and entry screening for symptoms of fever and cough for travellers from China at 21 airports of India.

Cooperative Federalism

March 22nd – April 15th 2020

The Prime Minister's Office, Ministry of Health and Family Welfare (MoHFW) and the WHO Country Office for India (WCO), started responding once the epidemic outbreak was declared and further by March 22nd 2020, Honourable Prime Minister Shri Narendra Modi immediately declared "Lockdown" on March 22nd from 7am to 9pm which he termed as the "Janata Curfew", for the welfare of the citizens. The Prime Minister addressed the nation and

2. https://www.who.int/health-topics/coronavirus#tab=tab_1

made a public appeal seeking solidarity and support of the citizens to prevent the spread of this disease. He advised his citizens to maintain cleanliness and practice physical distancing of atleast 1 metre and stay at home.

On the other hand, the National Institute of Virology, Pune, equipped with international standards of expertise and capacity had been testing nCoV samples. 12 additional labs that include NIV Bengaluru, Victoria Hospital Campus, Bengaluru, AIIMS, New Delhi, NCDC, New Delhi, Kasturba Hospital for Infectious Diseases, Mumbai, NIV, Kerala, ICMR – NICED, Kolkata, GMC, Secunderabad, KGMU, Lucknow, SMS, Jaipur, IGGMc, Nagpur and KIPMR, Chennai had also started to function incessantly and effectively.

The MoHFW had advised the States to open control rooms, appoint a nodal officer and popularize the control room number to enhance coordination between actors. Panchayats were also being organized to make people more aware about the symptoms, precautions and measures taken by the State Governments with respect to prevention and management of 2019-nCoV.[3]

The State Governments too rendered support in announcing that all children below 10 years of age and all citizens above 65 years were asked to remain at home and avoid mass gatherings unless there is a medical reason and essential services requirement. Under the Disaster Management Act, the States/UTs were permitted to withdraw the funds from the State Disaster Response Fund (SDRF), in addition to the funds from the State government and the National Health Mission (NHM). There was a seamless coordination between the Centre and the States as nearly 30 nodal officers of the level of Joint Secretary was appointed to liaison, coordinate and help the States. Prime Minister Narendra Modi, in exercise of the powers under section 6(2)(i) of the Disaster Management Act, 2005, issued an order for State/UTs prescribing lockdown for containment of COVID-19 epidemic in the country for a period of 21 days from March 25th to April 14th 2020. India's response to Covid has been proactive, pre-emptive with graded commitment and a 'whole government' approach.

3. https://www.who.int/docs/default-source/wrindia/situation-report/india-situation-report-8bc9aca340f91408b9efbedb3917565fc.pdf?sfvrsn=5e0b8a43_2

April 24th – May 31st 2020

MoHFW launched the Covid India Seva, an interactive platform and direct channel of communication aimed at enabling transparent e-governance delivery in real time and answering citizen queries especially in crisis situations. Detailed deliberation on the measures for prevention, containment, management was undertaken. Ordinance was promulgated by the President of India to amend the Epidemic Diseases Act, 1897 to protect healthcare service personnel against violence during epidemics, ascertaining "zero tolerance to any form of violence against healthcare service and such acts of violence will now be cognizable and non - bailable offences.

Ministry of Home Affairs had issued new guideline for a graceful Unlock -1 phased reopening of areas outside the containment zones from June 1st 2020. ICMR advised States to conduct sero survey to measure Coronavirus exposure. The Union Government had directed the health sector to ramp up the infrastructure facilities during the lockdown.

On May 12th, Hon'ble Prime Minister Shri Narendra Modi announced a stimulus package of Rs, 20 lakh crore and financial incentives to revive Indian economy. This financial package is 10% of the country's GDP which plays an important role in India's self-reliance campaign.

This self reliant mechanism of India will be a lesson at the global arena. Further, the Prime Minister motivated the people to turn the crisis into opportunity to resolve India into a self – reliant nation. The self reliant India will stand on five pillars:

- Economy
- Infrastructure
- Our system
- Our Demography
- Demand and supply chain.

June 1st to July 31st 2020

Honourable Prime Minister, by fag end of May, encouraged his citizens to stay self reliant and initiated "Atma Nirbhar".

Steps taken by the Tamil Nadu Government pertaining to Chennai and Chengalpet districts

The sporadic spread of this pandemic had instilled fear in the minds of the people. TamilNadu was no less that every citizen had the trepidation that the instruction from the Union Government on *Janata Curfew* and the *Intense Lockdown* was totally abided. Tamil Nadu Government deployed police forces in every nook and corner of the streets of Chennai and Chengelpet. The Police force no doubt requires a word of appreciation for the intensive work carried out. Constant checking and questioning by the law enforcement authorities to the people were quite effective. Their effective checking discouraged many street smart youngsters to drive their vehicles on empty roads. People feared moving around within the districts.

Tamil Nadu's Directorate of Public Health[4] set up the following measures to control the spread of this epidemic from March onwards:

1. Prevention of the entry or delay in the entry of the virus

- Intense thermal and Clinical screening of passengers travelling from affected countries
- Usage of hand sanitisation immediately after disembarking from the aircrafts followed by home quarantine for 28 days. Tracing was done about people who had returned from abroad in the period between January to March and were advised on home quarantine.
- Persons with symptoms were admitted to isolation wards in hospitals

2. Prevent the transmission of infection

- Follow proper hygiene practices by covering faces with handkerchiefs while coughing and sneezing.
- Washing hands with soap and water or use hand sanitizers if outside.
- To refrain from moving around and stay safe if affected by cough or fever.

4. https://www.thehindu.com/news/national/tamil-nadu/covid-19-heres-what-tamil-nadu-has-been-doing-since-january/article31161945.ece

3. Hospital and Community Preparedness

- Doctors play a crucial role in taking care of patients from different backgrounds
- Protocol training was provided for doctors
- Isolation rooms, personal protective equipment (PPE) were arranged. Surface cleaning, respiratory hygiene practices and hand hygiene were made mandatory in hospitals.

Apart from these, the State Governments had also carried out safety initiatives through the Local governments.

As per the directives of the Union Government, the State also allowed essential services like pharmacies, milk, LPG cylinders, paper, etc to be delivered to the people. Initially people were requested to stock commodities but later shops were permitted to be open between 7 a.m till 1pm. The Law enforcement agency plied on the roads to ensure no shops were open after 1 p.m and no one wandered around. The State Government ordered closure of textile shops, malls, cinema theatres, theme parks, etc. Educational Institutions, IT and automobile sectors, restaurants, and almost all businesses came to a complete halt.

Social distancing, hygiene etiquettes and wearing of masks were reiterated. Municipality in Maraimalainagar supplied vegetables for Rs.100/- per family. Vegetable vendors supplied vegetables from Koyambedu, to various apartments in the district through hired vans.

The intensity increased further owing to the spread of the pandemic in Koyambedu - the hub of vegetable market. Wholesale vendors who had contracted Covid 19 had travelled from various districts like Vellore, Coimbatore, Madurai etc. to Koyambedu. Testing them revealed they had Covid 19 but were asymptomatic too. The Government then declared that persons who test positive can contract this disease with and without symptoms. Koyambedu Market was shifted to Thirumazhaisai. Many celebrities offered their registered office rooms, marriage halls for treating patients owing to dearth of isolation wards. Academic institutions such as schools, colleges and other educational institutions also stopped functioning from March 22nd, 2020.

In the initial phases of n-covid19, the Health Secretary to the Government of Tamil Nadu, Mrs. Beela Rajesh expressed the problems

faced and the measures taken to curb the entry of this pandemic. However by May 2020, she was replaced by Mr. Radhakrishanan who has a good record in handling disasters. Immediately after his induction, the Tamil Nadu Government declared lockdown from June 19th to June 30th 2020 with shops opened between 9am to 6pm, and complete lockdown on all Sundays with non-functioning of any commercial activities. The State Government further announced that all the Sundays of July 2020 will follow "complete lockdown". Only essential services were permitted on Sundays as per the instructions of the Government. During this lockdown "contact tracing" was carried out. Administrative and support staff from Panchayat visited almost all the houses and checked temperature twice in two weeks and noted the details. Government instructed that the people with mild symptoms could adopt self quarantine or home quarantine measures.

A word of appreciation has to be mentioned about the Union Government towards distributing free rice bags, sugar, dal and wheat to the Public Distribution rice card holders initially and later to all the people in the country through Prime Minister's Scheme.

Issues and Challenges faced by the people in various sectors

Agriculture

This phase is actually perfect for cultivation. Though the country is hard hit by the epidemic yet there seems to be a purification of the environmental system. Climate changes are also proving to be a boon for the farmers.

However, during the pandemic, cultivation of vegetables and fruits were ample but owing to the restrictions imposed for inter-state movement of trucks and lorries, many agricultural products went waste. Vegetables could not be reached to the local markets owing to shut down of shops. Koyambedu market ruled during this epidemic with skyrocketing prices of vegetables. People started thronging the market to stock vegetables fearing further intense lockdown. This also created a rapid spread of this epidemic. In places like Maraimalainagar, there were many vegetable vendors on the pavement who had come to streets leaving their enclosed shops. Once

the severity of the spread was found, shortage of exotic vegetables prevailed but daily use vegetables were available. Green leaves were available in plenty. Vegetable vendors complained of rising prices of vegetables and the transportation costs which were actually biting their means to meet their ends.

Many families, who had resorted to terrace farming, could manage to a certain extent with the vegetables available.

Current Development in July 2020.

"*We have had the wettest June in 12 years, according to Indian Meteorological Department (IMD). Statistics released by the IMD show that India recorded 118% of the Long Period Average rainfall in June 2020 which is considered excess. These copious showers brought cheer to the farming community, despite several regions facing intrinsic challenges such as shortage of labour in the wake of COVID -19 and disruption in supply chains due to intermittent lockdowns.*"[5]

This is the ideal time for agricultural practices. The Union, the State Governments and privately owned seed banks ensured that the farmers had enough seeds. Farmers have noticed that there is a great demand for native and chemical-free vegetables as the consumers expect to live a better healthy life during this pandemic as preference to boost the immunity is the need of the hour. The environment conditions are also conducive to sustain agricultural practices. It is also observed that the grains such as sorghum, millet, are on demand. In Tamil Nadu, farmers are delighted about the early onset of monsoon but at the same time they are worried about the forecast of floods in the months of November-December 2020. With the fresh flush of water through rainfalls, farmers in Tamil Nadu have started to cultivate *"seerga samba rice."*Cultivation of groundnut, sesame, moong and toor dals have also begun. Farmers of Madurai have started to focus on the cultivation of ponni and thooya malli rice. The monsoon has also enabled the farmers to cultivate different grass varieties and maize for the indigenous cattle. However, the challenge in the Tamil Nadu belt is to find proper labour to work.

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5. "Grains of Hope", The Hindu Metroplus, Thursday, July 23rd 2020, pp-2.

Animals and birds find sufficient breathing space and are moving freely. There is an instance where peacocks actually adorned the roads towards Coimbatore when there were less movement of people.

Commerce

The people in the commercial sector acquiesced the situation and enforced the lockdown at all phases until the relaxations were announced. The Industry is one amongst the affected lot. The businesses that underwent a massive blow owing to COVID-19 are:

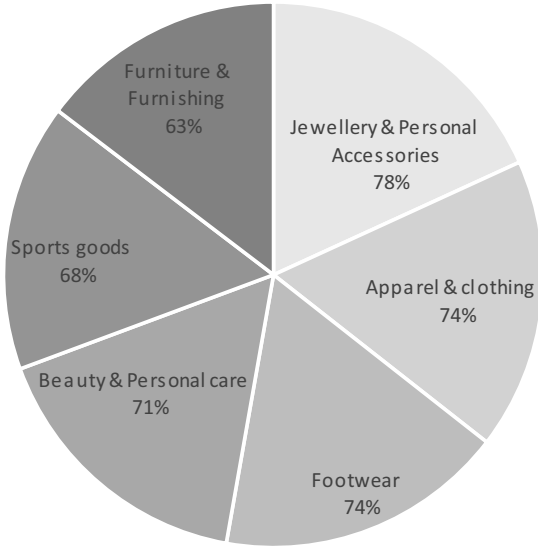
- The retail industry
- The automobile industry
- The entertainment sector
- The e-commerce
- The hospitality industry

Apparel and accessory stores

The Retailers Association of India has stated that the business in down 64% year on year in the first fortnight of July.

Figure 5.1

Drop in Footfall to Shops - July, 2020



Source: TOI, Chennai, July 24th

The chart above clearly shows the dip in the footfall in the retail shops. Personal accessories, has the highest footfall of 78% followed by 74% in apparel & clothing, and footwear compared to furniture and sports goods. Some companies have stated that there have been ample sales in trimmers, dishwashers and laptops.

The preferences, choices and style of purchases have undergone a change. Social distancing norms have made the people to venture into quick shopping though in certain shops queues exist. Another aspect that leads to quick shopping is absence of air – conditioning. Many retail stores have observed that the people purchase from the shop where they land in rather than checking for choices in various other shops. There has been an increase in the loungewear and the kid's apparel and the sales have gone to 90% compared to 50% in March. *People go to shops with a clear intent and know what to buy as they do a bit of research before going for a purchase. Quality time with family has created a lot of ambit to interior decoration and health consciousness.*

Automobile and hospitality Industries

There has been a great dip in buying automobiles which has resulted in the reduced manufacture. People fear buying cars fearing transmission of COVID-19 through surface contacts. Dearth of labour is another reason for the stoppage of manufacture. People also fear to service their cars owing to the same above mentioned reasons. Lack of car sales and non-availability of cars have made the

authorities to restrict the operations till the situation settles and government norms are relaxed.

Least expected situation for the hospitality industries which has been facing complete lockdown from March to July resulting in ghastly drop in business. No dine in or take- away or food delivery aggregators like Zomato or Swiggy were permitted in the Lockdown -1 but by the relaxed Lockdown 3, take-away and food delivery aggregators were allowed.

Entertainment Industry

The pandemic represented a serious disruption in the film industry. All movie productions had been officially locked down and all talents went hidden. Many film festivals were cancelled. Theatres were closed and the big budget movies either faced a loss or postponement. Big bang release of movies never happened and it is quite a disappointment for the celebrities as well as their fans.

The TRP rates of television industry increased during lockdown. The screening of "Ramayan", "Mahabharath" and "Chanakya" that were created in the 90s garnered a good TRP and indeed inculcated values in children and adults. The telecast of these gave a positive feel for the elderly people who trusted that the presence of God can cure any disease. Apart from these, the local television channels kept people stay tuned to the re-telecast of serials and people somehow managed to stay back at their homes as a self preventive method.

OTT streaming platforms like Netflix and Amazon Prime were also beneficial for people.

Presently, many changes have occurred in the entertainment industry. Theatres have started to think differently to ensure social distancing once the cinemas resume services. Cross-allocation of seats, to ensure regulations in the manner of entries, and no simultaneous intermissions and exits of two shows, apart from the deployment of enhanced hygiene protocols, non-invasive temperature checks and hand sanitizers. Deep cleaning and disinfecting processes will also continue.

Predicaments faced by Academic Institutions

All schools and colleges are shut from March till date. Almost all the academic institutions conduct online classes for the students. The schools and colleges in Chennai and Chengelpet are conducting online classes in full swing. Many schools hold online classes right from Kindergarten. Conventional practice of teaching actually provides one to one interaction and enables the teacher to know if the students are attentive and whether they respond. It is a different kind of bonding that exists between an educator and the student. Students are free to meet the educator at any point of time during school hours to clarify their doubts. Online sessions do not have these advantages. Connectivity is an issue, and the ability of an educator to view all the students in an online class becomes impossible. Students take time to get accustomed to such learning too. Part-time jobs to sustain their family livelihood and payment of course fees at times deprive them of these online classes too. It builds in a lot of stress at times for the students.

Webinars are umpteen and accessibility is also enormous. Learning Management Tools are available in plenty and necessary training for the educators is essential. Though these prove to be cost-effective yet it demands more meticulous and organised effort. Data Analytics, Artificial Intelligence and Machine Learning are in demand amidst students. However, through digitalisation, blended and flipped learning techniques are learnt by the educators which would be useful post–covid.

Redefining governance through good governance – Way to sustainable development

The various tenets from transparency to the rule of law have been redefined today by the pandemic. Government initiated good governance through ICT to prevent red tapism and corruption, ease procedures and exercise delegation of work for an enhanced performance altogether. Today, this pandemic has redefined and refined good governance at all the sectors.

N-covid19 is egalitarian as it attacks anyone irrespective of class, economy, racial or political clan one belongs to. Good governance must move beyond the state and empower the people in this "new normal". This epidemic has unravelled all new measures of the government for the sustenance. The National Disaster Management authorities and the State Disaster Management authorities with the cooperation of the International agencies are working hard to flatten the curve in India. Availability of the vaccines can provide a secured feel for the people at large.

Administrative reforms in all sectors, new norms and regulations protecting the people's liberty and life (Art.21), digitisation in education, agricultural improvement, the business budge are a few to redefine good governance for the sustainable development of the country.

This is the right time to encourage "self employment through start-ups", use "indigenous products", create "agricultural lands for cultivation", and encourage "small scale and cottage industries". Innovation and creativity translates and transforms ideas elevating intensive thinking leading to global achievements.

To conclude, as our Hon' Prime Minister Shri Narendra Modi quoted, *"Innovation for the people and by the people is the direction of our New India"*.

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BHAWNA GUPTA AND BHARATI GARG

PUNJAB – Strategies and Initiatives to Manage COVID-19 Pandemic

ABSTRACT

The entire world is witnessing unprecedented times since the beginning of 2020 that has put every principle of good governance to test. The corona pandemic (COVID-19) has threatened human existence and the societies world over came under immense stress due to lockdown and restrictions imposed on human movement and interaction. Effective governance, responsive administration and coordination among all the stakeholders with active community engagement are essential for dealing with a crisis of such magnitude and nature as the COVID-19. India too is actively combating COVID-19 using enormous human resources and technical prowess. The state government of Punjab too adopted a number of strategic approaches aiming at containing the spread. The present paper aims to document the various administrative, public health and social measures adopted by the state to minimise the adverse impact of the pandemic. The present paper has been divided into four sections. Section I covers introduction and brief overview of the spread of the virus in the state of Punjab along with the five pillars adopted by the State to manage the crisis. Section II discusses the various initiatives for management and oversight, technological intervention, citizen engagement and revamping of health sector. In Section III, sectoral interventions in Punjab in the fields of agriculture, industry, labour and education have been discussed. Section IV includes the concluding remarks.

I. Introduction

Life world over came to a sudden halt since declaration of the COVID-19 pandemic by World Health Organisation (WHO) on 11th March 2020. To contain the spread, save lives and minimize impact, WHO advised countries to take a whole-of-government, whole-of-society approach, built around a comprehensive strategy. In India, the first case of corona was reported in January and by mid-March, clusters appeared in multiple states, particularly Kerala, Maharashtra, Rajasthan, Uttar Pradesh, Delhi, Punjab, Karnataka, Telangana and UT of Ladakh. India followed a scenario based approach for all likely scenarios namely, travel related cases reported in India; local transmission; large outbreaks amenable to containment; wide-spread community transmission; and till the time India becomes endemic for COVID-19.[1] A nation-wide lockdown was imposed on 25 March, banning people from leaving their homes – except only for essential provisions and medicine and this lasted for about two months after which unlock started in a phased manner.

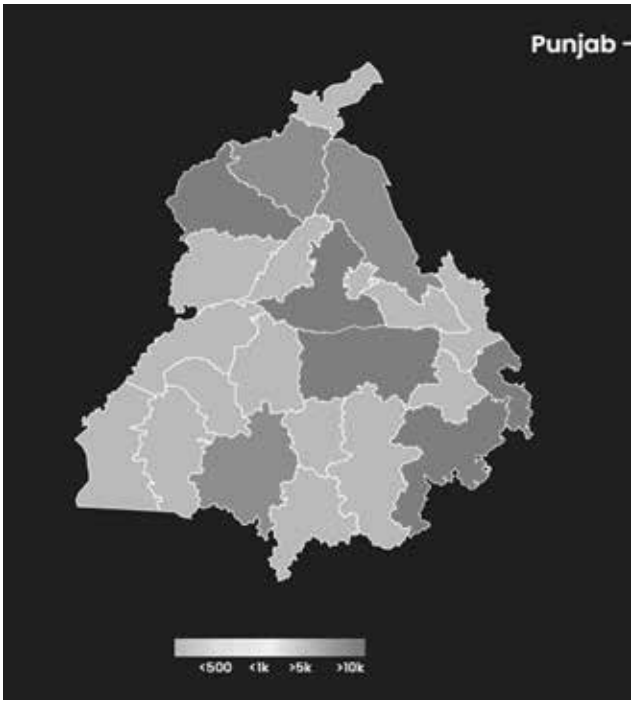
Punjab

With its rich diaspora settled in different parts of the world, Punjab also faced the risk as many people living in the countries badly affected by the virus were visiting home. The COVID-19 pandemic was confirmed to have spread to the Indian state of Punjab on 9th March 2020, when a person returning from Italy was tested positive. Since the emergence of the first COVID-19 case in Punjab, the number of corona cases have risen continuously. The state government took strict measures swiftly to contain the spread of pandemic. Public gatherings were completely banned with penalties on those violating the curbs, strict curfew was imposed, Standard Operating Procedures (SOPs) for all were laid down (compulsory wearing of masks, sanitising/washing of hands, social distancing etc.). Schools and colleges were closed as early as 13th March and an advisory was issued to close gyms, restaurants, etc. on 16th March. Public dealing in offices was curtailed to cater to need-based and urgent issues and online public grievance redressal system was activated. Three days later the government also shut down public transport in state from midnight of 20th March and also prohibited gathering of more than 20 persons.

On 22nd March, Punjab government declared complete Lockdown in state till 31st March 2020 except Emergency services. On 23rd March, the Punjab Government imposed full curfew across Punjab without any relaxation and became the first State to impose full curfew even before the lockdown was announced all over the country by the Prime Minister. These restrictions and enforcement measures gave time to reduce the incidence of disease and put in place robust, yet sustainable measures to prevent and control transmission. As of 24th October, 2020, the Ministry of Health and Family Welfare confirmed a total of 1,30,157 cases, including 4,095 deaths and 1,21,735 recoveries in Punjab. The districts of Ludhiana, Amritsar, Jalandhar, SAS Nagar and Patiala registered maximum number of cases in the state (marked in red - See Map 1).

Figure 6.1

District wise Covid-19 Cases in Punjab

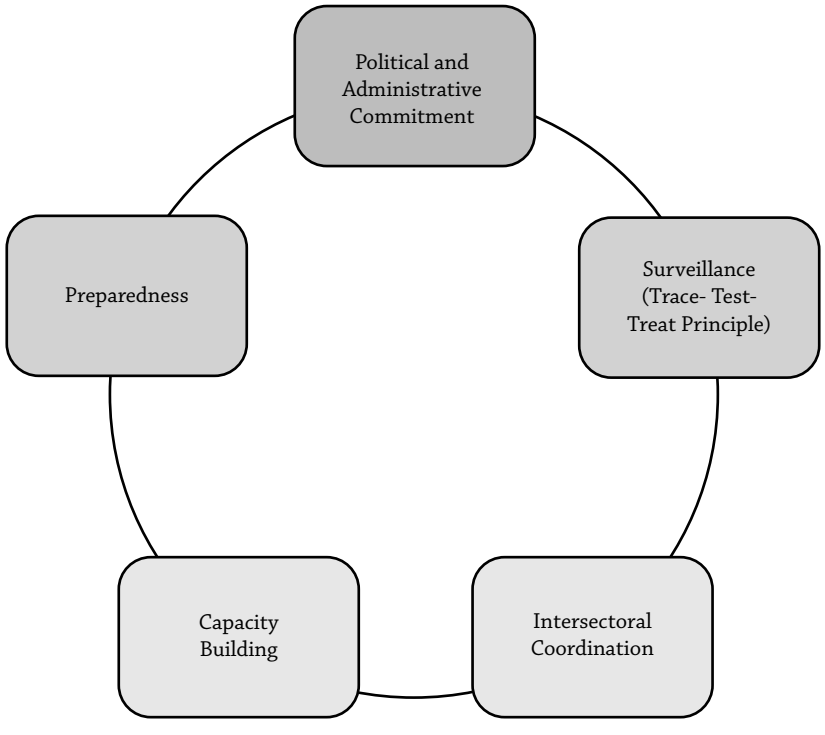


Source: https://covidindia.org/punjab/ (as on 26.10.2020).

To deal with the outbreak of this magnitude, the state of Punjab adopted many innovative approaches to quickly deploy resources and put up timely and comprehensive response in collaboration with key stakeholders. The Punjab Government adopted five pillars approach of COVID management, namely political and administrative commitment, preparedness, surveillance (trace-test-treat principle), capacity building, and inter-sectoral coordination. As part of this approach (Figure 1), the State also focussed intensively on regular surveillance of ILI (Influenza like Illness) and SARI (Severe Acute Respiratory Illness) based on trace-test-treat principle in large outbreak and cluster areas besides surveillance in ITIHAS (portal

Figure 6.2

Five Pillars of COVID Management



Source: Government of Punjab www.punjab.gov.in

developed in partnership with IIT Chennai to intensify surveillance to check the super spreaders of corona) identified areas with the use of IEC (Information Education and Communication). Activities like door to door survey, Lok Sanjhedari, Mission Fateh etc. for early detection were initiated. As early as 8th April, 2020, Punjab Government issued a Compendium of Guidelines, Instructions and Standard Operating Procedures[2] for COVID-19 in compliance with those issued by Ministry of Health and Family Welfare, National Centre of Disease Control and Indian Council of Medical Research, Government of India which played a critical role in managing the situation. The state government came out with technical guidelines on contact tracing, quarantine, isolation, hospitalisation, infection prevention and control, extensive capacity building of all cadres of health and other interlinked departments, monitoring, risk communication, strong community engagement and addressing psychological needs of the vulnerable population as some of the key strategic interventions implemented by the state government that it took to control the spread of the pandemic. These initiatives are detailed in Section II.

II. Governance Initiatives

The five pillars adopted by Punjab to deal with the pandemic cannot be enforced in segregated manner but required effective institutional coordination and synchronisation of efforts with the active participation of community and intensive use of technology. The effect of such immediate strict measures was that the recovery rate in Punjab was 90% and fatality rate was at a high of 3.1% as on 12.10.2020[3], which though is much higher than the national average[4], the situation would have been worse considering the vulnerability of the State, had these initiatives not been taken.

The first of the steps taken by the State government was setting up of a high level State COVID-19 Management Group under the Chief Secretary of the State to review the situation and reporting directly to the Chief Minister. The COVID Management Group is an inter-sectoral group to ensure synergised efforts from all departments and stakeholders with the help of thirteen sub-committees reporting directly to the chair of the State Management Group. These committees were set up in order to ensure better coordination, quick

and clear decision making and providing an immediate and dynamic response to every issue including health strategy. The mandate of the thirteen sub-committees has been discussed hereunder.

1) *Health Sector Response and Procurement Committee:* This Committee was constituted to assess and review all the requirements of personnel, material and infrastructure of Health and Family Welfare and Medical Education and Research departments and ensure timely procurement. The Committee is also responsible for ensuring the provisioning of IT support needed for COVID-19 management. The Additional Chief Secretary (ACS), Governance Reforms is its chairperson, besides Principal Secretaries Finance, Health and Family Welfare, Medical Education and Research, Special Secretary Governance Reforms as members, while Secretary Health and Family Welfare and MD, National Health Mission (NHM) is the convener of the Committee. Dr K.K Talwar and Dr Raj Bahadur are associated as professional advisors to the Committee.
2) *Lockdown Instructions and Implementation Committee:* It is chaired by ACS, Home Affairs and Justice with DGP, Principal Secretary Food and Civil Supplies and Transport as its members, besides ADGP Law & Order as convener. The committee would review all the arrangements related to security and enforcement of law and order and all measures that are required for effective management of curfew/ lockdown in the state due to COVID-19, and take appropriate measures to ensure the supply of essential commodities and services.
3) *Media and Communication Committee:* It is headed by Secretary Information and Public Relations with Joint Development Commissioner (IRD), Director Health Services (State Epidemiologist) as members and Director Information & Public Relations as convener. The Committee made all necessary arrangements for preparing, compiling and disseminating information with regard to management and containment of COVID-19 in the state for all media, including social, print and electronic.

4) *Agriculture and Food Committee:* It has been set up under the Chairmanship of ACS Development with Principal Secretary Food and Civil Supplies and Managing Directors of Punjab State Warehousing Corporation, Markfed, Punsup and Pungrain as members, while Secretary Mandi Board is the convener. This Committee focussed on smooth harvesting and procurement of crops, including wheat, potatoes, *kinnows* and vegetables. The Committee also ensured smooth and proper procurement and harvesting operations in a regulated manner keeping in view curfew/lockdown in the state as well as the precautionary measures required to be taken to prevent corona virus. Mandi-wise system of procurement by appointment was worked out to ensure proper social distancing and to avoid any untoward situation as also to ensure that every grain produced is procured by the agencies.
5) *Relief for Migrant Workers Committee:* The mandate of the Relief for Migrant Workers Committee was to facilitate the return of migrant workers who are stranded in the state with the imposition of lockdown and want to return to their native places. The committee was responsible to resolve all the issues related to migrants like food, ration, medicines, sending them in trains, work related problems in factories, curfew passes and issues related to shelter homes.
6) *Goods Transport Committee:* The Goods Transport Committee set up under the Chairmanship of Principal Secretary, Transport to ensure the unhindered movement of all goods transport vehicles entering/moving out of the state. It also worked to provide food to truck drivers as all *dhabhas* on main roads were closed.
7) *COVID Care Centre Committee:* The Punjab government set up Covid-19 care centres with 20,000 beds across the state, in what officials described as preparations for the "worse case" scenario. A Covid-19 care centre is a makeshift facility for persons who have been clinically diagnosed as mild cases. As per the guidelines issued by the Union Ministry of Health and Family Welfare, every centre is to be mapped to one or more dedicated Covid hospitals for referral purposes. Each centre

also had a dedicated basic life support ambulance equipped with sufficient oxygen support on a 24x7 basis.

8) *Committee on Augmenting Human Resources and Capacity Building:* It was an eight-member committee set up under the Principal Secretary, Water Resources to look into the human resources and Capacity Building for management of COVID-19. The Committee would also study the best practices for other affected states of India and other affected countries of the world and would recommend action.
9) *Committee on Upgradation of Health Sector Infrastructure:* This was a 4- member committee set up under the chairmanship of Principal Secretary, Department of Public Works. This committee supervised, monitored and took decisions on the upgradation and management of health sector infrastructure. It considered reports of the Revamp of Health Infrastructure Committee set up by Public Works (B&R) Department. A report was submitted to the Department of Health & Family Welfare and Medical Education & Research for consideration of the Cabinet Sub-committee on Fiscal Management headed by the Chief Minister.
10) *Tele-Counselling Services Committee:* This committee was set up to oversee the tele counselling services for guidance and support during lockdown. The State government started a 24x7 helpline No. 1800-180-4104 to provide guidance and support by a team of trained counsellors in all districts of Punjab to deal with the mental health of people especially those affected by corona virus.
11) *Food Grain Procurement Management Committee:* It was set up under the Additional Chief Secretary, Development with the mandate to focus and ensure smooth procurement of wheat in a regulated manner.
12) *Expenditure Appraisal Committee:* The mandate of this committee was to appraise the expenditure in the health sector for purchase of various equipment and relief. Further, it also looked into the amount spent by various departments out of the State Disaster Response Fund (SDRF) and budgetary

resources set aside for the management and control of the pandemic.

13) *Data Analysis Group:* The mandate of this group was to develop solutions to manage, share and analyse data as well as to provide seamless essential citizen centric services efficaciously during the lockdown.

To further augment its Covid Management and Care Strategy, the Punjab government constituted two Expert Advisory Committees under the guidance of Advisor (Health, Medical Education and Research) Dr K.K Talwar. The committees were setup to ensure better management and handling of covid care-related matters in Government Medical Colleges at Patiala and Amritsar. The objective was to guide the administration to adopt good scientific practices for ensuring better covid care, while reducing complications and mortality; to chalk out strategies to ensure that non-covid patients are not ignored, and make recommendations to the state government on financial and other support needed for upgrade of facilities and equipment for covid care.[5]

The Government of Punjab also constituted a Group of Experts led by Sh. Montek Singh Ahluwalia to develop a medium term and longer term Post COVID Economic Strategy for the State to revive its economy which was reeling under immense financial stress due to COVID-19. The Group has already submitted first draft of the report (not available in public domain).

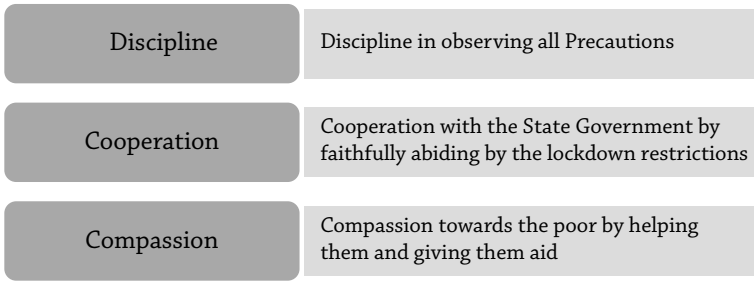
Community Engagement

No initiative or approach can be successful without the active involvement and participation of the community specially to deal with pandemic of the nature where social distancing and isolation was the key to control and contain the spread. The state government initiated two innovative programmes – Mission Fateh and Lok Sanjhedari for community engagement.

Mission Fateh: Mission Fateh symbolises the resolve of the people of Punjab to halt the spread of the Novel Coronavirus through Discipline, Cooperation and Compassion (Figure 2). 6241

Figure 6.3

Resolve of the people under Mission Fateh



It is the effort of the people of Punjab to defeat the pandemic in the face of overwhelming odds. It is a Mission of the people, by the people and for the people. Under the mission, the State Government created mass awareness about the following with the active participation of the community.

1. Washing masks
2. Washing hands
3. Maintaining social distancing
4. Taking care of the elderly
5. Remaining vigilant about entry of outsiders in the locality
6. Use of COVA App to track patients of the virus and maintaining a safe distance from them.
7. Importance of Home Quarantine
8. Symptoms of the flu and action thereafter.
9. Restrictions during Lockdown 5.0 and penalties/fines in case of violations
10. Community mobilization to jointly fight against the pandemic
11. Emphasizing that the threat of the virus has not diminished, rather it has become more menacing.[6]

To motivate the community to participate in overwhelming numbers, the state government announced to honour its vigilant residents for observing safety protocols and motivating others to follow them amid the COVID-19 pandemic. The state also adopted

a participatory approach in dealing with spread and containment of the pandemic by involving village heads to ensure enforcement of COVID-19 safety protocols. As many as 7842 Punjab villages also went into self-isolation to contain the spread.[7]

Lok Sanjhedari: Lok Sanjhedari was an initiative to involve and engage everyone in COVID related outreach and awareness measures. The initiative aimed to harness community bond and collective ownership in the fight against the pandemic. Activities such as health education, contact tracing, community training on home isolation, community surveillance and community isolation centres were planned. Starting in 5 districts – Amritsar, Jalandhar, Ludhiana, Patiala and SAS Nagar, this initiative later spread to 18 districts of the State wherein Lok Sanjhedari Committees comprising of District Family Planning officer, SMO, District Mass Media Officer, ward sarpanches, school teacher, social worker, postman, religious representative, women representative, ASHA/Nurse/ health care workers were formed. The core committee submits daily quantitative and weekly qualitative reports to the State Core committee.

Community Engagement and Risk Communication

In accordance with the WHO and Ministry of Health and Family Welfare (GoI) guidelines, the state government resorted to multiple means to raise awareness among the masses and disseminate standard messages and support dispelling myths in the community. Peer-reviewed articles/publications were referenced while developing and disseminating messages with the involvement of the local authorities and key stakeholders. Media including Call Centres were involved in reaching out to vulnerable population groups and addressing issues of stigma and discrimination as well as continuation of appropriate and healthy behavioural practices (e.g. for pregnant women on danger signs and birth preparedness, breastfeeding, early childcare etc.)

Anti-stigma and Anti-Discrimination Campaign

The state government launched "COVID 19 Anti-Stigma and Anti-Discrimination Campaign" on 11th August 2020 with the support of United Nations Development Programme (UNDP) and WHO. The state government was encouraging home isolation to combat the fear

of hospitalisation. It also decided to remove posters from outside the homes of patients and further not to put stickers in front of the houses of COVID positive cases in order to de-stigmatise.

Insurance Cover for Frontline Staff

To motivate frontline staff to engage with corona virus activities and patient care, the Punjab Government had in April announced special health insurance cover of Rs. 50 Lakh each for frontline cops and sanitation workers engaged in the battle against COVID-19 on the lines announced for health workers by the Centre.[8]

Leveraging Technology

Technology became a boon in managing Covid pandemic besides manual interventions. The success of all initiatives and strategies taken by the state, be it community engagement, administrative measures, health related interventions or sectoral interventions – everything came to be centered on technology as human contact was the cause of spread of diseases and technology helped to break the chain of contact and helping in tracing and treating the Covid infected. Technological intervention helped to put real time data in public domain so that citizens and communities can be mobilised. Data reporting was standardized and real time, thus helped to draw meaningful insights and develop further strategies. The Centre, the states and the districts were linked electronically, and the Health Ministry and top officials ran daily video conferences. Punjab government too, in line with central Government's Aarogya Setu App developed COVA App and relied on other technological interventions in managing the pandemic.

COVA APP: COVA (Corona Virus Alert) App was developed by the Department of Government Reforms and Public Grievances in consultation with the Health and Family Welfare Department of the state to spread awareness by sharing various travel and preventive care advisories. It was launched on 9th March 2020 with geo-tagging and geo-fencing features. The app would inform people to check out for symptoms as provided by the government from time to time and follow the advisory given thereafter. The app also suggests the nearest hospital and nodal officer of the district where the patient can reach

in case he/she is symptomatic. The app was available at Android Playstore and iOS app store with name COVA Punjab. With 56 plus lakh downloads, this app is being successfully used for reporting mass gatherings, real time dashboard and analytics, ordering grocery and essential goods, plasma donor registration etc. Besides this app has modules for sampling, patient line listing, contact tracing, containment zone and bed management along with facility to check COVID 19 test result.

According to Ashish Shrivastava, Chief Technology Officer of the State, COVA already had a user base of 4.5 lakh and has more than 20,000 views per day by end March.[9] Eliminating the factor of languages, the application was available in English, Hindi and Punjab's native language, Punjabi. While the App was up and running in Haryana, Rajasthan and Chhattisgarh, work on adoption of this application is in progress in other states as well. A total of 11 State Governments have requested access to the COVA Application and dashboard for their respective states and districts. The main aim of this application was to reach people and share with them the preventive and protective measures for coronavirus. Government advisories and notifications related to the matter were also pushed into this application so the citizens were well informed about any policy changes in the industry.[10]

Human Resource Management and Capacity Building

Amongst the five pillars of Covid management, human resource management and capacity building of frontline staff and administrators was the key to the success of every intervention.

Training: The State took initiatives to train its frontline manpower both administrative and medical staff including doctors, paramedics ANM/ASHA workers, health workers, police personnel etc. in online mode to ensure that they are aware of the necessary protocols, emerging trends and relevant best practices. These trainings were given in areas such as field surveillance, sample collection, clinical management and quarantine facility management.

The doctors and faculty from various government colleges from Punjab, including specialists from AIMS, PGIMER, USA, UK and Italy with significant expertise in critical care of COVID 19 patients were

engaged by the state to train (in online mode) the medical specialists and anaesthetists looking after mild to moderately sick COVID-19 patients. Administrators from the Department of Health and Medical Education were also trained in dealing with operational challenges such as health care workers' protection, management guidelines, risk stratification strategy and various sampling and isolation protocols. 19 sessions were organised in the period from March 27, 2020 to June 4, 2020 and 1914 medical professionals were involved in covid care services.

COVID-19 Management Tool for Health Care Workers: To further enhance the capacity of healthcare workers, the State government came out with an easy-to-understand 'Punjab COVID-19 Clinical Management Manual' in July 2020, a force multiplier to Mission Fateh, as a single reference point for all healthcare providers of the state[11]. This helped reduce the mortality rate through a cohesive and coordinated approach dealing with all facets of the pandemic. The Manual was considered as a bridge between the national protocol and the state's requirements on the COVID-19 management. It contained guidelines for health care providers dealing with the care and management of Coronavirus positive patients. This manual was curated by an Expert Committee and incorporates easy to understand audio visual aids, colour coded assessment tools and referral criteria based on practical experiences, along with best practices in the clinical management of COVID-19 positive patients. Further, the manual addresses the mental health and well-being issues of Covid-19 patients and has incorporated a collaborative platform of psychiatrists, psychologists, and social workers as part of the management protocol.

Revamping Health Infrastructure

To upgrade the state's ailing health infrastructure, the state sought grants under the National Health Mission and Intensive Care Units, Covid Care Centres were set up across the State in all the districts. The state government also provided medical equipment to all its hospitals on contingent basis. Besides, private hospitals were also roped in to provide emergency medical services to corona affected patients and strict action was decided to be initiated against

those private hospitals that refused to cooperate in such challenging times including cancellation of their licences. To cover manpower shortage, medical staff was redeployed from rural areas and assigned COVID 19 duties. Around 750 doctors of rural areas were deployed in isolation wards, for sample collection, contact tracing, screening at airports etc.

Rapid Testing: In April, immediately after the lockdown, the Punjab Government launched a rapid testing drive [12]aiming to screen one million people. In this regard, 10 lakh Rapid Testing Kits (RTK) were acquired. Besides, the testing capacity of Viral Research Diagnostic Labs (VRDL) in Government Medical Colleges at Patiala and Amritsar was increased. Also, the Punjab Government gave a nod for Rapid Antigen Testing Project and e-Register visitors from NCR, the most affected region in North India.[13]

Besides, rapid antigen testing will also be done on migrants coming back to the state in the wake of reopening of industries and for work in the paddy fields. Further, in September 2020, Free Walkin testing was allowed in all government and private labs and rates for different tests like RT PCR, RAT and TruNat testing were notified for private facilities. To encourage COVID-19 early testing amid rising number of cases and deaths, free food packets were distributed to poor people, who fear isolation impacting their meagre earnings. The Government of Punjab also introduced Mobile Medical Units with testing facilities in 12 districts of the state.

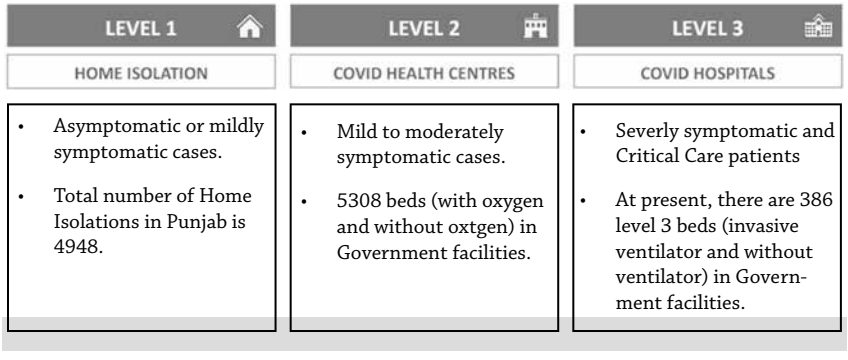
Manufacture of PPE kits: The state government worked out the modalities for manufacturing PPE kits at Ludhiana which has enabled the state not just to meet its own requirement but supply PPE kits to other states also. Further, Punjab also has 7 BIS approved N-95 mask manufacturers.

Emergent Purchases of Essential and Bio-medical equipment: As an emergency measure to combat COVID-19, quick price discovery for all purchases related to COVID-19 management and containment was initiated to make purchases on urgent basis. The Procurement committee was authorized to make spot purchases and exigency procurements, bypassing normal procedures, in exercise of emergency powers under the National Disaster Management Act, 2005.

Management of Health Facilities: For effective management of limited health resources for providing care to coronavirus patients, the state government proposed classification of health facilities into three categories – Home Isolation, dedicated COVID Health Centre and dedicated COVID Hospitals.[14] For asymptomatic to mildly symptomatic cases, home isolation was advised; for mild to moderately symptomatic cases Covid Care Centres and Covid hospitals with ventilator facilities for severely symptomatic and critical care patients (See Fig. 3). These COVID-19 dedicated facilities have separate earmarked areas for suspected cases and confirmed cases, and ensure the available hospital bed capacity is used only for moderate to severe cases of the infection.

Figure 6.4

Classification of Health Facilities in the state (as on 12.10.2020)



Source: *https://punjab.gov.in/wp-content/uploads/2020/10/12.10.2020-COVID-RESPONSE-PUNJAB.pdf*

Setting up Plasma Banks: With plasma therapy proving as an effective treatment, Punjab was among the first few states to approve Plasma treatment for critical COVID-19 patients in hospitals. The first Plasma Bank was inaugurated on 21st July 2020 to facilitate treatment, which was already being carried out as an Indian Council of Medical Research (ICMR) trial project in the State's government hospitals. Plasma banks became operational in Faridkot, GMC Patiala and GMC Amritsar and a total of 113 Patients were given Plasma therapy (as per State's Report dated 12.10.2020). These banks serve as a ready inventory source for seriously ill patients or those at risk

of severe disease, and thus are enabling a wider range of adults to be treated with convalescent plasma.[15]

III. Sectoral Interventions

The state of Punjab is the food bowl of the country. Major crops grown in Punjab include wheat, rice, sugarcane, cotton and oilseeds. Industry along with agriculture also contributes to the state's economy. The prime industries in Punjab are textiles, food processing, sports goods, chemicals, handicrafts, tourism and IT & Electronics. The excellent infrastructural framework namely connectivity by road, rail and air has paved the way for industrial prosperity in Punjab generating employment for lakhs of migrants from northern and central states of India.

These well flourishing sectors of the economy suffered massive losses due to the pandemic and subsequent lockdown with wheat harvesting and procurement for Rabi Marketing Season in offing, non-essential industry remaining shut and employment challenge for labour including migrant workers. The annual examinations in schools were suspended and academic session in higher educational institutions came to a sudden halt and significant measures needed to be taken to continue with the academic activity.

Major interventions by the State government in these select sectors have been discussed in this section:

Agriculture and Food Security

a) Wheat Procurement

Unfortunately, imposition of complete lockdown in March coincided with the time when the state goes in for large scale wheat procurement for the Rabi Marketing Season ensuring food security for the entire country. Punjab Government successfully carried out safe wheat procurement operations during these challenging times with the active cooperation of procurement agencies, farmers, arhtiyas and all officials involved. The Agriculture and Food Committee listed a set of protocols to be followed for ensuring safe, smooth and staggered procurement of wheat in the state.

- Regulation of wheat transport by the farmers to the mandis

- Increase in the number of mandis by recommending notification of rice mills as purchase centres
- Issue of Standard Operating Procedures and COVID-19 protocols to be followed by all stakeholders
- Introduction of Procurement by Invitation through Arhtiya-Kisan pass system on the basis of the RMS/KMS 2019-20 business
- The generation of passes online at the MC level and the delivery of passes to farmers by Arhtiyas
- Regular social audit of all facilities at mandi to be conducted.[16]

This was one of Asia's largest wheat procurement operation with 127 MT of wheat procured within 45 days by creating additional 2200 mandis to ensure even spread of arrival. To manage staggered movement of wheat in the view of health advisory, e-passes were issued to farmers to avoid crowding in mandis. 99.6 percent wheat was procured by government procurement agencies and INR 27000 crores was infused into the state economy through this stupendous exercise.

b) Food Distribution

The distribution of wheat and pulses to the beneficiaries of Antyodaya Anna Yojana (AAY) and Priority Households (PHH) was a priority of the centre and the state during the lockdown. As a pro-active initiative, the state decided to ameliorate the hardships faced by the poor due to economic disruption and to provide additional foodgrains allocation of 5 Kg/person/month free of cost for three months. i.e. April-June, 2020 to all the beneficiaries (AAY and PHH) category covered under Targeted Public Distribution System (TPDS) as per provisions of National Food Security Act, 2013 (NFSA). This additional allocation was done totally free of cost and was over and above the regular allocation. Further, biometric authentication of the beneficiaries was done away with so as to avoid the spread of the contagion.[17]

The Punjab Government surpassed food distribution at the national level, both in terms of reaching out to the needy and quantity of food disbursal during the lockdown imposed in the wake of the Covid-19 pandemic. In July, Prime Minister had extended the

Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) till November, 2020. Almost 60% of the state's population received benefit of Centre's two food distribution schemes - the PMGKAY and the Atma Nirbhar Bharat. Under Atma Nirbhar Bharat package, Government of India has decided that food grains will be provided free of cost at the rate of 5 Kg per month for two months i.e. May and June 2020, to about 8 Crore migrant labour who are not covered under NFSA or State scheme PDS cards. The state government also distributed food packets among migrants. While the Food and Supplies Department reached out to 98 per cent of the 1.41 crore beneficiaries under the PMGKAY, 50% of the 14 lakh beneficiaries under the Atma Nirbhar Bharat received food packets comprising wheat flour, black gram and sugar.[18]

Industry, Labour and Transport

a) Industry

Industry suffered the most due to complete lockdown. Small and medium enterprises were badly impacted when public transport halted due to complete lockdown in the country. To protect the interests of labour, the State government issued advisories to industries and commercial establishments in the State asking them not to terminate employees or deduct their wages during the lockdown period.

When the phased relaxations were introduced May onwards, initiatives were taken to boost investment and instil confidence among investors to invest in the state in a hassle free manner. Further, in July relaxations for the industry were issued including the extension of validity of statutory clearances without inspection. In order to help small and medium enterprises in the journey of growth, efficiency and productivity, the Department of Industries and Commerce, Government of Punjab in partnership with the Global Alliance for Mass Entrepreneurship (GAME) and Chamber of Industrial and Commercial Undertakings (CICU) has launched Xcelerator Ludhiana - a 6-month curated small business accelerator programme to support promising enterprises towards increased productivity, efficiency, and profitability.

b) Migrant Labour

Migrant workers constitute an important part of Punjab's labour class. A large number of them come to the state every year seasonally from Uttar Pradesh, Bihar, Jharkhand and other eastern states to seek temporary employment both in industrial and agricultural sector. With no work in factories and farms and the fear of the unknown, these poor migrant workers wanted to leave for their respective states in March/April but got stranded due to complete lockdown subsequent to the spread of COVID 19 pandemic. The State government designed a special online portal (www.covidhelp.punjab.gov.in) for registering the migrants residing within the state and were interested in returning to their home states. More than 6.44 lakh migrant workers registered on this especially created portal and this data was shared with destination states to ensure their safe return as per health protocols. The State Government also started special *shramik* trains to send stranded migrants back to their homes. Those workers who wished to travel back home were informed the schedule of the trains and other relevant details via SMS. The first special *Shramik* Express train carrying 1,200 stranded migrants left Punjab for Daltoganj, Jharkhand in May. Apart from *Shramik* trains, a large number of trains chugged out of Ludhiana, Patiala, Jalandhar, Mohali, Amritsar and Ferozepur railway station from May 5 to take passengers to various destinations in Bihar and UP. Further, the State government had also taken special initiatives for those who opted to travel by road by sending the registered migrants through buses after seeking permission from various neighbouring states (Rajasthan, UP, HP). In order to send migrant workers through special trains or buses, Stringent Protocol for Transport was adopted and followed with E-registration, social distancing norms, home quarantine etc.

c) Transport

The Chief Minister instructed the transport department to put in place stringent protocols for handling daily passengers. E-registration was mandatory for people going to Punjab from midnight of July 6 and there was no relaxation in home quarantine rules for domestic travellers. This was particularly followed as a result of high rise in infections in Delhi and other northern states in July.

d) School Education

The Department of School Education, Punjab started provision of online education to the students by various modes like mobile app(s), youtube channel named Edusat Punjab, radio, ebooks, whatsapp and various DTH/cable TV channels. Besides education via virtual methods, preparing e-content and upgradation of school infrastructure during the pandemic was a priority of the state government. In mid-July 2020, the state launched a new campaign under 'Mission Fateh' to provide online education through animated videos to students. In October 2020, Punjab government distributed free smartphones to Class 12 students of government schools under the 'Punjab Smart Connect Scheme'. The first phase of this scheme will be completed by November wherein students of Backward Class, Scheduled Caste and Scheduled Tribe categories are being issued smartphones making digital education affordable and accessible. Further, in view of the unlock, all safety measures to be followed as per SOP issued by the State Health Department in re-opening of schools.

IV. Conclusion

The country as a whole has gone in for phased unlocking but the scare of the pandemic remains. The state of Punjab also unlocked in a guarded manner as revival of the state's economy was the need of the hour. The paper gives an outline of the five pillars adopted by the state government to deal with the pandemic with technological and community engagement. The initiatives of the state government at all levels and in all sectors like setting up of COVID -19 State Management Group, Mission Fateh, Lok Sanjhedari, COVA App, sprucing up health infrastructure, procuring PPE kits and other medical equipment, streamlining wheat procurement process, online trainings and technical guidelines for frontline workers and norms to be followed for containing the pandemic speaks volumes of the swift efforts taken by the state government in the wake of rising corona cases in the state.

Despite these efforts, the statistics reveal a discouraging scenario with fatality rate of 3.1% which is above the national average. The responsiveness and resilience of healthcare system came under

scanner and the gaps came to the fore. This necessitates relook a revamp of health policies with increased investment in health sector to manage the crisis of this magnitude. This requires partnerships with the private sector, development partners and community health workers to strengthen capacity and ensure continuity of health provision. The figures clearly depict that the state government needs to push for more stringent efforts to contain the pandemic so that it is better prepared to deal with the future spike in cases.

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7

H.S. DAS

Public Governance Measures and Lessons Learned in the State of Uttarakhand during Covid-19

'This is a temporary setback. I am going to release myself from having to be the person in control'

— Dr. Wayne W. Dyer

Present pandemic known as Covid-19 has halted life in its wheel and surreptitiously it engulfed the whole World. Our Country and State of Uttarakhand were not the exception. It was declared as a public health emergency of international concern by the World Health Organization (WHO) on January 30, 2020 and a pandemic on March 11, 2020. Since then it has transcended through all parts of life and catapulted the thoughts of the people and the sudden breaks were applied to the schemes to be implemented by the individual or the government. It proves to be a curse in one sense but it has taught many lessons to the public and the state Governments as a *whole to improve infrastructure to provide their facilities and health care and above all, to learn how to be more ready for the next crisis.* Now our universe has become a more stressful place and but this has given an opportunity to deal with this problem and discuss with all concerned for all the issues at large. We have learned a new meaning to the life now which is not the same as was before the pandemic of covid 19. We have learnt how to take a setback at all levels and how to deal at micro and macro levels.

We, the common men and the government of the state, must remember the fact that covid-19 is a treacherous unknown enemy. Despite having a small genetic material it is proving to be difficult in dealing as it stroked in hitherto unknown ways and engulfed the world by greater disruption and destruction. Uttarakhand state

therefore is not to be complacent on various fronts. Presently we are in search of such tools to tackle it but hit and trials are going in finding the answers to this pandemic problem.

State of Uttarakhand and its government is emboldened to implement the statute which was lying in the stables for more than a century "The Epidemic Disease Act 1897". Central Government has taken the issue under "The Disaster Management Act 2005" and in turn it has provided legal power to civil authorities of the state to implement pandemic control measures which has brought public under this purview and tried to get there cooperation and ensured reporting of cases to the medical professionals from different quarters be it public or private sector.

Impact and movement of Migrants in the State

The mobility and the productive engagement in an affordable employment after the declaration of lockdown by the Central Government was a need. Uttarakhand followed the suit in an earnest way as the large public of migrant nature was affected by this measure and most of them remained in limbo for many days. During this crisis, workers who have migrated from the state for the work outside from home, returned to their native village with good or bad memories. State to state movement were restricted and whole civil authorities were on its toes to implement the measures as directed by the Ministry of Home Affairs, GOI, while it took into account the perspective given by Ministry of Health and Family Welfare which regularly updated their guidelines for the control of the pandemic engulfing every nook and corner of the country and the State of Uttarakhand also followed the same parameters of control i.e. Standard of protocols issued by the concerned civil authorities from time to time.

Uttarakhand basically a hill state also faced the problem of its internal migrants which were working in unorganized sectors and most of them were economically under the poverty line. The sudden National lockdown made them jobless, without food and the fear of getting infected. State was engaged with this problem of migrants in tackling the high-risk public health action which may or may not be the potential seed of the outbreaks of the Pandemic of COVID-19 in

different and far-flung rural areas of the state. This flux of migrants was not expected or anticipated by anybody but this has an impact on the life of those who were staying in the state and particularly on the state resources.

Public cooperation to contain COVID-19 pandemic

The National lockdown necessitated the strict measures requiring utmost surveillance and rapid containment actions. Special efforts were undertaken in the state to protect and treat the elderly citizens having diabetes and hypertension. In all the scrupulous actions were strictly followed as directed by the Central Government and state civil authorities geared up to tackle the emergent issues at hand in a very systematic way. Public cooperated in no uncertain manner well to heed the aid and advice of authorities. It will be without risk to say that so called Corona Warriors of different fields or departments are outstretched in fulfilling their duties. Public at large have also came and cooperated well with the authorities and Medical and Health Department of the state played an important role in issuing the relevant orders as asked by the Central authorities. The state government followed these guidelines and issued orders to all authorities for dissemination, using various technology at hand, of relevant information to contain the contagion in society.

Role of mainstream and social media

The role of mainstream and social media played a very crucial and sensible role in the state. WhatsApp was used widely as its penetration is huge and freely available to disseminate the information to the concerned people. Several important messages of public health were largely transmitted by electronic and print media. It is now in use and full potential of Social media came handy in the dissemination of information to save the human life which has now become an integral part of life in the country. Central Government also utilized all modes to transmit the relevant information to public all the time and took full advantages of electronic media and telecommunication. It has been proved that Social media if used responsibly and rationally, is an excellent tool in the hands of public for social communication and

spreading authenticated information and plays a role of friends to the authorities.

Modification in life and its activities

This pandemic has some lessons about public behavior and taught us to cooperate as human being to deal with utmost efforts to mitigate the effects with great urgency and thus it empowered and educated the people of the state. The main plank has been during these months hand hygiene, respiratory hygiene and social distancing. It was seen that largely public listened and cooperated as per the government measures. Generally a positive change is witnessed in the attitude of public behavior about the personal hygiene but it costs to them and the state expenditure also rose to equip suitably the corona warriors and other authorities. Support systems of the society to deal with so many personal and public problems hitherto unknown arose in the lockdown period. Educated communities can clearly tell the effects of a pandemic or epidemic on the economy of the community and to the government itself.

Uttarakhand Government and their organizations have promoted the universal safety precautions and educated the public for washing hands, covering the nose and mouth while coughing and sneezing, use of sanitizers, use of facemasks, avoiding contact of fingers with mouth, nose and eyes and physical-distancing techniques to a remarkable extent. It has also suggested some immunity booster activities to public through media. Essential services during lockdown period were provided to the needy on their door steps to break the chain of the contagion.

Response of different Government Bodies

The government's actions in planning and implementing various measures to assist the people during this critical crisis were prompt and applied principles as directed by Centre. Government and Media had fully disseminated information to avoid panic and misinformation and kept transparency between government bodies and the public to educate its people. However this pandemic has clearly shown everybody in the line including state government to

gauge their strengths and weaknesses regarding their healthcare systems in the whole situation.

Lessons Learned by the Healthcare Sectors

This outbreak has also prepared the healthcare sector in tackling the situation and it has given a major lesson to be prepared for all the eventualities which can be in any form related to diverse situations prevalent in the state. Uttarakhand also responded well in developing different Centers viz. (CCC COVID Care); Dedicated COVID Health Centre (DCHC); Dedicated COVID Hospital (DCH) to mitigate the problem faced by public. Tracing, tracking and testing the positive person and their asymptomatic contact was a regular feature by district administration and their surveillance units.

Consequences on Employment and Education

Seeing the influx of different classes in the state, livelihood activities and employment generation in rural area were enhanced. Work from home was the norm and use of digital technology was at its maximum level by the public and various departments and institutions. Video conferencing became a normal activity by the users so that social distancing norms could be promulgated. All educational institutes in the state were closed so that physical and social distancing norms should be strictly maintained and guidelines issued by Central Government were followed by everybody. Government has emphasized on the use of information technology and going to increase its infrastructure in large way so that information and benefits to the public should be given at the earliest. Public went for online webinars and online classes were organized by different agencies to the students of different classes.

Movement orders in the State of Uttarakhand

E-Pass was made Compulsory for travelling to/from Uttarakhand and 'Dehradun Smart City' portal was authorized to issue these passes prior to the travel in the state and one had to apply with relevant papers online uploading. Certain categories were given some relaxations. Every person entering the state had to go through thermal screening at the point of entrances, including border check

posts, airports and railway stations as well as border bus stands. District administration had made arrangements for the thermal screening of all inbound persons at border check posts, airport, railway stations and border district bus stands, as per the guidelines issued by Uttarakhand government. 'Aarogya setu' app was in force to be followed by all those intending to enter the state.

Use of Technology by the Government and Public

Technology has shown the way for maintaining social distance and delivery of different services while it has the potential of eliminating unnecessary physical interface between common man and government officials. It has proved very well in this state by the use of digital technology in issuing e-pass, e-invitation and facilitation in the screening and service delivery. Off course information technology and digital technology has provided the relevant information to the public and ease of getting the facilities at their door steps.

Government of Uttarakhand has taken laudatory steps in information technology to deliver the public services providing 62 services now and another 100 services in next one year. Chief Minister's dash board in monitoring 32 important departments and different services is playing a critical role. E - district and UKSWAN are going to provide the common services through common service centres eliminating physical presence. ITDA, Cyber and Drone academy have been established for quick mitigation of public in health sector and Disaster management. Bharat Net facilities have been adopted and continued. 'MY GOVT' app is devised to advise the government by the public. 'Single window' approach can now be utilized by investors and business people and they don't require an unnecessary physical presence in the concerned department so that a transparent mechanism is in place. DRONATHON 2020 was organized in the month of February. I have full confidence that technology is changing the rules of business and provide a model governance by the state Government.

There is no doubt that this Civid-19 has taught us some better but bitter lessons to behave in a certainly smart fashion which are crucial to human lives. The State is still in search of answers to deal

with the challenges of this pandemic. Now public has strengthen its resolve in 'Prevention is still better than Cure'.

8

M.M. SEMWAL AND SUNIL KHOSLA

Online Education: Challenges and Possibilities

An education system based on quality and seeking to imparts good values and development of the nation-state is synonymously linked. In the contemporary times, the role of technology has taken centre stage particularly during the pandemic to provide easy access to the citizenry for improved processing of transaction within and between the various agencies for providing services in which the education and change in its mode has a larger share. This is also being viewed as an instrument for strengthening administrative dimension of higher education system in India in an efficient, responsive and transparent manner.

Information technology has come to play a predominant role to renew society particularly in the pre phase of new normal in view of the Covid-19. The new platforms for communication provide ubiquity and persistence for information while distinguishing themselves through interactivity. Education in the present times is benefiting from those platforms which are designed to meet the requirements that education poses. The goal in education is to teach knowledge not additively, but inter-linked by means of questions arising from practice and research. The online teaching and learning take both the technological and the social perspectives into account. However, learning cannot be considered a process to be isolated in space and time.

The outbreak of pandemic Covid-19 outbreak shut down the educational institutions shifting the mode of teaching from interface to online. The most challenging aspect of this has been to connect to students. Digital divide has become evident in teaching resources regarding its access to students. Online teaching using one of the available digital platforms to such students through the internet would rule out teaching to a large proportion in rural India.

Among rural households, the problem seems to be ownership of devices as more than half of the households of such students do not own a smart phone or computer. This problem is less severe among urban households, so the constraint there comes from access to an internet connection.

This argument becomes significant in view of the situation that has emerged in the recent past due to Covid-19 and still continuing and has drastically changed the professional and personal life while affecting almost all the segments of human life. This phase is largely dominated by the reinterpretation and reawakening of the socio-economic setup.

This is an unprecedented calamity with physical and socio-economic-psychological dimension which has confined our movement with its underlined impact on various aspects of life including the education. The main argument is concerning the containment approach which has become the administrative necessity. In view of this argument, we are confronted with some viable questions of vexing nature due to the fact that the education and its mode has changed overnight with the rise of e-learning and resorting to the digital platform which all set to continue. Whether the online teaching-learning process will continue to stay in the post-pandemic? What would be its impact on the education sector?

The questions become relevant in the present situation due to the fact that the education has come to occupy the status of industry with a significant surge in the apps, tools and software due to its usage in Covid-19. Academia is working round the clock and is dedicated to the educational programs to find out the ways for providing solution to the crisis and to a greater extent, success has been achieved. The said crisis was rooted in the imposition of lockdown in the middle of the academic session which made a shift from physical classrooms to online mode – interface mode of teaching to digital mode of teaching through the virtual classrooms. This created challenging situation for both teacher and the taught which confronted both with a new way of teaching-learning process while sitting in front of computers and mobile phones in a period of last six months and may continue for many months in future as well.

During the span of this period, much has been done or has emerged keeping in view the prevailing situation, to provide a status of industry to education sector. In view of the emergent situation in a short span of time, the acceptability and adoption of e-learning/ digital education through online modes and its credibility has become order of the day due to the suspended classroom teaching or physical mode of teaching – a reality from which we cannot escape being created or coming into being during the Covid-19 phase. It has become must do situation. The situation becomes challenging for us in wake of the fact that Covid-19 did not even allow us to think of the planning the continuation of teaching due to which the mode of online classes was adopted to cover the gap. This all lead to the online teaching to scale up profusely.

This posed a greater challenge as there was not much acquaintance of the teacher and taught with the e-learning tools and portals which has thrown education in a loop all over the world. The interface or physical mode of teaching in the classrooms is perceived as the best form of communication but e-learning has become necessity due to the containment approach posing a bigger challenge particularly in the rural sector. There is no substitute for scholarly exchange and campus life but at the same time, we have to minimise the chances of transmission of Covid-19 for which we had to shift gear from interface to digital education. At this moment, the occupancy of e-learning at the centre stage may require us to integrate it into the mainstream education.

The foremost challenge is the significant gap between the privileged and the disadvantaged section, which cannot be ignored. Secondly, the sudden and rapid move to online mode of teaching without any training, insufficient bandwidth and power supply is a major problem and will affect its growth and its sustainability. But in a given situation which is likely to continue for long, we need to update ourselves as well as the students with training and the government should ensure availability of resources to support this hybrid model of education to benefit the stakeholders but in a structured environment.

Due to the non-availability of resources with the disadvantaged section, internet access at home is low in India. This is a combination

of low internet coverage in India as well as the fact that many households do not own smartphones that can get them on the internet. As the Covid-19 infections rise in India, and there is justified pressure to keep universities closed, one must be mindful of these numbers when suggesting online teaching. This argument becomes significant in wake of the educational institutions including schools, colleges and universities to remain closed for a long time, which is need of the hour to subsidise the cost of smartphones and computers for students for teaching.

One of the major challenges of the online/digital mode of teaching is the power supply and internet connectivity being crucial for digital education. The penetration of digital technologies in India has been exclusionary. Supportive measures are desired from the governments in case of continuance online education without necessary supportive measures, the prevailing disparity in the virtual world could translate into widening educational inequalities among learners.

Teaching-Learning is facing new challenges in the digital Age in which students are acquiring a wide range of fundamental knowledge in the form of efficient learning methods from sources such as web-based tutorials and assignments using the online library, all of which is independent of time and space. A significant additional benefit is the use of modern tools for acquisition of knowledge and a gradual transition from the ability to apply acquired knowledge.

Apart from access to the digital platforms, online education requires regular and predictable internet connectivity. To support this, telecom operators and broadband service providers have come forward in offering facilities like additional data and free internet to their subscribers. But a lot of work is required to be completed on part of both the state and the private players for assured connectivity to the In view of the interface among peers and teachers is significant for learning, it becomes important to know as to how the students learn and communicate with others, which largely depends on the readiness of both teachers and students to accept digital mode of learning and maintaining discipline.

Another line of argument in terms of challenges is for teachers also because many of them being digitally inept and a large number of teachers not used to an online environment to teach. Teaching a

course online course ideally requires preparation, such as designing a lesson plan and preparing teaching materials such as audio and video contents. Most of the members of the teaching community are not adequately trained to deal with technology.

The 75th report of the National Sample Survey Office (NSSO) for 2017-18 highlights the percentage of households having internet facilities stands at 23.8% with rural availability at 14.9% and urban at 42%. The percentage of people who were able to use the internet stood at 20.1% with rural at 13% and urban at 37.1%. It is important to note that the statistics vary among different states across the country. For example, Bihar stands at the lowest (9.1%) for individuals who have used the internet in 30 days, while Delhi has the highest number (49.1%) of such individuals with bigger states like Maharashtra (26%), Rajasthan (15.3%), Andhra Pradesh (14.8%) etc. being in the middle. These statistics strike at the core rationale of using the internet as a mode to impart education, and highlight how a majority of the country would be left out of the quest to achieve basic education in the months to come.

The structural imbalances between rural and urban, gender, rich and poor have come to scene and exposed in wake of the Covid-19 pandemic. If this continues for long without the supportive measure from the state, there is a possibility of marginalising the deprived section of society particularly the students' community while increasing inequality in educational outcome.

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9

ROUCHI CHAUDHARY

Best Practices on COVID-19 Pandemic and Public Governance

Measures and Lessons Learned in Jammu and Kashmir

Introduction

The deadly outbreak of corona virus presents a host of challenges for different sectors of society. As the COVID-19 pandemic escalated world over, the nation states are responding with measures to mitigate the virus. The pandemic has exposed the benefits of a stronger, flexible and more responsive civil service which can incorporate risk management and has access to contingencies in an emergency. The Pandemic has also stressed the need for sound public policies, systems and processes. Helping states providing lifesaving goods and services on an emergency basis is critical to blunt the impact of COVID-19. Emerging lessons from the immediate response to the pandemic point, to the need to adapt models of government operations, service delivery and interactions with citizens include government harnessing technology options for modernization of services to citizens and businesses.

The pandemics show that humans are not infallible and communities need to be prepared. Corona virus outbreak was first reported towards the end of 2019 and has now been declared a pandemic by the World Health Organization. Worldwide countries are responding differently to the virus outbreak. A delay in detection and response has been recorded in China, as well as in other major countries, which led to an overburdening of the local health systems. On the other hand, some other nations have put in place effective strategies to contain the infection and have recorded a very low

number of cases since the beginning of the pandemics. Restrictive measures like social distancing, lockdown, case detection, isolation, contact tracing and quarantine of exposed have been the most efficient actions to control the disease spreading.

India's Response to COVID-19

In India, the first case of COVID-19 was reported on January 30th, 2020, followed by two similar cases on February 2nd and 3rd. All three had a travel history to Wuhan, China. To contain the spread, the Ministry of Health and Family Welfare (MoHFW) immediately took action and issued a travel advisory, as travel restrictions had previously demonstrated efficacious on outbreaks of SARS, Ebola, and bubonic plague. All international travellers entering the country were asked to self-quarantine for 14 days. All travel visas to other countries were cancelled until April 15th, 2020. All the states were asked to invoke the Epidemic Disease Act, which allowed officials to quarantine suspected cases and close down public places. An intensive campaign was rolled out and guidelines were developed for personal hygiene, surveillance, contact tracing, quarantine, diagnosis, laboratory tests, and management. People were advised not to visit farms, live animal markets or places where animals are slaughtered and to avoid mass gatherings. All the health care facilities were asked to stop regular out-patient and in-patient services and to continue with solely emergency services. Doctors were encouraged to use telemedicine services.

Arogya Setu app was also launched to connect essential health services with people of India to fight against COVID-19. This app will reach out and inform the users of the risk, best practice and relevant advisories pertaining to containment of COVID-19. Amenities like hotels, colleges, railway train coaches, etc., were converted into quarantine facilities and large public places as stadiums were converted into isolation wards to handle an anticipated increased number of cases. Some of the states converted existing hospitals to exclusively handle COVID-19 patients. On March 22nd, Prime Minister initiated the lockdown process with a 14-hour 'Janta Curfew', followed by lockdown in 75 COVID-19 affected districts and a nationwide lockdown for the 3 weeks. A containment plan involving

the State and twenty ministries was set up. A round-the-clock control room was set up at the headquarters of the General Director of Health Service (DGHS) to address the virus-related queries. The countries of the South Asian Association for Regional Cooperation (SAARC) were invited to fight jointly against this pandemic and 10 million US dollars were allocated for SAARC countries. A huge evacuation programme of many Indian nationals was done from the COVID-19 affected areas.

India's Best Practices to Combat COVID-19

- Robust testing mechanism
- Contact tracing
- Effective and timely treatment to ensure a high recovery rate
- Institutional quarantine
- Employment of containment measures
- Use of data analytics
- Technology intervention
- Online training protocols
- Community participation

Pandemic Response and Replication of Best Practices in Jammu & Kashmir

The government of Jammu and Kashmir initiated several institutional and governance measures on the pandemic influenza outbreak for infection prevention and control measures under the Epidemic Diseases Act. The notification of the Jammu and Kashmir Epidemic Diseases (COVID-19) Regulations, 2020 came into force with immediate effect and have jurisdiction over the entire Union Territory. Surveillance personnel were designated by Districts Magistrates, who have been empowered to direct, arrange or put suspected persons under home quarantine or escort them to an institutional quarantine facility or isolation facility. As part of an action plan to prevent the spread of the deadly virus, control rooms were set up in State Surveillance Offices in Srinagar and Jammu, suspected patients quarantined, apart from advisories to all districts and public awareness announcements at railways stations and airports.

Isolation wards were set up in government medical colleges in Jammu and Srinagar, the Sher-e-Kashmir Institute of Medical Sciences (SKIMS) and other districts, where special teams of doctors and paramedics were constituted and trained accordingly. Directions were issued for activating Multi-disciplinary Research Units (MRUs) in the government medical colleges in Jammu and Srinagar and for samples of suspected cases to be drawn immediately and sent to National Institute of Virology, Pune for diagnostic tests. The government also directed for implementing an Information Education and Communication (IEC) strategy to educate the public on preventive measures against the disease.

Best Practices adopted to Combat COVID-19 in Jammu and Kashmir

- Guidelines related to testing and quarantine protocols
- Help lines issued by administration in Jammu and Kashmir Divisions (Toll free)
- Strict Lockdown and administrative measures were implemented
- Classification of districts for COVID containment (Red, Orange and Green Zones)
- COVID screening at industrial estates
- Imposition of penalty for violations
- COVID 19 On-line awareness on government SOPs Protocols
- Aggressive and sustained testing
- District Surveillance Committees
- 24/7 call centre
- Contact tracing
- Arogya Setu and Itihas App
- Extensive use of social media platforms
- 19 point medical strategy
- Four 'T' trace, test, track and treat
- Three level COVID centres- COVID wellness Centre, COVID health Centre and COVID hospital.

Conclusion

Governments must lead response to pandemic through policy, coordination, funding and implementation, requiring fast and agile action. At the same time government itself is negatively impacted as social distancing prevents the public service from working as usual and requires new processes and technologies as well as selectivity to continue essential business operations while also managing the impact of the crisis on what, in many states is the mainly on the public service. There is a need to balance responsiveness with accountability. Not only to ensure accountability for the influx, redirection of massive amounts of funds and resources, but also to ensure that as institutions are inevitably reshaped, they are done so without risking fundamental principles and norms. Across the board, the unusual circumstances lead to a shortened policy cycle without the luxury of having the information needed to make the right decisions, requiring a different way of managing that involves actions, feedback, learning and adjustment. The COVID-19 outbreak calls for effective, inclusive, and accountable governments. As governments are at the centre of the response measures, they need to be fast, creative, effective, transparent and accountable. Moreover, during times of crisis, the Public Sector takes on a stronger role in society in several ways.

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N. ANSUMAN RABBONI

Quintessence of Good Governance during the Pandemic

Digitalisation of Education

The Covid-19 pandemic is one of the worst outbreaks mankind has ever witnessed. It has rocked the world considerably with economic meltdown and health hazards. As the world tries to grapple with the sudden turn of events socially, economically and politically there is a complete change in the way things have been perceived by mankind because of Information and Communication Technology (ICT). The transformation in the viewpoint of education has been tremendous globally. India in particular has transcended and revolutionized education using Digital aid which is commendable. This urges and encourages learning and erudition both to the teacher and the students. Higher education is at doldrums at this sudden virulent outbreak but digitalisation brought respite to many who travelled far and wide for education. The students of higher education have transformed themselves as digital citizens as this self paced learning management system that propagates e-Literacy and also proliferates digital education in India. There is an increase in the number of learners with optimised learning systems and the learners are given a choice or preference of their courses. Learning is at their door step which is something unimaginable and has revolutionised education systems. It has also promoted advancement in learning and transferring knowledge has become more outcome based learnings. Outcome Based Education is a learning paradigm that focuses on the outcomes or goals instead of results. The educators set a certain number of necessary skills and knowledge that the learner should possess at the end of education and they are identified as the outcomes. The assessments like exams, assignments, and projects

are then defined to measure the achievement of these outcomes, and their results indicate whether the students have achieved them or not.[1]

Technology based learning was something based only for great institutions like IIT, IIM and JNU. Now it is a necessity. This transitional model from conventional and traditional practices to Contemporary concomitant practices is transcended due to technology.

The following are the positives of Digital aid in learning.

1. Enablers of Technology: Cloud Computing and Data Analytics

Enabling technology is a smart, creative and innovative usage of expertise for equipment and tools which is featured by subsequent derivatives which enables newer technology. There is access to networked computers, apps, mobiles and softwares for services and to retrieve information and study material. All information is ship shaped and search engines enabled to locate study materials. Introduced to a digital environment, digi tools, digi communications, etc technology enriches and skills the user.

a) *Cloud computing:* is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software. Rather than keeping files on a proprietary hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it. Cloud computing is a popular option for people and businesses for a number of reasons including cost savings, increased productivity, speed and efficiency, performance and security.[2]

b) *Data Analytics:* Data analytics is the science of analyzing raw data in order to make conclusions about that information. Many of the techniques and processes of data analytics have been automated into mechanical processes and algorithms

1. https://stories.linways.in/the-ultimate-guide-to-outcome-based-education-82dcff363944

2. https://www.investopedia.com/terms/c/cloud-computing.asp, by Jake Frankenfield

that work over raw data for human consumption. Data analytics techniques can reveal trends and metrics that would otherwise be lost in the mass of information. This information can then be used to optimize processes to increase the overall efficiency of a business or system.[3]Examples: from basic business intelligence (BI), reporting and online analytical processing (OLAP) to various forms of advanced analytics.

2. Growth in mobile applications

Mobile learning (m-learning) is education via the Internet or network using personal mobile devices, such as tablets and smartphones to obtain learning materials through mobile apps, social interactions and online educational hubs. It is flexible, allowing students' access to education anywhere, anytime.

Mobile learning provides a way for educational institutions to deliver knowledge and educational content to students on any platform, anyplace and at the time of need. Students use mobile apps and tools to complete and upload assignments to teachers, download course instruction and work in online social groups to complete tasks. There is rapid growth in mobile applications in India. It has taken the country by storm with its one click away learning tools.[4] It is a trending pattern to have learning in your pocket. Meritnation, Byju's, Unfoldu, Duolingo, TED, my CBSE guide etc. make learning very easy. Institutions are definitely trending to these apps. These apps are like one stop solutions. The use of mobile technology allows for cloud teaching where access to people, resources and information will float freely regardless of location (Sutch, 2010). Learners in different time zones and locations will be able to access tutors when needed. According to a Futurelab report (Daanen & Facer, 2007), by 2020, digital technology will be embedded and distributed in most objects. Personal artefacts such as keys, clothes, shoes, notebooks and newspapers will have devices embedded within them, which can communicate with each other (Daanen & Facer, 2007). This will make learning more ubiquitous and pervasive.

3. https://www.investopedia.com/terms/c/cloud-computing.asp, by Jake Frankenfield

4. https://www.webopedia.com/TERM/M/mobile-learning-m-learning.html

Given below are some observations from Ally, M. & Prieto-Blázquez, J. (2014). What is the future of mobile learning in education? [Mobile Learning Applications in Higher Education (Special Section)].

"The use of mobile technologies is changing the way we live and how we access education. One clear development is a blurring of our social, business, learning and educational lives as the pattern of our communication and interaction across time and space changes (Demsey, 2008). Mobile learning is not about the technology, it is about the learner. The learner is mobile and is at the centre of the learning, and the technology allows the learner to learn in any context. Vavoula and Sharples (2009) state that mobile learning is a social rather than technical phenomenon of people on the move, constructing spontaneous learning contexts and advancing through everyday life by negotiating knowledge and meanings through interactions with settings, people and technology." It is a reality now and the whole education system needs revisiting. The inevitable challenge is on, the prediction accurate and rightfully we have to make technology significant and mandatory in the Indian education system.

3. Digital Friendly Government Policies

Digitisation of the entire enterprise and value chain is beginning, including through digital products, channels and processes, as well as advanced analytics that enable entirely new operating models (Biesdorf and Niederman, 2013). From E-government to the next phase of Digital government to bringing welfare programmes especially in education and Health care. Currently, 35% of the Indian population has access to the Internet. The Internet penetration rate is expected to reach above 55% by the end of 2025.[5] Institutions are benefitted because of the Learning management systems for curriculum design, assessment and performance, student progress and Institutional development through research. The whole concept of education has witnessed changes. The inclination of the society is to be more literate, the student-teacher learning has qualitatively

5. https://www.asmaindia.in/blog/digital-india-what-are-governments-plans-and-policy-for-education-in-india/

improved, globalised perspective on education with high standards. Digital learning gas enriched the society as a whole. eBasta and ePathshala platforms intends to bridge the digital divide in the country – geographical, socio-cultural and linguistic. Knowledge Management System (KMS), the Portal has been created by the Government to bring a culture of knowledge sharing by capturing, sharing and creating content. Learning Management System (LMS) is a capacity building tool, LMS facilitates efficient administration of e-learning and training for various government officials both at centre and states/union territories.

a) *National Careers Service Portal:* A national ICT based portal has been developed, primarily to connect opportunities with the aspirations of the youth. This portal facilitates registration of job seekers, job providers, skill providers, career counsellors, etc. Additionally, it provides job matching services in a highly transparent and user-friendly manner. These facilities along with career counselling will be delivered by the portal through multiple channels like career centers, mobile devices, CSCs, etc.
b) *National Knowledge Network:* National Knowledge Network (NKN) project in India, aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country to address multidisciplinary and collaborative paradigm for frontier research and innovation.
c) *National Mission on Education Using ICT:* The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode. It is a landmark initiative of the Ministry of Human Resource Development to address all the education and learning related needs of students, teachers and lifelong learners.
d) *National Scholarship Portal:* NSP is a one-stop solution for end-to-end scholarship process right from the submission

of student application, verification, sanction and disbursal to end beneficiary for all the scholarships provided by the Government of India. This initiative aims at providing a Simplified, Mission-oriented, Accountable, Responsive & Transparent 'SMART' System for faster & effective disposal of Scholarships applications and delivery of funds directly into beneficiaries account without any leakages.

e) *Sugamya Pustakalya:* "Sugamaya Pustakalaya" is an online platform that makes accessible content available to print-disabled people. The library houses publications across diverse subjects and languages and multiple accessible formats. It has been created by Department of Empowerment of Persons with Disabilities (Divyangjan), Ministry of Social Justice and Empowerment in collaboration with member organizations of Daisy Forum of India and powered by TCS Access.

f) *Visvesvaraya PHD Scheme for Electronics and IT:* One of the key goals of the Visvesvaraya Ph.D Scheme is to encourage working professionals and non-PhD faculty members to pursue PhD in the ESDM & IT/ITES sectors as part-time candidates. It is envisioned that having part-time PhD students is likely to encourage the Industry-Academia interaction, help in the alignment of the R&D efforts between them and bring value to the country. Growth of digital education in the country will also help working professionals in up-skilling. This will aid the industry with the right skilled professionals required to perform its functions.[6]

4. Technical skills requirement

It has become more significant to have skill-based learning for employment. Technology is not confined to science or engineering students but a necessity to educators and students. Technology is part and parcel of the curriculum design and is imperative that there must be use of technology in this current education system.

6. https://www.asmaindia.in/blog/digital-india-what-are-governments-plans-and-policy-for-education-in-india/

5. Computing Data analysis

Data analysis is a process of inspecting, cleansing, transforming and modeling data with the goal of discovering useful information, informing conclusions and supporting decision-making.[7] Data analysis is a process for obtaining raw data and converting it into information useful for decision-making by users. Data is collected and analyzed to answer questions, test hypotheses or disprove theories.[8] Cross validation and sensitivity analysis to seek stability of data and result is also a part of this.[9]

6. Types of digital learning

A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs. The learning management system concept emerged directly from e-Learning. Although the first LMS appeared in the higher education sector, the majority of the LMSs today focus on the corporate market. Learning Management Systems make up the largest segment of the learning system market. The first introduction of the LMS was in the late 1990s. Up-skilling and re-skilling is an essential component for the growth and development of individuals and for the overall progress of an organization. Learning management system (LMS) is the one-stop solution that fulfils the learning and training management needs of corporate and educational stakeholders. It helps them in saving time and cost in the training process to keep their employee engagement high. The spread of the current crisis has pushed multiple organizations across various industries to leverage learning management solutions and ensure that education and business operations run smoothly.[10]

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7. Xia, B. S., & Gong, P. (2015). Review of business intelligence through data analysis. Benchmarking, 21(2), 300-311. doi:10.1108/BIJ-08-2012-0050
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Advantages of Digital Learning

1. *Learn from any place:* The approach has changed considerably after the Covid-19 pandemic. There is emphasis on availability of connectivity and access to information. Association with the learning community there by deriving an e-literate society. Providing high-tech education in remote and urban areas using technology like smart phones, apps and Internet services. The online courses can be customised and knit like minded people together.
2. *Recording and Reviewing the audio and video:* It is important to remember what has been taught. For retaining knowledge, designing of learning content in a way to make learning interesting and promote creativity is imperative. There should be prototype models to stimulate education, E-text materials, quiz and repositories for research. Learning is a continuous process.
3. *Time to think and examine:* There is no peer pressure and hence there is an opportunity to exhibit more individualistic ideas. Clarity of thinking is envisaged both to the educator as well as the learner.
4. *Focus on ideas:* Learning is more focussed and dynamic. The role of the Teacher turns to a facilitator, educator and manager rather than just an information box.
5. *Cultivate written and oral communication:* Communication is improved. Modes of communication are both written and oral.
6. *Cost Effective:* It brings education to your doorstep and also saves money on travelling.
7. *Time management:* The geographical constraints and barriers are not an inhibition to Online courses.
8. *Value of Online courses:* Validating the online programmes is important. The effectiveness is seen in some courses like PMP, GRE, etc. Quality is maintained and not compromised and collaboration of online and offline channels to provide ubiquitous content and learning is a fact of the day.
9. *Stress free education:* It promotes stress free education as it gives individual the freedom of expression and space. Online

education develops social skills and techniques of handling critical situations virtually.

10. *Diverse and Sundry Courses:* Higher education sector in India consists of 3.74 crore students across 993 universities, 39,931 colleges, and 10,725 stand-alone institutions, according to the AISHE-2019. This year the number is going to increase because of the opportunities available and skill development programmes available. There are a variety of courses like MOOC, Coursera, etc in this space.
11. *Pedagogue of learning:* Volery (2000) continues, that if universities do not embrace eLearning technology that is readily available, they will be left behind in the pursuit for globalisation. Ribiero (2002) argues that if universities are to maximise the potential of eLearning as a means of delivering higher education, they must be fully aware of the critical success factors concerned with introducing online models of education.[11]
12. *Abecedarian-Professions:* The Abecedarian approach is resourcefully addressed by online teaching especially on key areas of phonemic awareness, phonics, and fluency. It is healthy, well defined and precise enough to succeed with challenged students. It makes learning fun and also grabs attention of the learner. On the other hand professional online courses enrich learners and provide job opportunity. The certification courses for professions like graphic designer, MBA, Programming, social media marketing, App Development and Foreign language courses, film making, editing has increased.

Disadvantages

1. *Digital Infrastructure challenges:* To harness digital transformation it is important to have robust connectivity. The challenge is huge and to enable connectivity with the geographical conditions is a challenge. Leveraging

11. A Study of E-Learning on Higher Education in India: Its Opportunities and Challenges by Vikas Arora1and Monika Mehta. In the Fourteenth International Conference on eLearning for Knowledge-Based Society, 18 March 2018, Thailand

infrastructure is important at this point of time even if it costs money.

2. *Excuse and Distraction:* It allows excuse of bad connectivity and also it is a distraction to teenagers who can be misled by the other facilities available in a smart-phone or computer.
3. *Cyber Crime:* The book Cybercrime: Vandalizing the Information Society, allows us to look at the problem of cybernetic crime from a more disengaging position.[12] The book gives perfect notion about hackers as the members of a subculture in modern society, tries to specify the causes and reasons of development of negative stereotypes of hackers. In the twentieth century digital technology has entangled and trapped us in a virtual world. India has 400 million internet users as of 2018, making it the second-largest internet population in the world.[13]. Cyber crimes know no borders and evolve at a pace at par with emerging technologies. Eventually if we are succumb to the Digital world, it is important we understand Cyber security.
4. *Hands-On Experience:* It is a virtual world with perfection. It is important to understand that the world is not perfect. Simulation studies are different from virtual labs and models.
5. *Inferior Learning Systems:* The testing of the learning systems is important with proper implementation team, hidden costs and sometimes the systems are not very futuristic. Analysts, researchers, educators, strategy managers are responsible to create a good system. Easy monitoring, resource allocation, data security, etc. should be available.
6. *Lack of Awareness:* Integration of ICT at an early age, integrate coding in curriculum, provide easily accessible awareness programmes for all age groups.
7. *Digital Divide:* The digital divide represents the gap between individual, household, business and geographical areas at different social-economic levels related to their opportunity

12. Furnell, Steven. Cybercrime: vandalizing the information society. Boston, MA: Addison-Wesley, 2002. 316p. ISBN 0-201-72159-7

13. https://www.statista.com/topics/5054/cyber-crime-in-india/

of accessing information and communication technology (ICT), and in terms of Internet use for various activities (Sparks, 2013). The rural sector should have sound connectivity as in the urban sector.

8. *Application Ecosystem:* According to the 2020 State of Ecosystem and Application Integration Report, an annual survey published by Cleo, the complexity of legacy integration solutions is negatively impacting both revenue and productivity, leading many companies to take action. The survey shows that enterprises today have admittedly grown frustrated with just how complex – and unnecessarily costly and outdated, integration technology is. Out of this frustration a groundswell of optimism is emerging that is driving demand for change in the marketplace," says Patel. "As a result, today's enterprises are starting to put their ecosystems first and have revealed intentions to strategically increase investments in integration technology platforms that support sustainable, long-term value creation."
9. *Indigent Practices of digital education:* Ensuring good practices with robust planning and deliverance.
10. *Value of Online Certifications:* Learners are not aware of the value the online certification courses have. The awareness that online certification guarantees employment is poor. Cisco certification, Risk management, Business management and PMP. Despite a lot of precautions, it is moderately simple to buy a fake degree certificate in India, and there are black-listed institutions offering courses.

The future of Higher education envisages high demand for digital courses, e-content, online educational materials, and paid subscriptions for e-learning management systems and platforms. The onset of massive open online courses has observed an increase in the enrolment of students in Higher education. The demand for e-learning in the Indian region is driven by better technological infrastructure, extensive reach of innovative learning and training solutions, and high awareness of e-learning over conventional offline learning models, Knowledge powerhouse of technology. It is plausible that there is greater acceptance of online education. It is reasonable

that the rapid growth of smart-phones and innovations has paved way for a digital revolution. It is the back bone for workflow, assessment and grading. Digitalisation has changed the game plan in the market

Madras Christian College transcends as a model Institution during the COVID –19 pandemic

"Spoon feeding in the long run teaches us nothing but the shape of the spoon" E. M. Foster. Jiddu Krishnamurti was an Indian philosopher, speaker and writer who brought about change in the field of education quotes "There is no end to education. It is not that you read a book, pass an examination and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning".

According to **Martin Ladau** *"Development Administration is the engineering of social Change"*. The importance of development can be measured through its good governance practices. It is a way of measuring how institutions conduct administrative affairs and manage resources in a preferred way. Governance is "the process of decision-making and the process by which decisions are implemented (or not implemented)".[14] Digital Governance in this context can apply to corporate, international, national, or local governance. The concept of "good governance" in the digitalized world thus emerges as a model to compare socio-economical and political status with viable economies. It accounts for both economic (fee) and non economic factors (education) in an institution like Madras Christian College. The concept centers on the responsibility of Institutions and governing bodies to meet the needs of the students and its preference to learner-centric models.

Historical Background

Madras Christian College was established by Scottish missionaries under the aegis of the founder Rev. John Anderson in the year 1837. Soon it was upgraded to a college by Rev. William Miller. The year 1962 witnessed its first Indian Principal Dr. Chandran Devanesan

14. "What is Good Governance". UNESCAP, 2009. Accessed July 10, 2009.

who was an educationist and a great academician. The Mission statement of this 183 years old college proclaims that the institution aspires to be an Institution of excellence, transforming lives through education with commitment to service. Madras Christian College (MCC) with the inspiration of the love of God, offers to people of all Communities education of the whole person and is appropriate to the needs of India and of the world. The institution became autonomous in the year 1978 and the core values of the Institution are Academic Excellence, Social Relevance and Spiritual Vitality. The College now has thirty-two departments under both the Aided and Self - Financed Streams offering Undergraduate, Postgraduate and Research programmes (M.Phil. & PhD) with over 7,500 students. The college follows a Choice Based Credit System (CBCS) which was introduced in 2003-2004 enabling the College to provide more choice for the students, especially interdisciplinary options and rationalized the workload of each paper in tune with the credits awarded. The Halls of residence for men, namely - Selaiyur, St. Thomas and Heber and the Martin, Margaret and Barnes for women, contribute to the rich diversity and hustle-bustle of the campus life. The sprawling sports fields, as well as the cultural ambience of the college, provide impetus towards students' personality and their all-round development.

The College is first among the Arts and Science colleges in the state of Tamil Nadu in meeting the Solar Purchase obligation, as it generates 50 per cent of its power needs through solar energy.

According to United Nations Economic and Social Commission for Asia and the Pacific, good governance is defined under 8 major characteristics which are participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. Good governance entails good decision making and the college takes pride in practicing good governance from the moment a student enters the campus. Madras Christian College instills in the young mind - leadership and the importance of governance. The College Union Society comprises of the union of the students elected democratically by casting votes. The hall (hostel) life of the students which is very distinct in MCC because of its governance pattern and administrative set up is a model of the Indian parliament headed by the PM and moderated by

the speaker who is also elected democratically. During the Covid-19 the college held its elections virtually. The elections are conducted every academic year through stooling and voting democratically. Categorically the students who are standing for elections should not have any arrears and no lack of attendance. The conduct certificate is given by the Head of the Department who is also accountable on who is being recommended. The students are trained to be model citizens. The Halls are governed by a constitution and it is insightful and reflective of the feelings and aspirations of the students. The wardens are mentors and facilitators who overlook the smooth execution of the governance. This has been practiced for a long time and the end result is to produce responsible citizens, causal to the needs of the society. The idea here is not only to train students to be responsible citizens but also be productive citizens. If one has to foretaste India then `Madras Christian College is the place to be as it has students from all over India and the world. The college has witnessed smooth transition under the leadership of its eminent professors and administrators during this Covid-19 pandemic period by going digital through e-administration, e-admission, e-election, e-classes and e-examination.

Going digital is a challenge indeed. Google classroom and Google meet is the platform used for Blended and Flipped learning. 'Flipped classrooms' utilise the blended learning model to reverse the traditional learning environment in such a way that the learners receive the bulk of the instructional content online. Learners would, for example, be asked to understand and process a set of material in their own time and at their own pace. This would take the place of more traditional post-class 'homework' tasks. The classroom sessions are then used for interactive discussion and exploration of the topic with the professor, which takes the place of the more traditional instructional scenario. Hence the type of activities undertaken in each context is the reverse of what is the usual. The class has 'flipped' to be the space for students and professors to be more active, engaging with each other in a more personalised and focused way. The online environment then becomes the home for the more traditional lecture-style teaching. Blended learning is an approach to education that combines online educational materials and opportunities for

interaction online with traditional place-based classroom methods. It requires the presence of both teacher and student, virtually. Zoom platform and Cisco Webex are also platforms used as per the requirement of the virtual connect.

Madras Christian College endeavours to keep abreast with the demands of education to provide a holistic education to the students. The transition from conventional learning practices had distorted the classes and schedules. The challenges were immense, which is to connect 7000 students and train 300 plus faculty members. The new leadership with the new Principal at the helm of affairs, instilled a sense of pride and motivated faculty members and non teaching staff at all levels. They gradually shouldered the responsibilities and addressed the challenges one by one in a systematic way.

During the challenging times of the pandemic the institute started in full swing the MCC Research Colloquium to enrich and update the faculty in research. Young faculty members were encouraged to present their specialized areas through the digital platforms. Periodically, the college sanitized its campus to ensure the health and safety of the Staff who have to visit the campus. All the academic meetings were addressed virtually and virtual platforms were used to communicate with students. The online classes started off with ease, as the faculty members attended online training programmes and webinars to augment themselves with the growing demands. Digitalization has significantly supplemented the strength of our college where teaching and research was at the forefront of affairs. The college intends to conduct internal exams and end of semester exams virtually with proctoring software. Experiential methods, with powerful teaching tools using digital aids is one of the strengths of the institution. Virtual internships, virtual placements and virtual training is the order of the day. Participation of the students and understanding the new pedagogue of learning in the digitalized world is creditable and worth mentioning. Synthesis of need based virtual aids and cost effectiveness is one of the lessons taken from this pandemic. Life is about the choices you make. Madras Christian College is committed to bring out students who are digitally conscious. At this juncture it is important to give credit to the leadership of Madras Christian College, who at all levels were

able to collaborate and progress effectively and efficiently. It is not about the college ranking or the high pass percentage that the college endeavours, but the quality of the students that are produced. The idea here is to produce responsible students who become efficient and digitalized citizens. The outcome is to generate prolific, industrious and conscitcientious citizens. Remember our motto, 'In hoc signo', which is traced to an important event in the life of Constantine the great (AD 274-337), the first Christian emperor of Rome. Before an important battle he saw a cross shining in the sky, and these words: "in hoc signo vinces..." with this on your banner, you will win!

11

ASHISH KUMAR SRIVASTAV and B.S. BISHT

Management and Challenges of Covid-19 in District Dehradun (Uttarakhand)

Introduction

COVID-19 came as in unexpected storm. In the era of climate change when we were expecting unprecedented rain COVID -19 came without knocking our doors it entered into our life. All around the world air was filled with virus. Theories started flowing around the origin of virus.

On January 30, 2020 World Health Organization declared Covid-19 as Pandemic. This generated fear among the world community. Leading health facility available in the most developed nations like United States and Itlay started crumbling. The attack of virus was so sudden that it didn't give time to developed nations to prepare for this pandemic. Countries at first were engrossed in playing the blame game and then when no one was found guilty we started talking about vaccine. It seemed like a new era war, not led by armed forces but was forced upon to be led by unprepared group of civilian intellectuals called Health Practitioners. Today, we have a terminology for such group, they are called Frontline Warriors. Warriors, who had no Sukoi or Rafael to protect them. No armour to enter the battlefield. All they had was their commitment to health services.

Talks about the origin of virus gradually faded, as countries around the world became busy investing in the research for new vaccine. After all the manufacturer of the vaccine will be the winner. Whether virus was manufactured or is natural is not the focus of this write up. Yes while writing I do feel I am reporting bio warfare. Nevertheless I will be reflecting how a small town Dehradun in the state of Uttarakhand successfully fought the virus attack even in the face of poor health facilities and poor medical infrastructure.

India encountered its first case on January 30, 2020 when a student from Wuhan University in China returned to Thissur district in Kerela. This was followed by second case on February 2 in Alappuza and third on February 3 in Kasaragod districts in Kerala. Soon the virus spread in Gujarat followed by Maharashtra. Epicentre kept swinging between Pune and Maharashtra. Lockdown was the only strategy available worldwide to fight the virus spread. So India adopted this strategy.

This lockdown gave the opportunity for preparing our health services to uptake this pandemic. Covid-19, the enemy was so unknown. It became imperative to coordinate with health department and other line department. The only thing known to us was virus is spreading because of travelling. Hence first strategy to fight was to bring halt to movement of people. In Uttrakhand lockdown was implemented on March 22, 2020. As a district in charge for administration it was our responsibility to check and ensure things were implemented in proper manner. To fight Covid-19 spread in district Dehradun was our sole aim. Every move we made to fight was first of its kind. So all line department meet was called and every suggestion was heard. We did not know which would work.

The strategies that were implemented by the state were divided into three components i.e. (1) Movement; (2) Information and (3) Preparedness.

(1) Movement

The first thing to be adopted was to put restriction on movement of people in and out of the district. This created panic among the citizens. Hence they started storing rations and groceries. Due to which there was shortage of items including essential items thus many poor and old were affected, as they could not store such items former because of scarcity of money and later because of their debilitating health. The vendors inflated the price beyond imagination adding extra panic in the community. District administration took cognizance of the situation. A list of all the groceries stores in different localities was made. With the help of police department we instructed the storeowners to deliver groceries at the doorstep and go online so that people could order items online. A price list

of essential items including vegetables and fruits were prepared by the administration and orders were issued that anyone selling above this will be amounting to offence. Orders were issued to chemists to take phone numbers of customers who bought medication related to cold and fewer symptoms. The same was to be reported to the administration so that any person with symptom of covid-19 could be traced. As it was the month of March tourists were very thin in number but our concern was the people travelling back home. The state sealed its borders with Uttar Pradesh and New Delhi. A special pass called e-pass was to be accessed online to allow and check people's movement from one border to another.

Quarantine was a strategy adopted to contain people at a place away from general population. These were the people who have travelled in the city and were under suspicion of virus attack. The symptoms of this virus attack took 14 days to surface and this meant keeping people in quarantine centers for at least 14 days. Citizens were instructed to download an app called Aragoya Setu. The app informed a common man how many covid-19 patients were close to them. Interstate travel policies enforced a 21 day quarantine 7 days institutional isolation and 14 days at home on people coming from high load Covid-19 cities. It allowed people to choose between government facility and hotels. People in quarantine centers went rapid testing before going home. Since virus was spreading because of travelling or movement from one place to another so the only option was to restrict movement of people and delay the spread of virus. This would enable the health practitioners take care of all the affected people.

First reported case of Covid-19 in Doon came from Forest Research Institute when a forest officer returned from Spain. This sent alarming bells around the administration and generated fear among the community. The district administration was active and resorted to contact tracing. That is identifying all the people who have come in contact with the active patients in last 14 days. Such people were traced, identified and monitored for 28 days. This was done by making phone calls by health workers and also by Aasha workers visiting the residence of contact. List of all exposed contact was maintained. This list included demographic information, date

of last exposure with the case patient, and date of onset of fever or any other symptoms. Contacts found via this process are of two types. Symptomatic and asymptomatic. Symtomatic means a person with symptoms like cough, fever and history of contact with the confirmed case. Asymptomatic contact means those who had been in contact with the confirmed case but does not show any symptoms of covid-19.

Following numbers reflects the management of such contacts in district Dehradun.

- Total contact traced = 75294
- Total high risk contacts = 66412
- Total sample taken for high risk contact = 66412. Out of this 5657 were positive.
- Number of active containment zone created = 6
- Number of sample taken in active containment zone = 4565
- Total number of positive patients in active zone = 269
- Total active DCC in Dehradun = 3
- Beds occupied in DCC = 20
- Total oxygen supported beds in DCHC = 81
- Total ICU beds in DCHC = 48
- Total ICU beds occupied in DCHC = 25
- Total patients in ventilator support in DCHC = 10
- Total oxygen supported beds in DCH = 1124
- Total oxygen supported beds occupied in DCH = 256
- Total ICU beds occupied in DCH = 124
- Total patient on ventilator support in DCH = 18

Besides this DCHC and DCH hospitals were identified.

DCHC hospitals:

1. SPS hospital
2. Synergy Hospital
3. Arogya Adham hospital
4. Kailash hospital
5. Velmed Hospital
6. ONGC hospital.

DCH Hospitals:

1. AIIMS

2. Government Doon Medical College.
3. Swami Rama Himalayan hospital
4. MAX Hospital
5. SMI Hospital
6. CMI Hospital.

Active DCC:

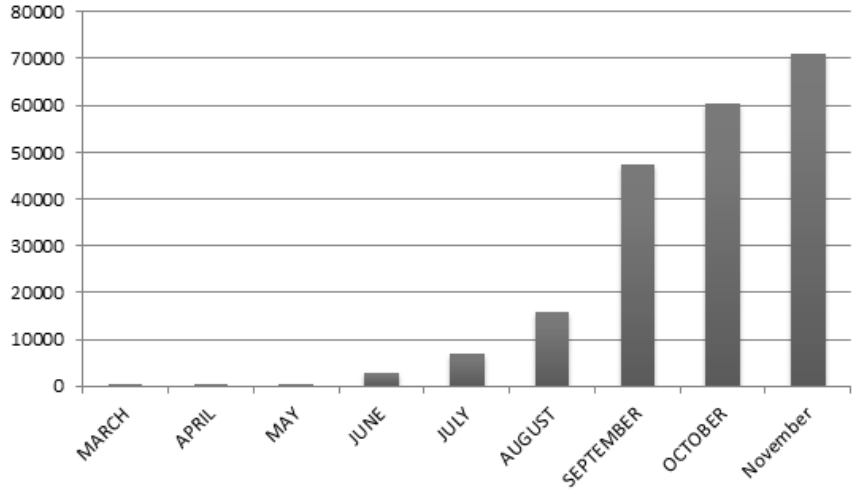
- Rajiv Gandhi Stadium.
- Veerangna Tillu Rauteli women Hostel
- Bharat Bhoomi, Rishikesh (GMVN)

All these hospitals are suppose to have basic health facility that can cater to covid patients. There are about 1887 doctors available in health care till date in diistrict Dehradun. Oxygen management is an important aspect as covid patients develop hypoxia and need intubation and invasive ventilation. Hence oxygen therapy is important. District administration ensured such therapy availability in the hospitals. Till date total oxygen available in the district is 37727 cum. Total oxygen consumption per day is 12331.9 cum. There are 11 health facility with central oxygen supply.

Following graph reflects the growth of Covid-19 in Uttrakhand from 15 March 2020 to November, 2020.

Figure 11.1

No. of Infected People



Source: Wikipedia.

The graph shows that the lockdown from March to May reported low cases almost, 72 cases. When first unlock was announced on June 8 reported cases started rising. In June the number of reported cases rose to 2809, July 6866, August 16014, September 47502, October 60482 and in November almost 70990.

Government of India issued guidelines to prepare a database of all health workers. District administration office played a vital role in managing the creation of this database that included data of health facilities existing both at government and private level. An app locator was developed by the administration in collaboration with state national information center (NIC). A task force was formed at district and block level. This force included members from different departments like police, health, education, Integrated Child Development Services, Red Cross, Panchayats and Aasha workers. The structure of the force prepared is demonstrated by the following:

TASK FORCE AT DISTRICT LEVEL

1. District Magistrate.
2. Police Commissioner.
3. Chief Development Officer.
4. Health Commissioner
5. District Education Officer.
6. District Program Officer, ICDS.

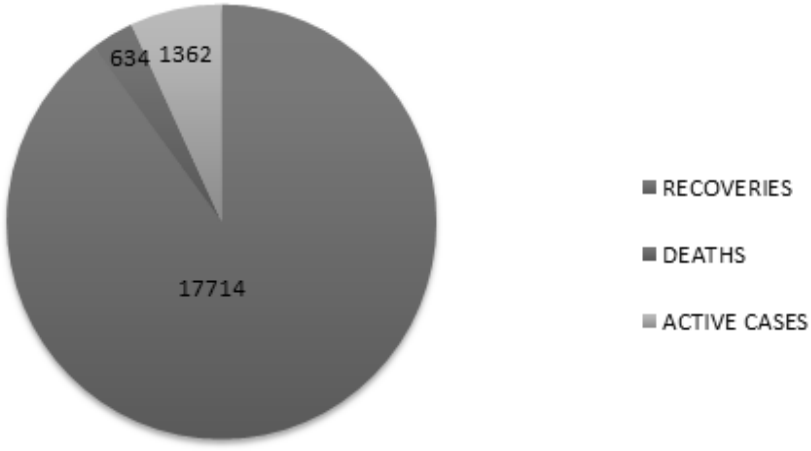
TASK FORCE AT BLOCK LEVEL:

1. Assist. District Magistrate.
2. Assist. Police Commissioner.
3. Chief Development Officer,
4. Children Development Officer, ICDS,
5. Assit. Development Officer.
6. NGO dealing with vaccination,

With the help of this task force it was possible to create connectivity between different departments within the district. Additionally, it increased the outreach of our efforts in terms of relief work, reporting of new Covid-19 cases and managing quarantine centers. As of November 20, 2020 the spread of Covid-19, recovery, deaths and active cases in district Dehradun can be understood by the following chart:

Figure 11.2

Spread of Covid-19 in Dehradun till 20 November, 2020



Source: Wikipedia

As it is seen in the graph that with the progression of time covid-19 cases started to upsurge in Dehradun. Inorder to reduce the burden on health facility strategy of Home isolation was adopted. Such facility was mandatory for people travelling in their own vehicle and entering Dehradun. Also to patients who had mild symptoms like fewer and coughing. Following data is till November 28, 2020 and shows that the strategy of home isolation worked and health facility was not flooded:

- Number of home isolated patients = 6532
- Total active home isolated patients were 455
- Total kits given = 6109
- Total pulse oximeter provided = 5012
- Total patients shifted to health facility = 131
- Total death of patients shifted from home to health facility = 1
- Total death in home isolation = 0

(2) INFORMATION

(i) During lockdown

Some steps taken to disperse information within the city were as follows:

1. Animated video's were prepared to aired on local television channels and on social media.
2. Audio messages were spread through Nagar Palika.
3. Hoardings carrying messages about covid-19 were placed at public places and on public transportation.
4. Stickers on home gas cylinders.
5. Police patrolling in the city at regular interval announcing people to stay in their respective houses.

(ii) After lockdown

June 8, 2020 marked the first unlock period. Strict lockdown restrictions were eased. Important economic activities were opened allowing offices and markets to operate. There was cap on number of pilgrims allowed to visit Char Dham. Government released Standard Operating Procedure (SOP) for pilgrims on June 9. Only residents from district were temple are situated were allowed. People from the containment zone were not allowed. Unlock guidelines were issued to hotels, homestays, religious places and shopping malls. Hotels were prohibited from taking visitors from high viral load covid-19 cities across the country. Hotels and bars in containment zone were not reopened.

Some strategies to disperse information after unlock undertaken were as follows:

1. Written Messages to prevent Covid-19 were given with home isolation kit.
2. Hotels were given some do' and don't.
3. Slogan: "Mask Nahi Toh Seat Nahi" was painted on public transportation.
4. Police fined people who did not wear mask.
5. Stores were instructed not to allow people without mask.
6. Three Mobile Booths were set up in Dehradun Municipal area.

7. Special camps in co-ordination with Lions club and vyapaar mandal were organized for sampling.
8. Sampling camps were established in Kalsi and Chakrata block and also at industrial area of Selaqui and Patel Nagar.

On June 16, under Epidemic Diseases (Amendment) Ordinance 2020 central government made violations such as not wearing masks in public places and any violence against health workers and damage to public property a punishable offense. The district administration of Dehradun implemented this in close co-ordination with the police force of the city.

(iii) E-Governance

In-order to contain the spread of Covid-19 virus the administration in Dehradun resorted to e-governance. To deliver services to the community following were used:

1. Integrated Command and Control centers.
2. E-pass
3. Artificial intelligence- enabled CCTV cameras.
4. E-office.

In order to keep strict vigilance in and out of quarantine centres and around containment zone it was important to keep people 24 hours under surveillance, monitor the isolation wards and enforcement of lockdown. Making Integrated Command and Control Centre (ICCC) made this possible. The use of this technology helped in checking the behaviour of the people post lockdown. It was important for the people to follow social distancing, wear masks and use sanitizers.

The biggest challenge faced by the city post lockdown was to keep the employees motivated. Hence Dehradun started an initiative called "Corona Warrior of the Day". The district administration would display the photograph of corona warriors in all VMD board displayed in the city.

(3) Preparedness

The prevailing health facility available in the district was not sufficient for the existing population of approximately 8 lakhs in the district. We have just one government hospital Doon Medical College

and two private hospitals Himalayan Institute for medical sciences and Shri Mahant Indresh hospital. Doon Medical College was made as a covid-19 patient ward. This college being located amid the city was a big challenge. Capacity analysis of Medical Colleges in Dehradun was done by using the strategy of what if analysis.

In this analysis different scenarios were assumed.

1. Scenario 1 when covid-19 cases rose to 100
2. Scenario 2 when covid-19 cases doubles in 7 days.
3. Scenario 3 when hospitals in district reach its maximum capacity.

The following chart is prepared taking into consideration the present situation of government hospitals. An attempt has been made to understand their present capacity and speculating their capacity in the face of onslaught of covid-19 patients.

Table 11.1

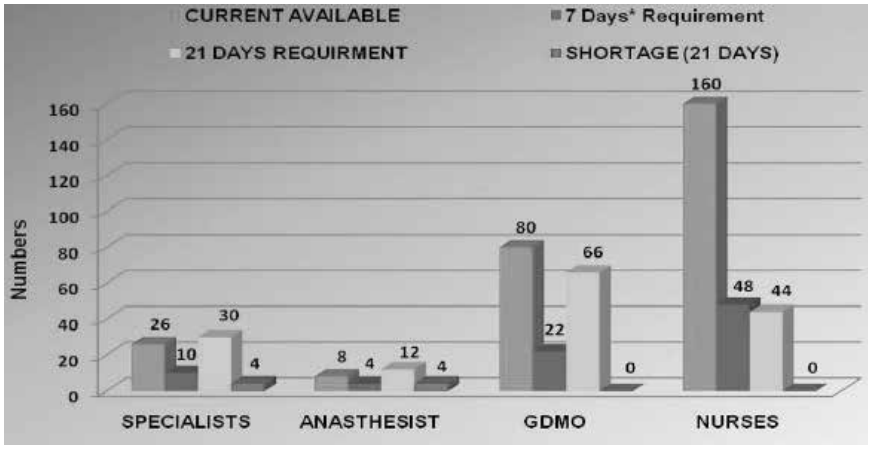
Present capacity of Government Doon Medical College (GDMC) Scenario-1 What If Covid-19 Cases Increase To 100

Items	*Current Available*	*7 Days* Requirement*	*21 Days Requirement*	*Shortage (21 Days)*	*Remarks*
Specialists	26	10	30	4	
Anasthesist	8	4	12	4	
GDMO	80	22	66	Nil	
Nurses	160	48	144	Nil	
Ward Boy	90	24	72	Nil	
Sweepers	90	24	72	Nil	
Isolation Beds	270	100	100	Nil	Can be increased to 350
PPE	1038	924	2772	1734	
N9 Mask	4241	924	2772	Nil	
*A team of staff would work for 7 days and will go into quarantine for 14 days. As per the staff norms followed by doon hospital.					

Source: Study by conducted by district administration, Dehradun.

Figure 11.3

Availability of Medical Facilities in Doon Medical College



Source: Study by conducted by district administration, Dehradun.

SWOT analysis of Government Doon Medical College

Strength:

1. Has sufficient human resource for 352 patients.
2. Specialized doctors are available.

Weakness:

1. Available ICU beds are low in number (10 beds).
2. Building of hospital is old and has little scope of modification or extension.
3. Lack of medical equipment's for investigation of patients likes no CT Scan, no 2D ECHO.
4. No USG machine for Covid -19 patients or no Dialysis machine.

Opportunities:

1. 50 bed ICU can be established.
2. Fully functional Cath lab can be established.

Threats:

1. Centrally located in the city. This poses a huge challenge to contain infection.
2. No testing facility available to test Covid-19 patients.

Capacity analysis of Shri Mahant Indiresh Hospital:

This hospital is located in the middle of city. It has the capacity to take 288 Covid-19 cases.

Table 11.2

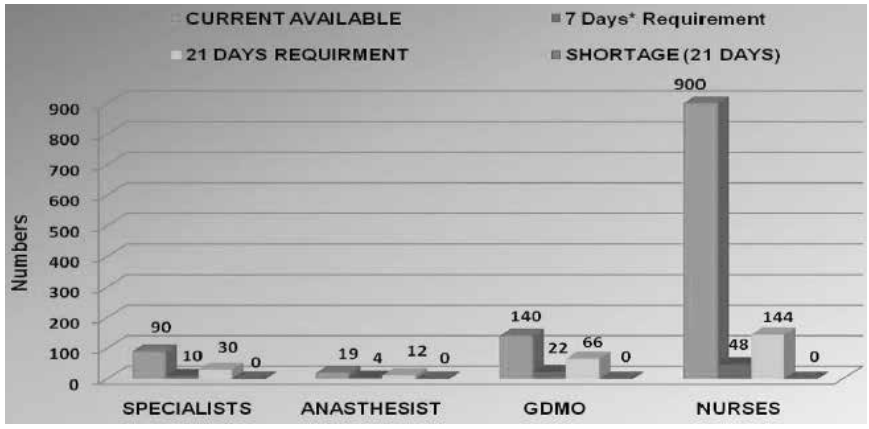
Scenario-5 What If Doon Hospital Gets Contaminated Second Dedicated COVID Hospital SMI (For 100 Cases) (However, Capacity is Sufficient to Cater 288 Cases As Well)

Items	*Current Available*	*7 Days* Requirement*	*21 Days Requirement*	*Shortage (21 Days)*
Specialists	90	10	30	Nil
Anasthesist	19	4	12	Nil
GDMO	140	22	66	Nil
Nurses	900	48	144	Nil
Ward Boy	300	24	72	Nil
Isolation Beds	1066	100	100	Nil
PPE	70	924	2772	Nil
N9 Mask	4000	924	2772	Nil

Source: Study by conducted by district administration, Dehradun.

Figure 11.4

Availability of Medical Facilities in Doon Hospital



Source: Study by conducted by district administration, Dehradun.

SWOT analysis of Shri Mahant Indresh Hospital

Strength:

1. Multispecialty hospital with capacity of 1000 beds.
2. Good number of ventilators and ICU beds.
3. Well-trained ample nursing staff.

Weakness:

1. Being in the center of city it has high OPD. So if dedicated to Covid -19 it might spread more infection.
2. Being a private hospital it has poor co-ordination with the government.

Opportunities:

1. Fourth year MBBS students available as HR for covid-19 patients if shortage of manpower arises.

Threats:

1. Due to its central location in the city infection containment is a big challenge.

2. No Covid-19 testing facility.

Testing for COVID-19

The district administration in association with the health department arranged the testing facility at the border check post. Anyone arriving in Uttrakhand without undergoing RT-PCR/ TrueNAT/CBNAAT test will have to take the test on payment basis at the border check post. If they have done this test then they are required to upload the report on website of Dehradun Smart City. Indian Council of Medical Research (ICMR) gives permission to labs in the district if they meet the required standard of testing Covid-19. In Dehradun ICMR approved testing labs like Ahuja Pathology, Government Doon Medical College were allowed to conduct Covid -19 test.

Steps taken for Testing by the district administration:

- Number of static sample collection centers=41
- Mobile team is made available in all 6 community development blocks of Dehradun.
- Four truenat machine available for testing.
- VTM vials available-5050
- Rapid antigen kits available=7750
- Creation of flu clinics and SARI/ILI. In last 15 days total patients in flu clinic were 3092 and SARI/ILI were 168. Out of 3092 patients 128 tested positive.

Challenges

To bring a population of almost 8 lakhs people to a halt posed many unknown challenges. Panic in the community was eminent as no vaccine was available to fight the virus. It was important to contain people in their houses, to make them understand that this will break the chain of human-to-human transmission. As more and more people were coming back home from other states and even abroad it became equally challenging to break the surface transmission. In the face of no scientific cure it was very challenging to disperse information and convince people to stay home. This was made possible by planning in integration with the different line department like Nagar Nigam, Urban development, Health,

Panchayats etc. A massive sanitization drive was carried out in the district with help of Nagar Nigam.

The challenges that the district was facing can be divided into three parts.

i) Economic
ii) Health
iii) Social

i) Economic Challenges:

The pace of economic activity reduced as expenditure was not happening. 14 crore people in India lost jobs. Many had deduction in salary. Country lost Rs. 32,000 crore per day in the first 21 day lockdown. Supply chain were under tremendous stress. Supply chain was broken and farmers were under doubt whether to grow vegetables or not. They were not sure who would buy their products? Companies reduced their operations because of virus infection fear. It was important for the administration to define essentials. So a list was prepared for essential items. As the lockdown phase progressed the district categorized the essential office like banks, doctors and police. Private sector employees were instructed to work from home but these essential category employees were suppose to visit their office.

Tourism is a major source of income in Uttrakhand. Many people are connected with this service industry. But the onset of covid 19 just before the tourist season proved detrimental to large population. Dehradun was an entry point for Char dham yatra. Hotels, drivers, tourist guides, booking agencies and many more related sectors were adversely affected. Char dham yatra was a signaficant source of income for the state too.

District administration was quick in taking economic relief measures. As movement was restricted there was almost no transportation of goods from one place to another. Passes were issued to vehicles carrying essential commodities. With help of store owners it was possible to deliver goods and items booked online at the doorstep. But then there was this huge unorganized sector for whom making purchases online or even buying at the store was not possible. Almost all offices were closed. Factory workers were left jobless. Daily

wage earners were completely helpless. This posed another great challenge infront of the district. We had to arrange rations and food for these people. This demanded organization of massive relief work.

The district administration was quick in action and immediately an online portal called Doon Happy Meal Service Portal. (http://webline.gov.in/efoodbank). Volunteers signed in and booked their contributions. A pick up time was given to them by district administration. Through this portal people were able to give uncooked food items and cooked food packets. The uncooked items contained rice, flour, pulses, biscuits, snacks water, etc and were termed as Annapurna Kit. Masks, sanitizers and PPE kit were also received via this portal. In total 45 Volunteers made contributions. This included individuals, NGOs, Trusts and other organizations in the district. Radha Swami Satsung alone contributed 115126 food packets in 59 days. This relief work was organized from 26.3.2020 and lasted till 23.5.2020. Total of 312408 cooked food packets were distributed.

The administration was able to employ 69 Self Help Groups in the rural area by giving them the task of making masks. In total 591888 masks were prepared at a cost of Rs. 1242552. On average each SHG earned Rs. 18000. One SHG from Pauri district was given the order to provide sanitary napkins in quarantine centres. A total of 30,769 sanitary napkins were distributed thus providing the SHG with humble income. This also proved blessing for these SHGs as covid-19 had diminished their hope for livelihood.

2. Health challenges:

Covid -19 has been fatal mostly for people with underlying medical condition. On March 18 Italy's National Health Authority conducted studies that has shown that 99% of deaths happened to people who were already suffering from some other disease or underlying health problems. According to the US Centers for Disease Control and Prevention one in five people that have been affected in the US are aged between 20-44 years. In UK studies have shown that some young people also have ended up in intensive care. This information has sent an alert signals to various countries all around the world that lot of healthy people too are victim of the

virus attack. Pandemic news report is making this pandemic more annoying, confusing and stressful. Some people are fully recovered but some have long term health impact like chronic shortness of breath, coughing and kidney damage and damage to maybe other organs too like lungs. Thus these people end up visiting the hospitals again and again. There are others in the community who are worried they might catch Covid-19. Such people are suffering from anxiety and depression and this weakens the immune system thus making these people more susceptible to diseases. In order to minimize this negative health impact the district administration in integration with different health agencies have come out with guidelines spreading the message via placing hoardings at crowded places, sending recorded messages via phone some of these guidelines are as follows:

- Avoid large social gathering.
- Maintain social distancing in public.
- Wash your hands regularly with soap and water.
- Avoid touching your face.

3. Social Challenges:

Covid-19 spread has surfaced some hidden social disparity in our society. It clearly marked disparity between high income group and low income group. The disease was supposed to be present among the elite classes who resorted to travelling abroad. But victims were mainly low classes poor people who were left jobless. Daily wageworker that forms very significant part of informal sector was left with no source of income. Thus this deepened the already existing inequality and vulnerability. As the disease spread, the poverty grew even among the middle class as companies had by now closed most of their operations. The left employees were getting deductions in salary. This weakened social cohesion and gave rise to expressions of social discontent.

District administration of Dehradun took cognizance of the situation and extended social safety nets, especially for vulnerable groups such as low-income households, women, low-skilled workers, part-time or temporary workers, especially workers who have migrated from other states and have no home here. The festival like Diwali and chath that were due in October made the administration

alert for more active involvement to control social gathering. Messages were dispersed asking people to use less firecrackers and play safe. People were not allowed to perform chath puja near water bodies and were banned from collecting at public places.

In the present scenario when we are still waiting for the vaccine to arrive the district administration needs to be more careful in implementing our Covid-19 management strategies. We are strictly following the protocols of social distancing, wearing masks and using sanitizers. These are the only weapons that we have to control the upsurge of Covid-19 in Dehradun. With the onset of winters the cold and flu will be very common. Hence we need more testing facilities and more use of e-office concept so that movement remains restricted. We cannot afford to be complacent as we do not know who and where are the super spreaders of Covid-19. Hence the district administration is continues to follow its policies formed in post lockdown.

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12

RAJBANS SINGH GILL

Bracing for the Impact

E-Governance Initiatives and Public Policy Measures in Punjab

As Albert Einstein once said "In the middle of a difficulty lies opportunity." This has again been proved by the rapid emergence of innovative technology solutions across the globe as a response to the covid-19 outbreak. It is important to learn from the mistakes of others. India has advantage of learning during the spread of corona virus, as health crises exploded earlier in other countries such as China, Italy, USA. As every country was slow in responding to spread of the virus which ultimately leads to health crises in every part of world. India, too, responded slowly but the steps such as national lockdown and tracing of the people having travel history from the effected countries had been appreciated around the globe. Punjab was the first state in the country to impose the curfew in the whole state. As, the underlying principle to prevent the spread of the virus is to follow the practice of 'social distancing' and maintain hygiene by wearing face masks, washing and sanitizing hands regularly. The interdependence (emotional and economic) culture of Punjab within the families, relatives and friends is deterrent to social distancing. Close physical interaction is intricate in the social fabric of Punjab and pose a greater challenge before administration to implement the precautionary measures. However, while implementing the practice of social distancing it has to check that it would not excavate already existing inequalities and would not make the vulnerable more vulnerable to suffer. Among the social challenge there are many other challenges which are faced by the administration and the various measures have been taken in order to overcome the challenges.

The unprecedented Covid-19 crisis pushed the limits of the resilience of every individual affected by it. It challenged each of us to draw from the reserves of our capabilities and capacities to deliver success in extraordinary circumstances. It marked a defining moment that will go down in history as a transformational event that changed the way we live and work, across industries, businesses and day-to-day operations. And it brought out the best of the collective will of every section of our people, forcing them to prove their mettle in these tough times. State governments in India have partnered with the existing ecosystem of technology companies, particularly start-ups, to implement a wide array of solutions. There have been broadly two categories of solutions, which have been deployed. The first category is related to the medical and healthcare response to the pandemic while the second is Government service delivery. Following are some of initiatives of Punjab Government towards good governance during Covid-19.

1. Surveillance of Curfew

The administration and surveillance of curfew was one of the greatest challenges before the government. Violation of curfew had seen in various parts of Punjab as it was health emergency people don't take it seriously and the care free culture of Punjab was another hurdle before administration. Punjab police launched drone surveillance in various districts. By 3rd April 2020 drone deployed in 34 locations across 10 districts of Mohali, Sangrur, Fazilka, Hoshiarpur, SBS Nagar, Barnala, Jalandhar (Rural), Moga, Ropar and Fatehgarh Sahib. Drone surveillance found effective as it led to coverage of large and densely populated areas.

The FIRs had lodged against the violators of the curfew and some being sent to open jails setup in different districts as punishment to the violation of curfew. 1784 FIRs on count of curfew violations, with the arrest of 2592 persons till 3rd April 2020 . The movement of vehicles is ensured in case of emergency through e-passes issued by district administration and later by registration on COVA application.

2. Ghar Ghar Nigrani: Surveillance Application

The Punjab government on Friday launched a mobile application aimed at undertaking house to house surveillance to contain the spread of COVID-19. The app, "Ghar ghar nigrani", was launched by Chief Minister through video conferencing.

The survey captured full medical conditions of a person for the previous one week and complete details of his/her co-morbidity, this would help the state develop an extremely important database to further plan its COVID containment strategy and make targeted interventions for the community. Around 20,628 persons were surveyed, of whom 9,045 were found to be asymptomatic and 1,583 with symptoms like cough, fever, sore throat, breathlessness etc.

The survey was initially done in 518 villages and 47 urban wards. Around 4.88 per cent of the people surveyed were found to be hypertensive, 2.23 per cent diabetic, 0.14 per cent having kidney disease, 0.64 per cent with heart disease, 0.13 per cent having TB and 0.13 per cent having cancer. The ASHA workers and community volunteers are paid Rs 4 per head incentive/honorarium for every person surveyed and shall cover 500 households. A supervisor oversees the work of ASHA and community volunteers, and are engaged on a voluntary basis for Rs 5,000 per month.

3. Farmer's CONNECTS

Ola is extending support in the form of a robust technology platform, to help governments and public service organizations manage their on-ground operations. With a decade of experience in moving hundreds of millions of people around the world, OLA is helping to monitor and react to complex processes in faster, smarter and safer ways. OLA has named its application as OLA CONNECTS which stand for comprehensive navigation, Networking, Control and Tracking Solution.

Helping the Punjab Mandi Board and over 1.7 million farmers with social distancing as a government mandate, the Punjab Mandi Board needed a way to monitor and manage the movement of thousands of farmers to and from 3800 mandis. OLA helped them to control Crowd through social distancing, as their application

effectively maintained with minimum disruption to delivery operations and food supply.

4. Fake News and Rumors

It is imperative to keep check on rumors and fake news as it misleads the citizens and sometimes even create panic among the society. Rumors such as food shortage and no further supply of essentials such as medicines, cooking gas and food leads to panic buying. Rumors regarding the cure of the virus and not to use sanitizers are another hurdle before administration. Government of Punjab had taken various steps to curb rumors and fake news. Section 54 of the Disaster Management Act, 2005 makes the spread of rumors and fake news as punishable offence. Punjab government also started the campaign 'Fake News Di Khair Nahi' (Fake News Won't Be Spared). It is social- media awareness campaign to educate people about the laws and sections of the Indian Penal Code (IPC) that can be invoked to punish the fake news peddlers.[1]

Source: The Indian Express

The new challenge faced by the Punjab Health department about the rumors of organ harvesting of corona patients, poor facilities at government hospitals and doctors getting paid to declare a person corona positive. Such rumors make it hard for medical teams

1.

visiting villages to collect samples as villagers resist the entry of medical teams. As an implication to this government decided to give the patients option of home isolation with mild symptoms or no symptoms. Medical teams check them regularly through video calls .

5. Awareness

The only way to stop the spread of virus is by taking precautionary measures. It is the duty of administration to educate the people about the factors lead to spread of virus and what precautionary measures are need to be taken during and after the lockdown. Government issued various advisories to citizens, departments, industries, vendors, shop-keepers from time to time. These advisories have limited reach that is to the people who are educated and already aware. The main challenge before the administration is educating the section of society which is illiterate. Government came up with various innovative means to educate and aware the general public and inculcate the value of discipline, cooperation and compassion. Administration approached the persons who are famous on TikTok to generate awareness through funny but educational videos. Several districts of Punjab (Hoshiarpur and Kapurthala) announced the 'Best TikTok Competition' to create funny videos for the people of 15-35 age group. Such videos are decided to post on social media and forwarded in school groups .

Youth volunteers have also been engaged by the government to educate people. 76,381 volunteers make door-to-door visits to aware people in villages, urban area and towns under mission Fateh of Punjab government to fight against corona virus . The other measure adopted to generate awareness is Cycle Rally and a webinar on "Covid-19: Challenges and opportunities for youth" by Punjab youth development board .

6. Motivating Frontline Warriors

The pandemic make the doctors, health-care workers, medical staff members and police personnel frontline warriors. They put their own health, families and their own lives at risk by leading the battle against COVID-19 from the front. Punjab government institute 'Director General of Police honor for Exemplary Sewa to

Society' award to recognize the exceptional work done by Punjab Police officials in the field of community service. To motivate front line warriors' state government provides health insurance cover to policemen and sanitation workers of Rs. 50 lakh each on the lines of the centre government .

7. Digital Initiatives

Government of Punjab took various digital initiatives to overcome the problems faced by the people.

- The state government launched mobile application COVA with geo-tagging and geo-fencing features which helps in finding nearest COVID patient, contact tracing of positive cases, helps in reporting mass gathering, helps in ordering grocery and essential goods through application.
- E-Sanjeevni (a telemedicine solution) is implemented across the state in partnership with CDAC Mohali. It aims to deliver health care services (diagnosis, treatment and prevention of disease and injury, research and evaluation etc.) to the individual and community using information technology.
- Rebate of 1% on online payment of electricity bill by original due date given to consumers exclusive of any previous arrears.
- In order to analyze the trend and pattern of cases; and prediction of hotspots so that administration can take timely decisions to control the spread of virus a dedicated dashboard launched by the state government- corona.punjab.gov.in
- State government took initiative and launched a platform covidhelp.punjab.gov.in to help people who want to go back to their home from Punjab and who want to return to home in Punjab.
- Webinar conducted by government for medical heads of district hospital, isolation facility and government medical colleges with experts from PGI, doctors from AIIMS New Delhi, DMC hospital on issues like line of treatment, supportive management and testing of the cases.

- Telemedicine venture launched by state government between Cleveland Clinic USA and Christian Medical College, Ludhiana. It aims to provide physician-to-physician video consultation.

8. Education Sector Crises

The lockdown and curfew has the long-term impact on education sector as the school, colleges and universities are close because of safety issues of the student. It disrupted the education system and lead to academic loss of the students. Educational institutes substituted the classroom learning to virtual learning. E-teaching is the only mode to overcome the academic losses through various applications such as Zoom, Google meet, WhatsApp calls etc. the state government has launched an online education portal 'Padhai Tuhade Dwar' means education at your doorstep to help students continue with their studies while being at home . Campaign launched to provide online education through animated videos to students under 'Mission Fateh' by the state government.[2]

Technology is rapidly evolving, Higher education has also taken the support of ICT and now offers convenient ways to help increase the knowledge, education and literacy status of people. E-learning platform provides anywhere, anytime easy access for upgradation of knowledge and skills. It provides a platform wherein the individual

2.

gets a customized package related to key thematic areas, through a self-guided process. One of the key component of ICT is e-Learning. e-Learning is learning through utilizing electronic technologies to access educational curriculum outside of a traditional classroom. E-learning programmes are clutching the moment and trying to plug the academic void created by the closure of educational establishments due to coronavirus pandemic. E-learning signifies the method of sharing and communicating knowledge via multimedia platforms. On 11th February 2020, the WHO announced a name for the new coronavirus disease as COVID-19. As lockdowns continue throughout the world, many individuals are heading online for help—such as the 1.3 million people signed up for "The Science of Well Being", a free course from Yale University. Since the end of 2019, its enrolment numbers have risen 295%, and in March 2020 more than half a million new learners signed up within a matter of weeks. The online enrolment boom is being experienced elsewhere, too.

A course that also looks at the science of happiness, run by the University of California, Berkeley, has crossed its own registration record by drawing half a million learners globally. NASSCOM is offering courses such as Artificial Intelligence Foundation Course, AI for everyone, and other similar subjects for free on its portal SkillUp Online, which was launched with support from the Ministry of Electronics and Information Technology (MeitY). The AI Foundation Course that would have normally cost Rs 6800 can be taken for free online until 15 May 2020. Information Technology behemoth Tata Consultancy Service is offering a 15-day digital certification programme called Career Edge – Knockdown the Lockdown for free through TCS iON. The course aims at fine-tuning the communication, presentation and behavioural skills of students to create an impact in interviews and the workplace.

As higher education institutions in Punjab, have been closed due to COVID-19, the majority of students are learning remotely. Motivating students during remote learning is central to their success. Motivation means ensuring they are interested, involved and confident in their learning. Parents and teachers have an important role to play by providing students with encouragement and feedback. The Coronavirus pandemic and the ensuing lockdown has forced

Universities and colleges across India to temporarily shut and this virus had created a big gap in the education system despite the central and state government doing their best to provide support for e-learning and online education.

The government of India has also initiated and directed to use numerous online platforms effectively by engaging students with online learning through Information and Communication technology techniques. The Government of India through its Human Resource Development Ministry and diverse departments working under it are bringing out numerous initiatives. The University Grants Commission and its Inter University Centres (IUC)- Informational and Library Network(INFLIBNET) and Consortium for educational Communication (CEC) are part of this network.

The Government is not leaving any stone unturned for arranging/ scheduling study material via various platforms. Most of the Information and Communication Technology tools are SWAYAM, MOOC (Massive Open Online Courses), E-Pathsala, SWAMPRABHA, e-SHODH SINDHU etc.

Apart from these government sponsored resources, there are other e-learning platforms which are interactive and can be accessed from home. In these Platforms, the teaching faculty has to first add their students to the list and then upload their lectures, course material, audio instructions etc. Most of the students who are on the rolls of higher education institutions have smart phones and other devices irrespective of economic health in urban areas, so e-learning methods can hold ground till the virus is contained. These platforms can be accessed by teacher, students and researchers. Universities and colleges in Punjab have circulated this amongst its students and the students are using these platforms for interactions as well as studying.

Faculty members and students in Punjab are doing video/ audio conferencing through Skype, WhatsApp, Google Hangouts and other similar e-resources for discussion related to their course. There are numerous screen recording videos like Screen Hunter, Camtasia screen recorder, windows screen recorder, etc. Using these tools, teacher can make tutorial videos. Moodle, is another option, which is an Online platform with number of features for conducting

online examinations. It can create and store a question bank on the Moodle platform. The test time slot and time span can be set for the particular test with which we can test students. Punjabi University is the pioneer in making full use of online platforms and connecting every student by every means available to deliver course contents.

Departments and colleges under Punjabi University will conduct examination of its regular/reappear students of final year/semester at their own level. Distribution of question papers and evaluation of answer sheets will also be done at college/department level. The Head of Department will be controllers of the exam centres and they will be appointing coordinators or nodal officers and assistant nodal officers for the exams. The students appearing for the exams will be given two hours to complete the exams and an extra two hours to download the question paper, scan the answer sheets, and send the PDF via email. The Undergraduate exams will be conducted from 10 am to 2 pm and for the others, it will be conducted from 9 am to 1 pm. The visually impaired students and the differently-abled students will be given 40 minutes extra time to solve the exams while they are also required to arrange writers for writing the exams. Students will be allowed to use a maximum of 16 A4 size sheets to the question papers and write on only one side of each page with the number mentioned in it. Students are also required to use only blue ball pens and at the end of the answer sheets, the students have to declare that the paper is written in their own handwriting. After completing the exams students are required to scan and create a PDF file that has to be attached via mail given by the department or the concerned college.

Panjab University started the process of conducting online examinations for all examinations. All students of colleges and departments are downloading the question papers at the scheduled time from the Panjab University website and official email IDs were provided to them. The question papers are further distributed among students through electronic modes. Students of undergraduate/ post graduate/other professional courses, including University School of Open Learning (USOL)/private, appeared in the exams. Approximately ninety thousand students appeared in the online.

Conclusion

We conclude that the basic systems of e-Government adoption in the Punjab including, human resources (in terms of the content design specialists), integrated government-wide online presence, quality information inputs, and government-to-citizen online engagement, are some of the biggest challenges confronting the state's e-Government initiatives. To advance the application of e-Government process, these basic components are critical for citizens' e-Service adoption and trust. Currently, major challenge is to lessen as much as possible the negative impact this pandemic will have on governance and education and construct on this data to get back on a track of speedier development in administrative capabilities. As systems cope with this disaster, they must also be thinking of how they can recover stronger, with a transformed sense of responsibility of all actors. Brace for its impact!

13

DEVI PARVATHY

COVID-19 and Innovative Governance Practices in Kerala

A Study of Pathanamthitta District

The entire world is fighting against an invisible enemy; COVID-19, that pose a major threat to the very human existence. Kerala was one of the first states in India, to have reported active corona cases after the return of three students from Wuhan, China in January 2020. The first phase of the outbreak was successfully contained by the sustained efforts made by the State Health Department. The authorities had strictly adhered to the standard protocols recommended by the WHO in containing the disease. The second phase of the COVID-19 outbreak was witnessed in Pathanamthitta District during March 2020 when a trio from Italy skipped the voluntary screening at the airport, travelled to their hometown at Ranni and socialized with many before developing the symptoms. The district has come to the focus of the whole state then. Not only the people of Pathanamthitta but the entire state went scary and were looking for the updates from the district. The District Administration, being in the focus of attention, acted meticulously with Health Department, revenue, police, Local Self Government Department (LSGD) and the voluntary groups.[1] The administration had taken immediate measures to coordinate a variety of activities needed to contain the spread of the disease like dissemination of information to the public, awareness creation, imposing restrictions to the movement of people, providing succour to the needy, ensuring the uninterrupted supply of essential commodities and taking care of the medical needs of people.

1. Primary data, 2020.

It was a hard job for the authorities to identify the cases, bringing the COVID positive cases to hospitals, trace their routes since they were not cooperating with the authorities initially. Later, on March 8th, the trio had tested positive for the virus, along with two of their elderly relatives. During the time the Govt. of Kerala, in exercise of powers conferred under section 2 of The Epidemic Diseases Act, 1897 and Disaster Management Act, 2005 had notified lockdown in the entire state with immediate effect (G.O.(Ms) No.49/2020/GAD Dated: 23.03.2020). Subsequently, on 24th March, the Government of India too had ordered nationwide lockdown for 21 days.[2]

The district administration in Pathanamthitta had to address a host of challenges. The system was exposed to a new situation where it could not bank on any previous model or solution. Everything had to be tried and tested before being officially implemented. The public panic, impending local spread, non-cooperating and stigmatized patients and large number of contacts in the first cluster were to be urgently addressed.[3] The practises initiated in the district eventually were extended to the entire state and was lauded by several international media.

The containment strategy was mainly on four levels: Trace, Isolate, Test and Treat.[4] Pathanamthitta District implemented an exemplary initiative of route map preparation and contact tracing which was appreciated and adopted elsewhere. Route maps were prepared after in-depth interview with patients, deploying field teams for contact tracing, using spatio-temporal mapping and making use of cell tower data of patients.[5] As soon as the trio tested positive, the district administration immediately formed 11 field teams consisting of Government doctors, staff, health workers and the doctors from the Department of Community Medicine in three private medical colleges of the district. Contact tracing of the patients were done with the help of these field teams and was assisted by about 100

2. Primary data, 2020.
3. Primary data, 2020.
4. Primary data, 2020.
5. Primary data, 2020.

volunteers. It was a rigorous job to elicit information from the patients as non-disclosure of information was very common.

The District Administration published a route map that showed the detailed itinerary of the Ranni patients. The map showed the duration of each visit, right from the day they landed at Kochi airport until they were admitted to the hospital on March 6. The flow chart was made public on the evening of March 10, and people were asked to alert the district help desk if they perchance had come to contact with them en-route.[6] As the family from Ranni was stubborn in providing the details, the police traced their movements using mobile call data and tower location. The surveillance footages collected from the airport, streets, commercial establishments, homes etc were additionally being used to prepare the route map. It was then revealed that they had visited banks, post office, bakery, hotels, public offices, jewellery, homes of relatives etc.

All persons identified as 'primary contacts' were isolated. The information was circulated on social media, and people were asked to dial the hotline number if they suspected personal contact with the positive patients. National Health Mission (NHM) had played a vital role then. By March 9th, with the involvement and cooperation of 10 Public Relation Officers (PROs) and 20 counsellors of NHM, a call centre had started in the district.[7] This had been working for two weeks. The office was flooded with calls. The family had contacted over 300 people since their arrival in the district. The suspected people were instantaneously asked for self-quarantine. The method of identification, isolation and the hospitalization has now been improved with the help of a web application wherein the app connects all stakeholders involved in fighting against Covid 19, from the doctor to the ambulance driver.[8] A doctor can identify the availability of ICU ventilators or the driver can understand on real time where the isolation bed is available. The initial actions of Pathanamthitta District Administration paved the way for the acclaimed 'Kerala Model' in containing COVID-19.

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6. Sample route map annexed (Source: Primary data).

7. Primary data, 2020.

8. Primary data, 2020.

During the second phase of the outbreak and before implementing National Lockdown, flight services were not stopped. The daily number of returnees from foreign countries was about 500. Screening all those entering the district was another major challenge faced by the administration. A district level Corona Control Room was started for tracing the whereabouts of repatriates. Details of repatriates were given to the Call Centre to ensure the quarantine adherence of them. Thiruvananthapuram Medical College had developed a questionnaire consisting of 20 questions based on the 'likelihood of quarantine adherence'. This was given to the repatriates to find out the facilities available at their homes, their mental status etc. This helped to find out the potential individual who might violate quarantine rules. Such people were put under separate surveillance of Ward Health Sanitation Committee. They were asked about their medical and non-medical needs on a daily basis. The medical needs were met by Primary Health Centres and non-medical needs, by Panchayats.

The District Administration was able to rope in the support of youth volunteers who were ready to extend their support in any situation of emergency. The help of students from different Engineering Colleges in the district was noteworthy. By then, the initial arrangement of call centre by NHM had become inadequate to support the larger volume of calls and database. The CoronaRM application was developed by these student volunteers and was found useful in dealing with quarantined people.[9] The app helped to identify the whereabouts of quarantined people and the violations if any. This software replaced a great deal of human time and labour. When the app got over-burdened with the steep increase in the volume of calls, the volunteers updated it and thereafter it worked on a call centre basis. The calls received were responded by an Interactive Voice Response System (IVRS) where the need of the caller was categorised into medical and non-medical needs. The non-medical need was channelized to Local Self Governments and Sannadham volunteers[10]

9. Primary data, 2020.

10. Sannadhasena volunteers were mainly used for running the community kitchens and managing the distribution of food and medicines. The worked under respective LSGs they belong.

whereas medical needs were addressed by the Health Department.[11] The calls of those who wanted to speak to the doctor were directed to the doctors as well.

Door step deliveries of services were initiated by then and were running effectively throughout the time. By the time, the district had foreseen the need of equipping with quarantine facilities. As most of the people didn't have enough facilities to get isolated in their homes, the administration was in search of single rooms with attached bathroom. Quarantine facilities which could accommodate about 2000 people had been setup. Since the district has a good number of literate and educated people, it was easy for the authorities to make aware the people of Pathanamthitta about the spread of the virus and the measures to be taken to contain the spread.

Initially there were only two centres for sample testing and later was extended up to four centres (2 General Hospitals, 1 Taluk Hospital and 1 District Hospital).[12] Thus a decentralised testing mechanism was possible with the conduct of more number of sample tests. Mobile swab collection facility was implemented in order to reduce pressure on existing institutional swab collection centres. This facilitated decentralised swab collection from COVID Care Centres and reduced need for vehicles to transport patients to swab collection facilities.

Another effective initiative by the district administration was the screening of commuters at the district boarder points. The authorities felt that the field tracing was not enough to contain the spread and measures were implemented to monitor the commuters who were passing through 14 major roads in the district. It was completely a volunteer driven activity with the help of police force. Geographically the district is sharing its boundaries with Tamil Nadu and it was crucial to block any illegal border crossing on foot.

Pathanamthitta District Police undertook the initiatives of extensive contact tracing and active search for cases, implementation of social distancing measures, intensive risk communication

11. Primary data, 2020.

12. Primary data, 2020.

through campaigning, follow up of contacts etc.[13] The active case searches are being conducted thoroughly in the District with the support of all stakeholders. The Corona Control Room has been monitoring the persons on quarantine, coordinating Corona Cell, District Administration and District Medical Office. The Janamaithri Police Personnel contacted them on a daily basis to make sure that quarantine norms were adhered to.[14] The district police had been conducting coordinated and sustained public information campaigns that reinforced key messages into the minds of people. Social Media was widely used for this purpose apart from periodic messages over print and visual media.[15] Pathanamthitta District Police had launched a short film for awareness creation[16]. The police department had launched a handful of innovative song videos advising people to maintain personal hygiene.[17] Route marches were conducted by the police in each subdivision. Announcement of the Government order portraying the lockdown were made during the marches.

Provision for Food through Community Mobilization

Another major effort was the mobilisation of community resources through local government stakeholders. It was already mentioned that the non-medical needs of the quarantined people were put under the responsibility of local governments. There were about 2,689 persons under home quarantine during the period.[18] The quarantine adherence of the people was ensured through Ward Level Committees constituted by different panchayats. The management and monitoring of quarantine facilities and treatment facilities include 192 COVID care centres, 2920 beds and 7 COVID First Line Treatment Centres.[19] The local government machinery effectively utilised the cooperation of 2900 volunteers to manage

13. Primary data, 2020.
14. Primary data, 2020.
15. Primary data, 2020.
16. Primary data, 2020.
17. Primary data, 2020.
18. Primary data, 2020.
19. Primary data, 2020.

IT systems, facility management and the non-medical help for the Covid patients and quarantined persons. Besides, Village Health, Sanitation and Nutrition Committees were formed in different places of the district.[20] The committee consisted of Ward member, Residents Association representatives, Janamaithri Police, Kudumbasree, Anganwadi worker/helper, Arogyasena, SC/ST Promoter, ASHA workers and retired Govt. Employees.[21] The committee is entrusted with duties like monitoring quarantine adherence and support for meeting medical and non-medical needs of the people.

Kudumbashree in association with local self-governments started Community Kitchens in all local bodies where food was prepared and delivered to those under home quarantine and for needy people.[22] The orders to LSGIs on March 26, 2020 provided guidelines on setting up of community kitchen by Kudumbasree (neighbourhood groups of women) and provision of food for migrants in labour camps and their place of stay. In Pathanamthitta, community kitchens were started both formally and informally. Kudumbashree run community kitchens were effective and functioning side by side with similar initiatives taken by other non-governmental organisations in different places of the district. Both were managed by the panchayats in their respective areas. District administration was given the duty to monitor the food assistance program whereas the local representatives took the responsibility in the distribution and logistics.

'Budget Hotels', announced by Kerala Government in connection with Hunger Free Kerala project aims to create Kerala completely hunger free.[23] The food department has prepared a number of projects under Hunger Free Kerala project. Free food was supplied to bedridden patients at their residence[24]. Outlets were opened where meals will be made available at Rs 25. 10 percent of meals were provided for free in these outlets with the help of sponsors.

20. Primary data, 2020.

21. Primary data, 2020.

22. Accessed from *https//www. kudumbashree.org* on 14/09/2020.

23. Accessed from *https://english.mathrubhumi.com* on 16/09/2020

24. Ibid.

Civil Supplies Corporation provided food materials at subsidised rate for this purpose. The project was exclusively carried out by Kudumbashree and the initial fund was given through Local Self Government Department projects[25]. The district had ensured the food supply to the people during the lockdown period through community kitchens and budget hotels which were active during the time. Field volunteers were engaging in the duty of door delivery of food items to the needy people. Meanwhile, proper arrangements were made to provide food kits to the Scheduled Tribe population in the district at their homes since their mobility had been restricted due to lockdown.[26]

The food security of the district during the second phase was efficiently managed by Civil Supplies Department with the help of local government representatives and ASHA workers. The door delivery and free ration supplies was ensured throughout the time. To ensure nutritious meals for children under the age of 6, the Anganwadi centres in the district had been instructed to deliver free mid-day meals to the children registered under the Integrated Child Development Services (ICDS)[27]. As per the orders from the Women and Child Development Department of the State, the Anganwadi teachers were to deliver raw materials on a weekly basis to the families. About 2200 people in the district didn't have ration card and the administration was keen on ensuring ration supply to them as well.[28] Efforts were made through Public Distribution System and community kitchens to ensure the food security of migrant workers in Pathanamthitta district.

Management of Migrant labours

The total number of inter-state migrant workers during the period was 16,066. Multilingual call centre-IVR facility was setup to make the communication easier. The volunteers who are able to handle different languages were equipped to communicate with the migrants. Three medical teams consisting of student volunteers from

25. Primary data, 2020.
26. Primary data, 2020.
27. Primary data, 2020.
28. Primary data, 2020.

different medical colleges of Kerala (mainly natives of Pathanamthitta district) were formed to do effective screening of migrant workers.[29] A comprehensive screening was done among all the workers and arrangements were made to test the samples of those who showed symptoms. None of them became positive. During the pre-lockdown period, the labour department had taken relevant measures to aid inter-state migrants' health and safety. As per the labour department order on March 18, the district labour officers were asked to furnish daily reports to the Labour Commissionerate.[30] The circular also asked its staff to conduct awareness campaigns among inter-state migrants with the help of organisations working closely with them. The district administration took measures to identify the residential sites of migrant workers and collect at least one phone number with a WhatsApp connection. The Health Department and Local Self Government Institutions (LSGIs) were instructed to conduct awareness campaigns among inter-state migrants with the help of Kudumbasree members on Covid-19 Pandemic and the necessity of 'Break the chain' campaign.[31] The volunteers were active in communicating with migrant workers and helped them to overcome the social stigmatisation. The community kitchens were providing food for migrants in labour camps and their place of stay. The workers who were found with unsafe living conditions were shifted to better places. Arrangements were made to facilitate the repatriation of migrant workers from the district as per Government norms.

During the early period of second phase of COVID-19 in Kerala, Pathanamthitta went on a panic situation. The number of active cases was raised up to 17[32]. Online recruitment of additional human resource, finding volunteers through community mobilisation, partnership with private medical colleges and inter-sectoral convergence for HR mobilisation likely from teachers, fire force, rural development department etc were the effective methods used for

29. Primary data, 2020.

30. Tijo George, Mala Ramanathan and Udaya S Mishra (2020), *COVID-19 and Lockdown – The Divergent Trajectory of Inter-state Migrants in Kerala*, accessed from *https//www.practiceconnect.azimpremjiuniversity.edu.in* on 18/09/2020

31. Ibid.

32. Primary data, 2020.

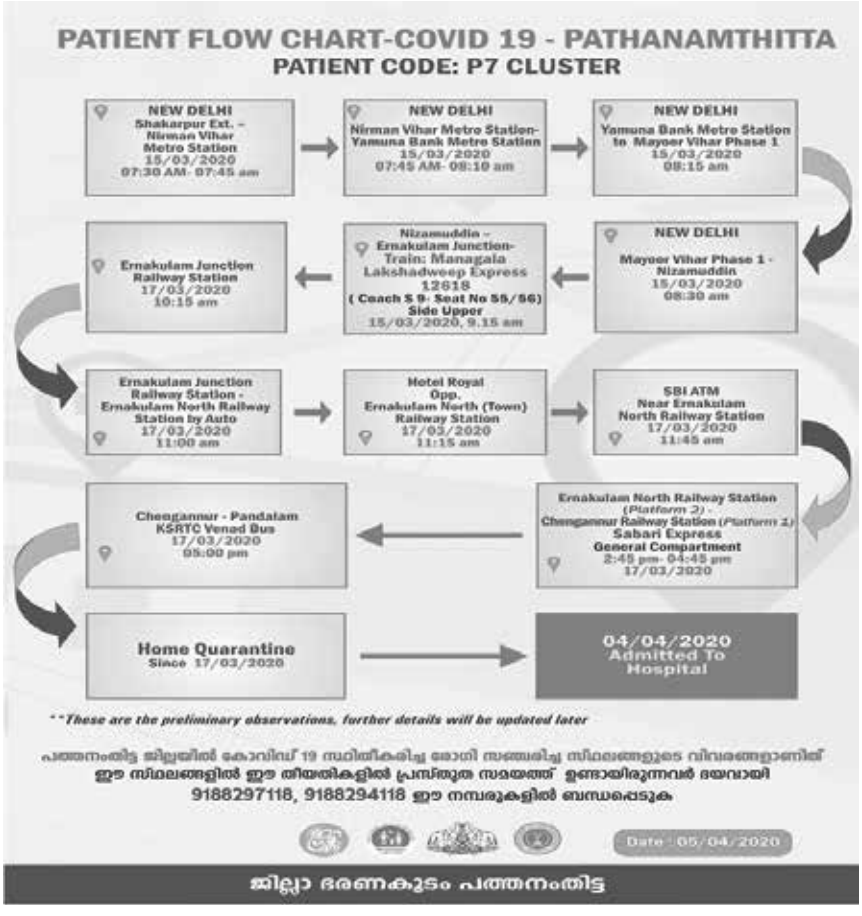
mobilising human resources which were the prerequisites for fighting against COVID during the second phase. Possible spread of virus was successfully contained and by May first week the district reported 0 cases.[33]

The Pathanamthitta model could be considered as role model in three ways. Firstly, every person who had entered the district was screened. Secondly, a database was created so that they could be reached at short notice and thirdly, graphics were created showing the travel route of the positive cases and the same was widely publicised. This led to self-reporting of contacts of the affected persons. The official Facebook page of District Collector had been updating every time and it could be the most effective attempt to make aware the people using social media. It could be appreciable that the human resource mobilisation of volunteers was also done through advertising the same in Facebook page of the Collector. This had led to avoid inordinate delay in executing decisions and helped the district to take timely actions that were vital for the time. The district has proven the efficiency of 'technology driven and volunteer driven' model for COVID containment which had been later adopted by the entire state of Kerala.

33. Primary data, 2020.

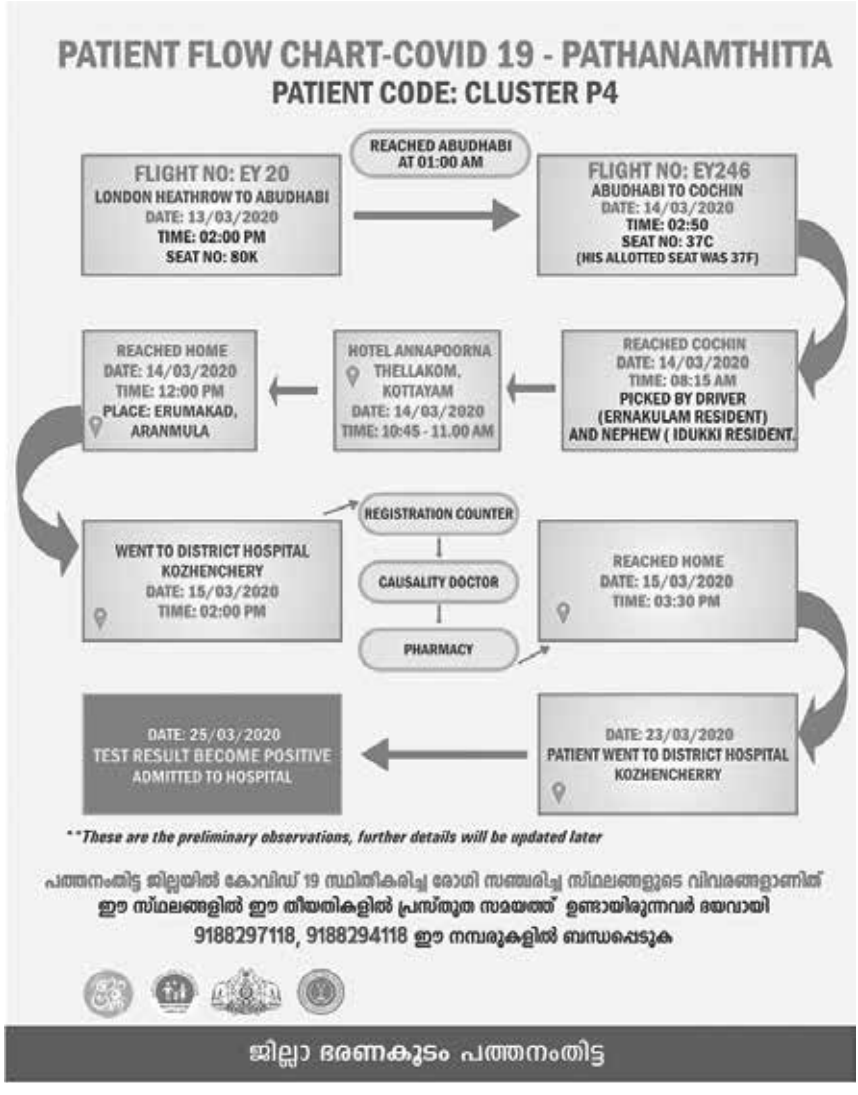
Annexures:

1. Route map 1



Source: District Collectorate, Pathanamthitta

2. Route map 2



Source: District Collectorate, Pathanamthitta

14

ASHALEKSHMI B.S.

COVID-19 and Innovative Governance Practices in Kerala

A Study of Kasaragod District

Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease COVID-19 (WHO, 2020). On December 31, 2019, mysterious cases of pneumonia were detected in the city of Wuhan in China's Hubei Province. On January 7, 2020, the causative agent was identified as a new coronavirus (2019-nCoV), and the disease was later named as COVID-19 by the WHO. The World Health Organization (WHO) declared Covid-19 a global pandemic on 11th March, as the novel coronavirus continues to rapidly spread worldwide.

India, reported its first positive case of the novel coronavirus (nCoV) from Kerala with a student, who was studying in Wuhan University and had travelled to India, testing positive for the virus. After the first coronavirus case in India was confirmed in Kerala's Thrissur district on January 30, 2020, the state has witnessed the spread of the COVID-19 pandemic in different stages. The cases in Kerala are divided into three phases: first phase (January 30, 2020–March 9, 2020), second phase (March 10, 2020–May 8) and third phase (May 9–May 31). The division is based on the following facts: The first case was reported in Kerala (also in whole India) on January 30, 2020, from students who returned from China. The state was able to contain the disease within those carriers. No new cases were reported until March 9, 2020. The phase two of the study begins

with the cases reported from Italian returnees in Pathanamthitta District of Kerala. This phase was very crucial for the state. Then, in the third phase, when the interstate and intercountry travel was allowed, Keralites in Gulf countries and other foreign countries started reaching Kerala.[1] This study focuses on the innovative practices undertaken by the two districts namely Kasaragod and Pathanamthitta during the second phase of Covid in Kerala.

District Profile

Kasaragod is known for its linguistic, religious and cultural diversity. Kasaragod district situated on the north-western coast of Kerala State has been famous from time immemorial. Many Arab and Portuguese travellers, who came to Kerala as early as in the 9th century also visited Kasaragod region, as it was an important trading centre even then. The present Kasaragod region became part of Kerala on 1st of November, 1956, following the reorganization of States and formation of the State of Kerala. Before the formation of Kasaragod district, it was part of Kannur district in the north. Kasaragod district was formed on 24th May 1984 through the bifurcation of Kannur district. Kasaragod town where the administrative headquarters situated is 59.6 Km south to Mangalore airport and 112.2 Km north of Kannur airport.

Kasaragod district was formed on 24th May 1984. The 350-year-old Bekal Fort, one of the largest and best-preserved forts in Kerala, is of great historical and archaeological interest. Kasaragod district ranks 10th in total density (654) of population as per 2011 census. With respect to sex ratio, the district ranked 10th with 1079 females to 1000 males, as per 2011 Census in the State. The literacy rate is less in Kasaragod district (89.85 % as against State figures of 93.91 %) and is ranked 12th among the districts as per 2011 Census in the State.[2]

Vulnerability of the population to COVID-19

Because of the high adaptability of virus it was of great concern to the human beings as the virus attacked upper respiratory tracts

1. *https://link.springer.com/article/10.1007/s42399-020-00451-5*
2. Primary Data (2020) collected from District Administration, Kasaragod.

of the patients. The worst hit are the population who are aged above 60 years and below 15 years. It has been invariably attacking this vulnerable group of population making it the most deadly virus in recent times. The easy mutating properties of this virus makes it very difficult to manage and no country in the world can boast of containing this virus in a professional manner. This warranted containment strategies suited to the local conditions considering the resources of the locality and appropriate adoption of strategies suited locally. The District of Kasaragod as per census of 2011 has a population of 13.1 lakh and it is estimated that nearly 2 lakh population are NRK's and out of this 2 lakh, more than 90% of the NRK's, are depending the Gulf countries for their livelihood and more than 30% of them are regular travellers between Gulf and Kasaragod. More than 5% of the population in Kasaragod also live in Mumbai, Maharashtra doing business in areas which became hotspot recently. Any epidemic in either of the locations would be a threat to the health sector in Kasaragod, as rightly anticipated from the beginning of the spread of the virus. The large number of regular commuters from Gulf and Mumbai made the district of Kasaragod a potential hotspot for the spread of disease. Moreover, the National Highway 66 which runs from North to South of the District also makes the district a vulnerable area. The proximity of Mangalore Airport which is located in Karnataka State and the surge of travellers from Gulf who also arrived at Karippur airport located in Malappuram District, Kannur airport located in Kannur District and Cochin airport located in Ernakulam District made things worst with respect to tracking of the suspects of COVID-19. The vulnerabilities explained above made the District unique with respect to devising inherent strategies for containing the COVID-19. (District Administration, Kasaragod, 2020).

As per the information given by the District Administration, a medical student from Wuhan (China) who belonged to Ajanur Gram Panchayat reported at District Hospital, Kanhangad and his swab was taken on 31.01.2020 and sent for virus testing at National Institute of Virology (NIV) at Alappuzha. The result from NIV Alappuzha was received at the District Hospital Kanhangad and on this day the patient was taken to the District Hospital by following all the

protocols like free of cost ambulance support in the presence of Hospital Staff with PPEs, isolation was followed as per the standard protocols etc.

The Patient was hospitalized for next 13 days and was discharged on 16.02.2020. While discharging he was given strict instruction that he will have to undergo home quarantine for the next 28 days. All his contacts were traced out and ensured that there is no primary and secondary spread of the disease.

On 03.02.2020 the District Collector and Chairman, DDMA (District Disaster Management Authority) Kasaragod set up 16 committees to manage the anticipated outbreak in the District of Kasaragod Since, Kasaragod has been highly vulnerable, soon after the receipt of direction from the Government, 16 Committees were set up with the various stakeholder departments to deal with the anticipated crisis.

Large number of posters were prepared and published through the Facebook Account of District Collector, Kasaragod (District Collector, Kasaragod) and in various WhatsApp groups which are highly active in the District. Some of the messages so circulated are translated and given hereunder; 1. Those who came to Kasaragod after February 20 shall not attend any public function until further orders. 2. If anyone who came to Kasaragod after February 20 develops any of the symptoms like sore throat, dry cough, fever and head ache shall report to the nearest PHC without fail. 3. Those who violate the directions of District Administration will be imprisoned for 6 months as provided in Section 269 of IPC. 4. Unnecessary journeys, public gatherings, visits etc should be strictly avoided and social distancing must be followed until further orders.[3]

On 20.03.2020 six cases were reported in Kasaragod. From this date a new strategy was formed and started popularising 'room quarantine' instead of "home quarantine". After this date the entire IEC activities focused on "Room quarantine". Thereafter, day by day the number of COVID positive cases got increased. Because of this, Kasargod district came to be a hotspot in Kerala because no other district had this much number of cases during that time. The

3. Primary Data, 2020.

cases rose upto 178 and on May 8th the district reported zero case. The efforts undertaken by the district administration to flatten the curve of Corona cases include many challenges as well as innovative practices.

Large number of cases which require elaborate virus testing was prevalent in Kasaragod District, but there was no lab facility available nearby for testing virus samples. The hospitals of Kasaragod District were heavily dependent upon the National Institute of Virology at Alappuzha for the swab test. Even though 70-80 samples were taken every day and sent for examination to Alappuzha, test results were not forthcoming within the expected time. Therefore, the District Administration decided to make the Covid-19 treatment more effective in the District by setting up a Virology Lab at Central University, Periye, Kasaragod. Seven students and two faculty members from the University and fourteen technicians from outside constitute the team members of Virology Lab in the University.

Two PCR Machines were shifted from CPCRI, (Central Plantation Crops Research Institute) Kasaragod to the Central University Lab, as a result, the number of PCR machines available for the use in Central University Lab was increased to four (4). It is estimated that this lab can test nearly 248 samples in a day potentially. This lab started functioning from 22.03.2020.

In addition to this, the following measures were also taken:

Citizens' awareness and Call Centre mechanisms for each and every purpose like passes, food, medicines, queries, counselling etc. facilities were arranged for the public and the usage of same was very high, by the public.

Measures for Vulnerables

The scheduled caste families without any means for food were identified and food kits were supplied to them. The District Development Officer for Scheduled Castes was authorised to identify the families eligible for availing of the above benefits. The scheduled tribe families without any means for food were identified and food kits were supplied to them. The Tribal Development Officer was authorised to identify the families eligible for availing the above benefits. The migrant labourers without any means for food

were identified and food kits were supplied to them. The District Labour officer was authorised to identify the individuals eligible for availing the above benefits. The Co-ordinator Kudumbasree Mission[4] was entrusted the task of identification of the buildings for the preparation of food for the labourers (including migrants) who are depending upon hotels for food. The Special Officer instructed that there should not be any issues in supplying food to the migrant labourers and to strictly restrict their movements. It is decided to utilise the SDR fund to arrange food/food materials to the migrant labourers and supply food to all the deprived classes of people such as trans-genders, differently abled, sex workers and destitute widows.[5] The service of Kudumbashree members was sought for packing of food grains in the godowns which got opened in the Collectorate to store food/provisions contributed by different agencies/groups. The community kitchen system established by various Local Self Government Institutions was worth emulative. The officials of the panchayat were also involved in distribution of ration and food kits to the needy as and when it was required.

There are 1,54,858 destitute families in Kerala with 1,44,339 elderly members (above 60 years of age). Kudumbashree has enlisted 2500 resource persons to call these families with elderly members once in three days. The RPs call them and enquire about their health, needs etc. and ensure that they get food through community kitchens and medical care through PHCs, if needed.

This is being done in convergence with the UNICEF. In Kasaragod district there are 4968 families with elderly members. Out of them 3120 received the benefit of this programme and they were attended by 41 resource persons (Kudumbashree, 2020).

The Women and Child Department has instructed Kudumbashree that there should not be any dearth in the supply of Amrutham

4. Kudumbashree is the poverty eradication and women empowerment programme implemented by the State Poverty Eradication Mission (SPEM) of the Government of Kerala. The name Kudumbashree in Malayalam language means 'prosperity of the family'. Kudumbashree was set up in 1997 following the recommendations of a three member Task Force appointed by the State government. Its formation was in the context of the devolution of powers to the Panchayat Raj Institutions (PRIs) in Kerala, and the Peoples' Plan Campaign, which attempted to draw up the Ninth Plan of the local governments from below through the PRIs.

5. Primary data collected from District Collectorate.

Nutrimix powder (fortified health supplement for 6 - month to three year old kids) due to lockdown. Hence Kudumbashree has ensured that Nutrimix units have started working in all districts and that enough quantity of Nutrimix powder is being produced.[6] Various activities are being done for Balasabha children in all districts (Balasabhas are collectives of children formed under the guidance of Kudumbashree which undertake various activities for their wholesome growth). Kerala Book Store has informed Kudumbashree that they will provide a mobile app called 'Kelkkaam' (Let's listen) for Balasabha kids. In Kasaragod district the programme titled Kuttipencil (Small Pencil) was started to conduct drawing competition for children during lockdown period.[7] Through community counsellors of Kudumbashree, counselling and mental support was given to those in need to counteract various mental issues faced by them in relation to Covid-19 and lockdown. Through the community counsellors, Kudumbashree ensures that those who need medicines receive them, support to Snehitha Calling Bell beneficiaries are being provided, mental support to those in quarantine are being provided through the cell operated in Collectorate, activities related to community kitchens are being coordinated, mental support to elderly community are being provided etc.[8]

Food Security Measures

Principal Agricultural Officer had to discharge the responsibilities of harvesting and distribution of crops to the needy Grama Panchayat. Department of Agriculture development and farmers was given the task of assessing the harvestable produce in the District and for harvesting the crops available with the farmers. As per the data collected by them, panchayats were given a direction to procure all the harvestable produce at a rate which is not less than 80% of the prevailing market price for the product, thus ensuring the welfare of the farmers even during hard times. The selling price in market was taken as the bench mark price for fixing the purchase price

6. Primary data from Kudumbashree
7. Ibid.
8. Ibid.

(20% less than ceiling price) which was an appreciable effort by the Agricultural and Local Self Government Department. The vegetables and fruits collected were used by the Local Self Institutions in their community kitchens and also to supply in the form of kits to the needy. District Supply Office and Supply Co. was entrusted with the task of free and fair distribution of ration and the essential food items throughout the district. They were also involved in controlling the price of commodities in the market as well as the movements of stock of essential items. By anticipating the imminent food shortage, Subhiksha Kasaragod programme has been launched which brought nearly 3100 acres of land under fresh cultivation with involvement of more than 10,000 youth forces becoming active in agriculture.

The ration distribution was regularised in a meaningful manner without any complaints. Supply Co prepared kits for migrant labourers as well as for the AAY card holders.[9] The uninterrupted collection and distribution process of milk during the period was ensured by the Diary Development Department in association with MILMA in the district.

Animal Husbandry and Fisheries: There were few issues with the movement of stock of cattle feeds in the district. The issues were timely redressed by the department and it was ensured that no cattle in the district was deprived of feed. The Department of Fisheries was involved in regulation of fishing during the period and their major role was to regulate the fish markets. The department had taken action to ensure that there was no starvation among the conventional fishermen in the district, who use small boats for fishing.[10]

Awareness and Training

The team of doctors headed by the District Medical Officer and the District Surveillance Officer had taken effective measures to control and contain the spread of the disease. The activities such as observation and diagnosis of patients, timely collection and sending of swab for testing, contact tracing, patient care of the positive cases and post treatment care including counselling at various stages of

9. Primary data, 2020.

10. Primary data, 2020.

patient's care were ensured in a highly commendable manner. Help desks were started at Government Hospitals and Private Hospitals for fast tracking the Covid-19 suspects. Active surveillance started at Railway stations, Airport, and major bus stations. Help desk service provided to the public for early screening of symptomatic patients. (District Administration, 2020)

In order to guarantee the protection of both public and health staff and to avoid community spread, from 04.02.2020 onwards various trainings were conducted for Doctors (including Private Hospitals, Health staff, LSGD Members, Students, religious leaders, Ambulance drivers, Homeo Aurveda Doctors teachers, ASHA, Anganwadi workers, various Government employees taxi drivers, hotel resort staff and Paralegal Volunteers on prevention and control of Corona virus infection. Online training and meeting platform (Common Video Conference) were widely used for the activity. COVID -19 state protocol on quarantine sample management, surveillance and treatment were given to all staff for strict complaints and care were arranged for the effective treatment and management. Adequate supply of PPE, N95 mask, triple layer masks and sanitizer, gloves at all levels of institutions and instructions for the proper utilization of the same also circulated. A house survey started by the health department Kasargod with the assistance of field staff for detecting the community spread. It was started on 13.04.2020.[11] This also helped in contain the pandemic effectively in the district.

Security Measures

Elaborate arrangements were made by the Police administration for the containment of the spread of the disease in the district. Prohibitory orders under section 144 of CrPC was imposed in the district for regulation of the free movement of the public, and ensured the availability of essential services and commodities. Government direction to ban public gathering including social and religious gathering for social distancing was strictly implemented throughout the district by round the clock surveillance all over the district. The Police strategies have been highly effective especially

11. Primary data, 2020.

in the cordoned areas where zoning was adopted. The Police force did a commendable job in making available essential food items and medicine to the home quarantined people and those residing inside the cordoned area, on request. Fire and Rescue Department had done their work in a significant manner by disinfecting public places including the bus stands, hospitals, railway stations etc, by spraying solution of Sodium hypochlorite mixed with water on regular basis. They had arranged two vehicles at entry and exit points of NH 66 of the District for this purpose. They were also involved in supplying of medicines to the needy.[12]

Dissemination of Information

Ever since Covid-19 control room was setup in District Collectorate, NIC had set up the network infrastructure for employees deployed for control room activities. And training was imparted as and when necessary for the staff. Persons deployed at control room was given adequate training for handling pass distribution by effectively coordinating data collection, pass generation and dissemination mechanism. The District Information Officer and his team had carried out wide range of activities in the District in the field of information dissemination to curb the Covid-19, from the very beginning itself. The District Information Officer issued at least three press releases in a day. The measures taken by the District Administration to prevent the spread of Covid-19, details of the daily press meet of the Chief Minister, statistics such as the number of patients, number of persons under surveillance, activities of the Department of Health, decision taken in various meetings held in Collectorate, various welfare measures adopted by LSG Institutions, the protective measures adopted by the Kerala Police to ensure the well-being of the public and features regarding Covid-19 etc. were the main components of the press release.[13]

The following measures were also taken for information dissemination:

12. Primary data, 2020.

13. Primary data, 2020.

a) e-Paper - e-Paper was released everyday as tabloid containing details related to Covid19 and this is available in the Facebook page of PRD as well as in the WhatsApp groups of the media personnel.
b) Directorate of Public Relations Department and Intelligence Bureau were given Information regarding the fake news spread in the District regarding Covid-19 so that the authorities concerned can take appropriate action against the spread of fake news.
c) Press Cuttings submitted to the Chief Minister's Office- The paper cuttings of the main news which need attention of the Chief Minister were being submitted to Chief Minister's Office daily through WhatsApp.
d) Facebook page - A Facebook page under the title 'District Information' Office Kasaragod was started which transmitted news and videos to the Public and there were 11000 followers during this short span. The PRD through this Facebook page is adopting a strong campaign against Covid-19.
e) WhatsApp group - A WhatsApp group, 'Covid-19 Public Relations Department Kasaragod' has been created so that Public can send message to this group and their doubts and queries are answered with the help of the authorities concerned.
f) WhatsApp group at block level - WhatsApp group is created at block level in which information assistants under PRISM projects are included to spread news to the grass root level.
g) WhatsApp for media personnel - This group is active round the clock in order to provide news and video clips to media persons.
h) PRD Live - All prominent news/items were uploaded in the Official website 'PRD Live'. Public outside Kasaragod district depended this website for details.
i) Clip mail - This method is intended to provide videos relating to the latest development in the district to media personnel at State level.
j) Daily report - A daily report is being submitted to the Directorate of PRD narrating in brief regarding the daily

activities of the District Information Office. m) PRD Campaign - The PRD has made around 10 Public service advertisements as an awareness programme for the public against Covid-19. (District Administration, 2020)

Innovative Protocols evolved at district level

A number of protocols over and above the protocols issued from various sources suited to local conditions were devised and executed in the district. Some of these protocols which were tested highly effective are detailed hereunder;

a) 55 days' quarantine

Though the advisories recommended 14 days and 28 days of quarantine, the district administration was highly inclined to ensure that all those who came from outside the district after February 20th shall be under quarantine till April 14th, altogether it had made the quarantine period 55 days instead of 14 days which is implemented elsewhere. It must be one of the reasons why the disease severity had come down and the spread of the disease could be brought down in the district (District Administration, 2020).

b) Sealing of borders

Well before the official announcement of the 'lockdown' period, the entry of vehicles from the neighbouring districts was stopped by enforcing a border ceiling from 17.03.2020 onwards. This has helped a lot for ensuring entry of suspect cases, this was more of a deterrent as too many persons could have entered the district with the disease, through the 12 unmanned routes from Dakshina Kannada, Karnataka (District Administration, 2020).

c) Early pronouncement of CrPC 144

Prohibitory orders under CrPC 144 was pronounced soon after the closure of Janatha Curfew on 22.03.2020 from 9.00 PM onwards, and it has been in force since then. This has immensely contributed to the containment of people movement especially in the town areas.

d) Covid-19 Hospital

Designating the General Hospital as a Covid Hospital in a move to professionally manage Covid-19 cases. Kasaragod General Hospital was declared as a Covid-19 hospital and resources were pooled in to professionally manage the disease. All other patients were shifted to the nearby cooperative hospitals to reduce the pressure on health staff as well as to reduce the spread of the disease to other patients (District Administration, 2020).

Management of the Disease

e) Maintained transparency and better consultation with public

The latest news advisories etc. were shared to the public on a real time basis through visual, social and print media. A Facebook live programme was initiated from 30.03.2020 wherein the District Collector on alternate days started sharing all the information about Covid-19 pandemic with the public between 2.30 pm to 3.30 pm. Confusion and fear about the disease could be avoided through that platform and the people were convinced of the activities of the administration in connection with the management of the Covid - 19 pandemic. (District Administration, 2020)

f) Support to farmers

The decision of the District Administration to buy the products directly from the farmers at 20% less than prevailing 'ceiling price' fixed by the Administration, after conducting elaborate market study, became a boon to the farmers. With the help of Agriculture and Local Self Government Department, the issues of not getting market/price were resolved in an effective manner (District Administration, 2020).

Major innovative strategies adopted by Kasaragod which were proved very effective include:

a) *Prevention Strategy:* As per 2011 Census, population of Kasaragod is 13.5 Lakh. But the district has only 281 doctors of which 219 are present on rolls now. The district possesses 14 ambulances and 16 ventilators in the government sector which is far less than other districts of the State. As part of prevention Kasaragod was the fist to introduce CrPC144 soon

after the closure of Janta Hartal declared by Government of India. The district administration of Kasaragod was the first to identify a place in gulf called NAIF as the epicentre of infection for nearly 1.45 lakh of people from Kasaragod who work in gulf.

In spite of 'Home Quarantine' the district of Kasaragod introduced and emphasized 'Room Quarantine'.

b) *Preparedness Strategy*: In order to avoid spread of COVID-19 borders were sealed from 20-03-2020 for effective containment. First exclusive COVID hospital in the state got started in Kasaragod from 28-03-2020 besides starting the Covid First Line Treatment Centre, CFLTC in India on 26-03-2020. First Community Testing got started on 12-04-2020 to avoid community spread.

Resource inventorying was another significant initiative under which men and materials were relocated to ease the pressure on doctors as they were kept out of containment strategy.

c) *Response*: Set up Medical College under construction as 200 bed Covid hospital in four days on 10-04-2020, set up the Covid RTPCR Testing lab on 22-03-2020 and new 551 bed hospital within four months.[14]

d) *Relief*: Special purchase scheme for farmers during lock down, Community Kitchen for the poor and unorganised sectors,168828 kits with food items delivered at the dwelling places of migrant labourers and daily facebook live was also there not only for disseminating information to the people of Kasaragod but for imparting confidence also.

During the second stage of COVID-19 in Kerala, Kasaragod district was confronting with increasing number of cases day by day. This district had the highest number of cases during that time. Considering the lack of health facilities and lack of awareness on part of people, fight against COVID-19 was a laborious task for the district. It was through stringent regulatory measures, innovative practices and mobilisation of social capital that the district was able to contain the pandemic in an effective manner.

14. Primary data, 2020.

Annexures

1. Construction of TATA Covid Hospital on 09-04-2020

2. TATA Covid Hospital got inaugurated on 09-09-2020

3. For ensuring food security in the district cultivation is going on in barren lands under Subhiksha Kasaragod programme.

3. Faculty and Students of Central University of Kerala-Virology Lab Team

5. Inside Virology Lab, Central University of Kerala, Periye, Kasaragod

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P.C. TIWARI and BHAGWATI JOSHI

COVID-19: Socio-economic Impacts and Policy Responses in the Context of the Himalayan Region

Introduction

The Indian Himalaya extending between 21o57' – 37o5' North Latitudes and 72o40'– 97o25' East Longitudes with a geographical coverage of 0.537 million km2 covers over 16.2% of the total geographical area of the country (Department of Science and Technology 2010). As the highest and longest mountain chain of the planet Himalaya comprises the vast mountain ranges extending over 2500 km in length between the Indus and the Brahmaputra rivers; and raising from low-lying plains to over 8000 m above sea level with an average width of 80 Km (Department of Science and Technology 2010). Administratively, Himalaya extends across the Himalayan States of Jammu and Kashmir; Himachal Pradesh; Uttarakhand; Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya; and the Himalayan districts of States of Assam and West Bengal (G B Pant National Institute of Himalayan Environment and Sustainable Development 2009). Himalaya is not only tectonically active and environmentally sensitive ecosystem, but it also the most densely populated and underdeveloped mountain on the planet. The rising altitude, declining temperature, steep and fragile slopes and poor infrastructure decrease the productivity of natural resources and limit the carrying capacity of nature based production system. As a result, subsistence farming with combination of crop and livestock production constitutes principal source of rural livelihood and food. The constrictions of crop-livestock subsistence farming system impedes the process of socio-economic development and decreases

the livelihood opportunities and intensify the rural poverty levels in the mountains (ICIMOD 2020).

People living in Himalayan mountains are exposed to a series of environmental and non-environmental stressors which are interconnected and have serious implications on the livelihood and quality of life of mountain communities. In view of this, the Himalayan communities are particularly susceptible to livelihood and food insecurity mainly because of their high dependency on natural resources, subsistence economy, low productivity, physical isolation, vulnerability to natural risks, poor infrastructure, limited access to markets and higher cost of production (Heath et al. 2020). Food and Agricultural Organization of the United Nations observed that a large proportion of food insecure population lived in mountain regions of the world, and nearly 245 million rural population living in high mountains was vulnerable to food insecurity (Huddleston et al. 2003, FAO 2008). Himalaya constituting the source of critical ecosystem services, such as water, food, energy, biodiversity, forest, and carbon resources is a highly important global asset. These critical environmental services sustain the economy and livelihoods of more than 3 billion people directly as well as indirectly both in the mountains and the plains (ICIMOD 2020). Moreover, the region also constitutes the global repository of the most diverse and rich cultures, languages, religions, and traditional knowledge systems (Sharma et al. 2019). As a result, the changes in these mountains often have unexpected repercussions and impacts for the densely populated plains in the south (ICIMOD 2020).

In Himalaya, the low level of economic development, limitations of livelihood and rampant poverty force a large proportion of male population to out-migrate the region in search of livelihood leading to the feminization of the process of natural resource development and mountain farming system, and abandonment of agricultural land (Heath et al. 2020). The remittances sent by the migrated population contribute towards the well being, socio-economic sustainability and food security in Himalaya (World Bank 2020b). The Himalaya is not only the most densely populated, but it also the most rapidly urbanizing mountain in the planet (Tiwari and Joshi 2020). The urban areas are generally considered as growth centers of development and

more recently urbanism has become identical to the development and better quality of life which is acting as a strong pull factor pushing the rural youths in increasing numbers to cities and towns within as well as outside the mountains (Kumar and Tagade 2020). During the recent past, the traditional agricultural resource utilization pattern has transformed primarily in response to demographic changes, rapid urbanization, and growth of tourism in Himalaya. These changes are resulting into land use intensifications and depletion of crucial agricultural resources, particularly land, water and forest leading to disruption of traditional farming system. Moreover, Climate change and climate change induced natural disasters, particularly high intensity rainfall, flash-flood, landslides, and droughts has stressed subsistence agricultural economy, and increased vulnerability of large population, particularly poor and vulnerable sections of society to water, food and livelihood insecurity (Surie 2020). In view of this, climate change and climate change induced natural disasters have emerged as one of the important drivers of rural out-migration in the entire region (Scott et al. 2019; Wester et al. 2019; Tiwari and Joshi 2015).

As in other parts of the country, the various measures taken to respond to Covid-19 pandemic and mitigate its impact have a series of direct as well as indirect impacts on the society and economy of the region (Dev and Sengupta 2020; Varshney et al. 2020). Although the Himalayan region, particularly the rural areas are not much affected by the pandemic, yet its impacts are particularly severe with long-term implications on the society and economy of the region owing mainly to its large populations, dependence on subsistence farming, import of food and other essential commodities from plains, tourism, and remittances; and high levels of poverty (ICIMOD 2020). As mentioned earlier, the rural communities in the region face additional challenges due to very limited livelihood opportunities which are mainly confined to subsistence farming sector, inherited vulnerabilities resulting from inaccessibility and high dependency on the plains for sustenance (ICIMOD 2020). Covid19 has largely disrupted the socio-economic sustainability and resilience building in the region with observed impacts not only in the mountains, but also

in densely populated plains lying to its south (Varshney et al. 2020; ICIMOD 2020; World Bank 2020a).

Moreover, over the past some years, the long-established environmental conservation activities, traditional natural resource development processes and conventional farming practices have been compromised by the loss of biodiversity and land use intensifications that not only caused the massive destruction of habitats and increased human-wildlife conflicts, but also facilitated the spread of COVID-19 in Himalaya (Rasual and Nepal 2020). The pandemic has collapsed mountain-specific economies particularly agriculture and tourism, increased community vulnerability to chronic poverty and intensified the already looming threat of severe hunger and malnutrition in the region (World Bank 2020b; Sumner et al. 2020; UNDP 2019). It therefore critically relevant to assess the impact Covid-19 on the society and economy of Himalayan region and to recommend effective policy measures and recommendations for the speedy recovery of losses and building resilient socio-economic and environmental system. The paper attempts to analyze the socio-economic impacts of Covid-19 with case illustration of Upper Kosi Catchment in Uttarakhand, and suggests a series of response measures for the improvement of the current situation. A comprehensive study of 10 most densely populated villages which comprise more than 75% population of the catchment has been carried out in the month of July-August 2020.

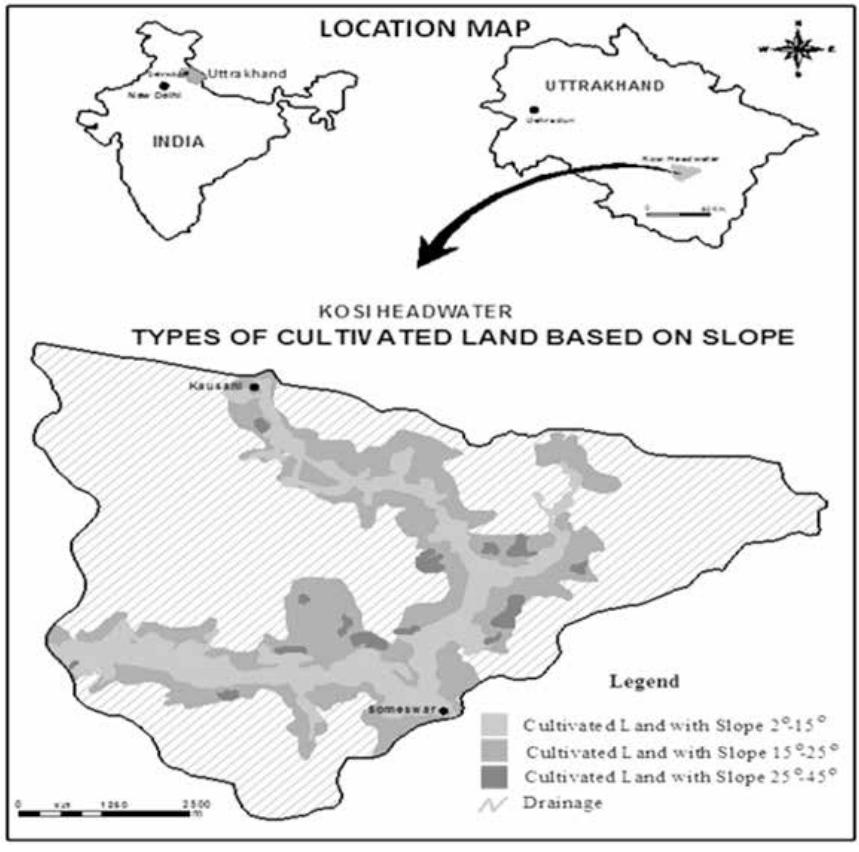
Upper Kosi Catchment

The Upper Kosi Catchment constitutes the headwater of River Kosi which is one of the prominent rain-fed rivers of Uttarakhand. The catchment encompasses a geographical area of 107.94 km2 (10794 ha) between 1405 and 2720 m above mean sea level (Figure 1). The total population of the watershed has been enumerated to be 35517 persons in 2020 which live in 65 rural settlements located mainly along the valley of the main river and its tributaries, and on the mid-slopes. The watershed is one of the most densely populated and agriculturally productive areas of Uttarakhand with a population density of 239 persons/km2, rising to as much as 469 persons/km2 in villages excluding the State managed reserved forest. The major

land use categories include forests, cultivated land, settlements, water-bodies, pastures and barren land. Over 75% of the population depends on subsistence agriculture. However, approximately 99% of land holdings are smaller than 1 ha, and the per capita cultivated area is merely 0.17 ha. This not only results into low productivity of food at the household level, but also destabilizes the economic viability of farming system through increasing the trends of rural out-migration and feminization of mountain farming system in the region. The livelihood and food security in the catchment primarily depends on local agricultural productivity and food purchasing power of rural communities, and the later comes from the remittances

Figure 15.1

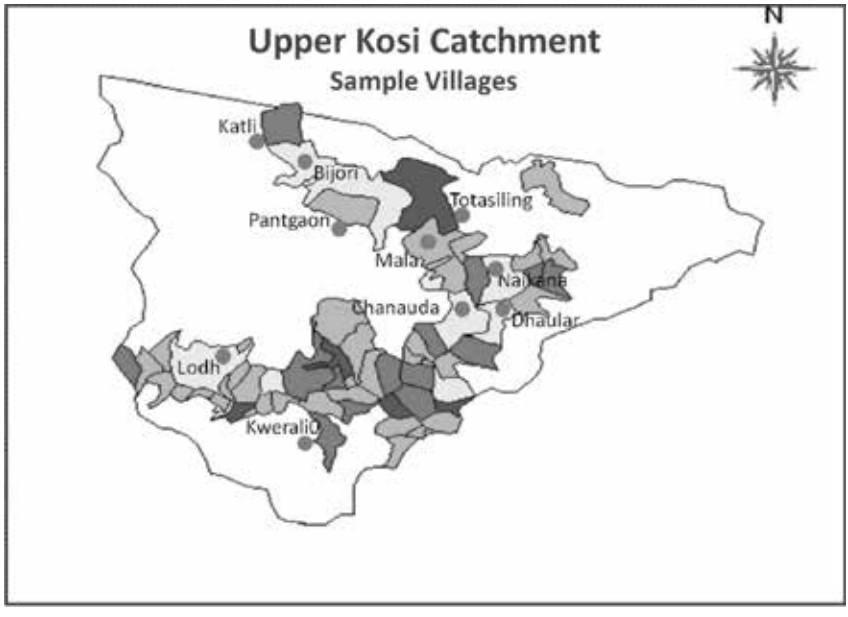
Location Map and Types of Cultivated Land Based on Slope



sent by the migrated population, local employment in formal as well as informal sectors, tourism, small business, sale of vegetables particularly potatoes, processing of agricultural products, agricultural and construction labour, and making of traditional agricultural implements. Out of total 65 villages of the catchment 10 largest villages in terms of population size have been selected for the comprehensive socio-economic surveys (Figure 2). The 10 sample villages are located within 3 km distance from the road and at maximum of 5 km from the nearest rural market centre. The villages selected for detailed studies account for more than 75% of the total population of Upper Kosi Catchment. An inclusive and intensive survey of all households was conducted during July and August 2020 using exclusively designed survey schedules. Besides, the relevant inform was also obtained from the heads of Gram Panchayats of all the 65 villages of the catchment through face to face discussion and also over telephone from time to time during the conduct of the study. Moreover, necessary information was also collected through informal meetings and discussions held with a series of

Figure 15.2

Upper Kosi Catchment (Sample Villages)



stakeholders including villagers, local level government officials, Non Governmental Organizations and community representatives during the period study.

Impact on Agriculture and Farming Community

The COVID-19 pandemic has profoundly impacted the agriculture and entire food systems from production, transportation, and marketing, to distribution and consumption (Vos et al.2020a and 2020b; Dev and Sengupta 2020; Sumner et al. 2020). As in other parts of the country the agricultural economy of Himalaya has suffered to a considerable extent due to lockdown and restrictions during the peak spring and summer agricultural seasons. This is mainly because almost all the Himalayan States are either depend on agricultural sector for food and livelihood or produce a range of agricultural raw materials for the medium and large industries located outside the Himalayan states (ICIMOD 2020; Pandey et al. 2020). Besides, the Himalayan agriculture is also dependent on major markets of plains for the supply of farming inputs. The pandemic has very severe impact on the mountain subsistence agricultural economy as the lockdown and other mobility restrictions imposed during the prime harvest and sowing seasons collapsed the entire agricultural supply chain. This not only left a large proportion of rural population, particularly agricultural labourers, artisans, landless households and other such weaker sections of the society unemployed, but also declined the production of major traditional staple crops - wheat and paddy - of the region; and thus increased the vulnerability of large rural population to food and livelihood insecurity.

The Covid-19 induced agricultural break-down has caused severe unemployment and poverty leading to social distress more inequality in the region. A large number of local farmers lost their income from sale of agricultural products, particularly vegetables and fruits due to disruption of collection, transport, forwarding and marketing services and movement restrictions during the peak production season (Population Council, India 2020). The small and marginal farmers, particularly those who grow vegetables for sale in their irrigated land suffered substantial loss since as they were not able to transport their vegetables in the market, and consequently,

forced to sell their produce at very lower prices. Further, the supply of agricultural inputs such as seeds, fertilizers and veterinary services remained interrupted during the lockdown period affecting farm and livestock productivity (Pandey 2020). Furthermore, the observed decline in farmers' income could severely affect the farming preparations and productivity in following agricultural seasons. Agricultural sub-sectors, such as fruits, vegetables, poultry, and dairy which constitute the significant sources of cash income for mountain rural communities have severely collapsed. A large quantity of precious summer fruits could not bring adequate return to farmers mainly due to lack of storage and processing facilities. The similar observations have been made in Himachal Pradesh and Jammu and Kashmir States (Pandey et al.2020; Sharma 2020).

Potatoes are the major Rabi cash crop in the entire catchment, and most of the irrigated agricultural land along the Kosi river is devoted to potato farming. The income generated from the sale of potatoes contributes significantly towards the food-purchasing power of the community and constitutes a major source of cash income for a large number of households all across the region. The demand of organic mountain potatoes is very high in the big towns of Uttar Pradesh, Haryana, and Delhi. The potato is shown with wheat in irrigated land located along the river terraces in the month of November and harvested in April-May. In the absence of proper storage facility the potato needs to be forwarded to the big market towns located down in the plains immediately after harvest. A large proportion of irrigated agricultural land is devoted to potatoes in the catchment during the Rabi season. The study conducted in 10 villages of the catchment revealed that the area under potatoes ranges between 1.7 ha and 3.1 ha in different villages which is considerably a large agricultural area keeping in view the very limited availability of arable land in the region [Table 1]. The framers sold their potatoes between Rs. 9 and Rs.11in 2019, whereas, the Covid-19 induced lock-down compelled the poor farmers to sell their potatoes which are mostly organic, at an average price of Rs.5.5 losing almost 50% of income from the sale of potatoes compared to the sale price of 2019 [Table 1]. This not only restricted the community access to food, nutrition and employment; but also undermined the socio-economic sustainability by increasing rural poverty and social stress across the

region. Moreover, the production of food crops also declined by about 35% both in the Rabi and Kharif seasons due to non-availability of agricultural inputs, droughts and incidences of high intensity rainfall further increasing the poverty and food insecurity in the region.

Table 15.1

Impact on Marketing of Potatoes in Upper Kosi Catchment

Name of Village	*Land Under Potatoes [ha]*	*Potatoes Sale Price in May 2019 [Rs./Kg]*	*Potatoes Sale Price in May 2020 [Rs./Kg]*	*Net Loss During 2019-2020 [Rs./Kg]*
Katli	2.5	11	06	05
Mala	2.3	10	06	04
Lod	2.6	09	06	03
Bijori	1.7	11	05	06
Totasiling	2.9	11	04	07
Chanauda	3.0	10	04	06
Dhaular	3.1	10	06	04
Kwerali	2.7	09	06	03
Pantgaon	2.1	11	06	05
Naikana	2.0	11	06	05
Total	24.9	10.3	5.5	4.8

Loss of Local Employment Opportunities

The livelihood and food security and socio-economic sustainability in the catchment primarily depends on local agricultural productivity and food purchasing power of local communities, and the later comes from the remittances sent by the migrated population, local employment in government services, tourism, small business, sale of vegetables, particularly potatoes, processing of agricultural products, agricultural and construction labour, and production of traditional agricultural implements. Out of the total population of 10 sample villages (26735 persons) of Upper Kosi Catchment 11523 (42.42%) were employed and engaged locally in government sector (such as, school teachers and peons), and in tiny jobs in small business enterprises, casual construction works of roads and houses, tourism sector, transport and traditional agricultural sector in March 2020 (Table 2). This also included self employed people' such barbers,

cobblers, small shop owners, and a range of other rural business and service providers. The number of total employed and self-employed population was between 725 and 2510 persons in different villages selected for the study. Out of the total employed and self-employed population 4484 persons accounting for more the 38% lost their jobs during the lockdown declining a total income of Rs.17720000 per month in 10 villages of the watershed. The 10 villages of the catchment suffered loss of a minimum Rs. 1115000 to a maximum of Rs. 3077000 per month (Table 2). This not only undermined the economic security of a large number of households, but also intensified rural poverty among the poorest segment of the society, and weaken a series of rural development programmes that have been contributing to the socio-economic sustainability of mountain communities.

Table 15.2

The Loss of Jobs and Income in Upper Kosi Catchment

Name of Village	*Total Population [2020]*	*Total Employed [Government and Private Sectors and Self Employed in March 2020]*	*% Employed*	*Persons Lost Jobs [Private Sector and Self Employed During Lockdown]*	*% Loss of Jobs*	*Loss of Income Per Month [Rs]*
Katli	2077	755	36.35	317	41.99	2185000
Mala	2507	678	27.04	299	44.10	1977000
Lod	3575	1511	45.26	711	47.05	1911000
Bijori	2125	1005	47.29	501	49.85	2551000
Totasiling	2219	725	32.67	219	30.21	1515000
Chanauda	3047	2011	66.00	855	42.52	1757000
Dhaular	3077	2117	68.80	715	33.77	1521000
Kwerali	2791	905	32.42	311	34.36	1537000
Pantgaon	2552	901	35.31	259	28.74	1115000
Naikana	2765	915	33.09	297	32.46	1651000
Total	26735	11523	42.42	4484	38.50	17720000

Tourism industry is one of the major employment provider and contributes significantly to the economies of the Himalayan States

in the country (WTTC 2019). Since the Upper Kosi Catchment is situated in the vicinity of the famous and heavily visited tourist destination - Kausani - in Kumaon Himalaya, the tourism has emerged as one of the important non-traditional sources of livelihood and employment in the region over the past some decades. A large number of rural youths are either employed in tourism sector or self employed in small tourism enterprises in the catchment. Although the tourism-sector jobs and employment are daily-wage-based or temporary in nature, but as in other parts of the world the tourism has made significant contribution towards strengthening the rural economy of the region directly as well as indirectly during the recent years (UNWTO 2020). Out of the total employed and self employed population of the sample villages (11523) nearly 15% were occupied directly as well as indirectly in the tourism sector in March 2020. Whereas, all the people engaged in tourism sector lost their jobs by the end of the June undermining the rural economy for a long period of time. As in other parts of Himalaya, tourism sector has been worst affected by the Covid-19 pandemic, and it may make long to recover. It view of this, the local economy will also take quite longer time to pull through the economic shocks.

Reverse Migration and its Socio-economic Implications

Migration is considered as one of the most effective adaptation measures to environmental constraints and changes that restrict the carrying capacity of natural resources. Moreover, traditionally migration has also been an important means of rural livelihood for a large number of rural households across the Himalayan mountains (Mamgain 2003 and Tiwari and Joshi 2015). Migration of male youth is one of the important adaptive measures to constraints of subsistence economy and changing environmental conditions and associated natural and socio-economic risks (Prakash 2020). As in other parts of Himalaya as well as in the Himalayan districts of Nepal the migration constitutes the principal livelihood option as the inward remittance from migrant population serves as a lifeline for local communities (ICIMOD 2020). Hence, the migration contributes towards improving the economic conditions and ensures food security in terms of food purchasing power (Hoermann and Kollmair 2007).

However, the rural outmigration has shown an increasing trend over the past two decades in the mountainous districts of Uttarakhand. The studies indicated that besides the poverty, depletion of agricultural resources, decline in agricultural productivity, and loss of livelihood opportunities in traditional agricultural sectors; rising frequency and severity of natural disasters and increasing human-wildlife conflicts have emerged as important drivers of increasing trends of rural out-migration in the mountainous part of the State (Rural Development and Migration Commission, Uttarakhand 2019). It was observed the magnitude of out-migration is much higher in small villages and the rural settlements located far away from the road and market centres (Mamgain and Reddy 2017).

This observation is substantiated by the fact that Almora and Pauri districts which are located in the mountainous parts of Uttarakhand registered an absolute decline in population with negative compound annual growth of -0.13 and -0.14 respectively during the period 2001-2011 (Mamgain and Reddy 2017; Pandey et al. 2020; Prakash 2020). Further, Tehri Garhwal, Bageshwar, Chamoli, Rudrapryag and Pithoragarh districts located in mountainous part of Uttarakhand recorded very low rate of population growth that decreased the proportion of the mountainous region in the population of Uttarakhand (Rural Development and Migration Commission, Uttarakhand 2019). During the recent years, the districts located in foothill region have developed important centres of economic and industrial activities and hub of educational facilities attracting a huge out-migration from the mountainous districts. This clearly indicates out-migration has become a prevalent demographic phenomenon in the mountainous part of Uttarakhand (Mamgain and Reddy 2017). The results of the study carried out in Kosi Catchment of Almora District in Kumaon Himalaya also indicated the similar trends of migration. In Kosi Catchment 15496 persons migrated from the region during 2001 and 2015 of which 81.48% were educated (Tiwari and Joshi 2015). Out of the total migrants (15496 persons) during the period as much as 97% were males, and out of that 27.79% migrated permanently and 72.21% migrated on a temporary basis. The study observed that the male outmigration has shown consistently increasing trends during recent years as between

2001 and 2015 male out-migration registered an increase of nearly 686% (Tiwari and Joshi 2015).

Since, considerably a large proportion of these migrants are employed in un-organized and private sectors, most of them either lost their jobs or source of income as both the formal and informal work has been profoundly impacted by the lockdown and other necessary restrictions on movement, transport, and mobility. As a result, a large proportion of temporarily migrated population returned home with almost empty-pockets leading to reverse migration in the mountainous districts of Uttarakhand. The information provided by the Gram Panchayats in Kosi catchment revealed that more than 5500 jobless migrated people returned their villages during the lockdown period thus adding nearly one third population to the catchment and stressing the local resources and increasing socio-economic inequality and intensifying rural poverty. The total number of migrated people in 10 villages of the catchment was 10809 who were employed both in organized sectors including government jobs and unorganized private sector (Table 3). These 10 villages were receiving an amount of Rs.16801000 per month in the form of remittances from the migrated population before the lockdown was imposed. But, the households of these villages lost 58% of remittances immediately after the lockdown was imposed as the majority of temporarily migrated population lost their jobs (Table 3). This brought massive and abrupt decline in the flow of cash income into the rural economy on the one hand, while on the other increased the jobless and income-less population in the villages through reverse migration. Nevertheless, the Covid-19 forced a large number of jobless and income less migrants to return their homes further aggravating the situation and stressing the local resources and economy. The World Bank estimated that remittances will fall sharply in the Himalayan State by 23% in 2020 (World Bank 2020a). In view of this, it would be difficult to recuperate the economic loss caused by the sharp decline in remittance in near future.

Table 15.3

The Decline in Remittances during Lockdown Period in Upper Kosi Catchment

Name of Village	*Total Population [2020]*	*Total Migrated Population*	*Amount of Remittances Per Month [Rs.]*	*% Decline in Remittances*
Katli	2077	905	1887000	77
Mala	2507	1177	1777000	55
Lod	3575	1191	1921000	44
Bijori	2125	795	1553000	52
Totasiling	2219	778	1177000	71
Chanauda	3047	1155	1922000	57
Dhaular	3077	1217	2159000	59
Kwerali	2791	997	1119000	51
Pantgaon	2552	1059	1549000	37
Naikana	2765	1535	1737000	75
Total	26735	10809	16801000	58

Impact on Community Food Security

As in many other parts of the world, the Covid-19 pandemic has not only destabilized the economies through disruption of production, industries, services, transport, employment and livelihood, and income and consumption patterns, but also increased poverty levels and social and economic inequality particularly among the poor and other weaker sections of the rural society in Himalaya (ICIMOD 2020; Sumner 2020; Vos et al. 2020a and 2020b). The massive disruption of rural economy has decreased the food purchasing power of a large proportion of rural population thus restricting their access to food and nutrition and undermining the food security of rural communities, particularly the poor and other weaker sections of the mountain society. The depletion of natural resource base, climate changes, climate change induced disasters and rapidly declining agro-biodiversity have profoundly impacted mountain farming system. As a result, the food system in the region is mainly dominated by a few staple crops, particularly wheat and paddy and the traditional nutritious food crops such as barley and millets are gradually disappearing from the mountain agricultural

landscape leading to sharp decline in production diversity (ICIMOD 2020; Global Nutrition Report 2020; Adhikari et al. 2019). The region is already highly vulnerable to food and nutrition insecurity due to constraints of terrain, climate change, and low food purchasing power (Rasul et al. 2019). The observations made in the Hindu Kush Himalayan mountains indicated that nearly one-third of the total rural population is food insecure, and half is facing severe malnutrition (ICIMOD 2020).

The COVID-19 pandemic have further aggravated the food insecurity and malnutrition in the region through the disruptions of agricultural production system, food and inputs supply chains, trade, income-generating activities and access to food (Food Security Information Network 2020; Carberry and Padhee 2020). The mountain communities, who already face high poverty and lack of local employment opportunities, are extremely vulnerable to food security (ICIMOD 2020). The pandemic deepened the food crisis not only by affecting both the availability of and access to food, but also through the disruption of the implementation of important state sponsored social and economic development programmes and schemes (Dev et al. 2020). The Aganbari Programme which provided supplementary nutrition to poor rural children and women came into immediate halt soon after the country-wide lockdown was imposed aggravating the food and nutrition situation of large number of poor rural children and women. Since temporary food insecurity can have profound impact on current and future socio-economic advancement of the mountain society, it is critically important to assess immediate impacts and likely risks to food security and nutrition, and to identify the short, medium and long-term actions necessary for appropriate response. The COVID-19 pandemic has further aggravated the food insecurity and malnutrition situation in the region due to unexpected decline in crop production, disruption of food and inputs supply chains, and loss of cash income and resultant restricted community access to food (ICIMOD 2020).

The study carried out in Upper Kosi Catchment revealed that the Covid-19 pandemic has very intensely affected the food purchasing power of the local rural population. Table 4 clearly shows that the households of the region used to spend nearly 42% of their monthly

income on food and nutrition just before the pandemic, but their expenditure on the procurement of essential food items from the market declined from 42% to around 30% after the imposition of lockdown. Since the income level dropped consistently during the pandemic period and the number of jobless population increased due to reversed migration, the rural communities have reduced expenditure on food and nutrition between 8% and 15% in different villages with an overall decline of 12% per month (Table 4). As a result, the proportion of food insecure population increased from approximately 32% in March 2020 to as much as more than 40% in the following months bringing an overall increase of nearly 8%.This increased the proportion of food insecure population between 7% and 10% in different villages of Upper Kosi Catchment (Table 5). Further, the pandemic has disrupted both the physical and economic access to food, and panic buying and hoarding of food items by some better-off households decreased the availability of local food items. This restricted the access of the poor and weaker sections of the society to necessary food items (Naz 2020).

Table 15.4

Status of Expenditure on Food and Nutrition in Upper Kosi Catchment

Name of Village	*Total Population [2020]*	*Expenditure on Food and Nutrition Before April 2020 [% of Total Income Per Month]*	*% Expenditure on Food and Nutrition After April 2020 [% of Total Income Per Month]*	*% Decline in Expenditure on Food and Nutrition After April 2020*
Katli	2077	45	30	15
Mala	2507	41	32	09
Lod	3575	51	29	22
Bijori	2125	38	29	09
Totasiling	2219	41	31	10
Chanauda	3047	52	39	13
Dhaular	3077	35	21	14
Kwerali	2791	38	27	11
Pantgaon	2552	41	32	09
Naikana	2765	39	31	08
Total	26735	42.1	30.1	12

Table 15.5

Food Security Situation in Upper Kosi Catchment

Name of Village	*Total Population [2020]*	*% Food Insecure Population Before April 2020*	*% Food Insecure Population After April 2020*	*% Increase in Food Insecure Population*
Katli	2077	37	45	08
Mala	2507	35	47	12
Lod	3575	31	38	07
Bijori	2125	36	45	09
Totasiling	2219	35	42	07
Chanauda	3047	39	45	06
Dhaular	3077	31	37	06
Kwerali	2791	30	36	06
Pantgaon	2552	21	31	10
Naikana	2765	27	37	10
Total	26735	32.2	40.3	8.1

Concussion and Policy Recommendations

The preceding discussion brings out that Covid-19 pandemic has disrupted the subsistence economy of the Himalayan region through loss of employment and income and decline in food productivity. The reverse migration increased the demand of food and natural resources on the one hand, while on the other decreased food production as well as the food purchasing power of the major proportion of rural population, particularly poor and marginalized sections of rural society. The mountain communities, who face poverty and severe livelihood constraints, are already vulnerable to food insecurity (ICIMOD 2020; FAO 2008). Moreover, temporary food insecurity can have severe impact on current and future development of the mountain communities in view of low productivity of natural resources and limited carrying capacity of local production system. It is therefore critically important to assess immediate impacts and likely risks to food security in the region, and to identify the short, medium and long-term measures necessary for speedy recovery of the losses and stresses. This will have long-term implications on the socio-economic sustainability of the region. Besides, the direct and

short-term effects of the loss of employment and income, decline in remittance, and decrease in farm productivity, the pandemic is likely to have long-term impact on the economy and society, particularly through increasing the demand of food and natural resources and resultant vulnerability to food, livelihood and health insecurity and the depletion of natural resource base all across the region. Nevertheless, the extraordinary circumstances created by COVID-19 pandemic also provided immense opportunity for the sustainable development of mountain regions and well being of their inhabitants. In order to address these critical challenges posed by the pandemic and transform the pandemic into opportunity, the following recommendations may help in the formulation of effective long-term and short-term policy responses across economic, food and nutrition security, social, and climate change resilient building dimensions:

- In order to create off-farm opportunities of employment in green sectors, particularly for the returnees migrants, a comprehensive and ground-based tourism development framework should be evolved focussing specifically on aesthetic and spiritual, medical, wilderness, yoga and adventure tourism.
- The traditional integrated mountain farming system should be revived and strengthened with incorporation of green technologies and organic farming. This would integrate diversified mountain production system and conservation practices such as agriculture, horticulture, floriculture, dairying, fishing, bee-keeping, forestry and water conservation at watershed level. The integrated framing system has the potential to contribute significantly towards diversifying livelihood opportunities and improving the adaptive capacity of local communities to climate change as well as to climate change induced natural disasters through sustained food production and conservation of critical natural resources.
- Furthermore, appropriate and effective strategies need to be evolved for the integration of the mountain farming system with poverty reduction and rural livelihood improvement programmes, women's empowerment and

gender mainstreaming schemes. In addition, the mountain farming system should be integrated with environmental conservation and ecological development programmes, and climate change adaptation framework.

- Moreover, integration of different sectors of mountain economy with local agricultural production system, flow of credit to rural areas, and increased investment on mountain agricultural enterprises will help in making mountain agriculture economically viable, ecologically conducive, and adaptive to climate change and natural disasters. This would require connecting disciplines and thus promote coherence, consistency between agricultural and climate change adaptation policies, research, financial investments and sustainable development programmes.
- Community oriented and participatory water resources conservation programmes at watershed level will not only help in improving the productivity of farming system through increase in irrigation potential, but also strengthen the capacity of mountain socio-ecological system to adapt to climate change and climate change induced natural disasters.
- Rehabilitation and sustainable development of degraded, waste and abandoned agricultural land would also necessary for the sustainable development of natural resources as well as for creating more livelihood opportunities in traditional agricultural and allied sectors. The degraded and wasteland could be brought under tea farming and cultivation of medicinal plants.
- Formulation and immediate implementation of targeted poverty reduction programmes in response to specific conditions and needs of the poor and weaker sections of the rural communities, particularly in tourism and agricultural sectors would help in improving livelihood and food security situation in the region.
- The on-going cluster based development programme of the State of Uttarakhand should be linked with the production and value addition of high value traditional agricultural and horticultural products.

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16

POONAM SINGH AND ASHUTOSH PAL SINGH

Skill Mapping of Migrants During the Crisis of COVID-19

An Overview

Introduction

India is a country of great diversity with varied culture, dissimilar lifestyles, languages and population, and states have different levels of social and economic development. The wellbeing of a community depends upon the choices made by the people and granted by the authority. The whole idea of good governance is the participative system of governance in which those who are called upon to govern on behalf of the people are motivated with a will to give their best, serving and doing well to the people, solving their problems and making their lives more liveable, satisfying and enjoyable. The essential prerequisites for quality governance are that the system should be good and suited to the needs, aspirations, background and ethos of the people concerned and those selected for operating the system should be endowed with the character and competence and motivated by the spirit of public service.

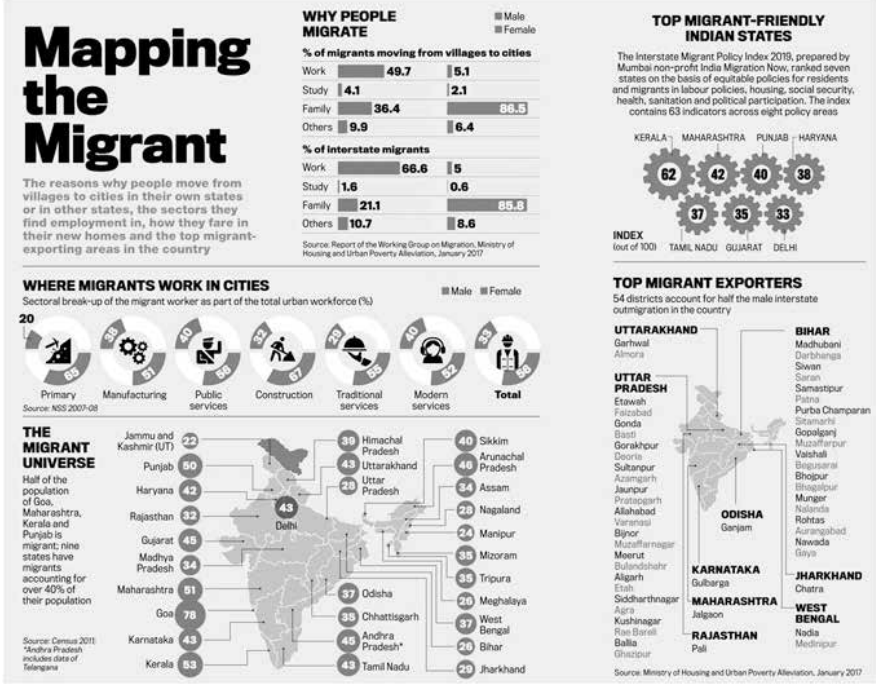
In the 1992 report entitled "Governance and Development", the World Bank set out its definition of Good Governance. It defined Good Governance as "the manner in which power is exercised in the management of a country's economic and social resources for development".

COVID 19 Pandemic and the Migration Governance

The COVID-19 pandemic has spread to nearly every country across the globe, leading to numerous lockdowns including closure of domestic and international borders.

The main dimensions of migration governance include (i) "migrant rights," which assesses the extent to which migrants have the same status as citizens in terms of health, education, and social security; (ii) "government approach," which assesses institutional legal and regulatory frameworks related to migration policies; (iii) "partnerships," which focus on governments' efforts to cooperate with other countries and bodies on migration-related issues; (iv) "well-being of migrants" to manage the socioeconomic well-being of migrants; (v) "mobility dimension of crises," which studies the type and level of preparedness of countries faced with disasters relating to environment or conflict; (vi) "safe orderly and dignified migration," which analyses a country's approach to migration management in terms of border control, enforcement policies, preparedness and resilience in case of unexpected migration flows, and incentives to help integrate returning citizens.

Migration in India



Source: *https://www.indiatoday.in/magazine/cover-story/story/20200608-the-migrantmess -1683244-2020-05-30*

Human migration is the movement of people from one place in the world to another. People can either choose to move (voluntary migration) or be forced to move (involuntary migration). Migration is a global phenomenon caused not only by economic factors but many other factors like social, political, cultural, environmental, health, education are included under the broader classification of Push and Pull factors of migration:

- Push Factor: Push factors are those that compel a person, due to different reasons, to leave a place of origin (out-migration) and migrate to some other place.
- Pull Factor: Pull factors indicate the factors which attract migrant (in-migration) to an area (destination).

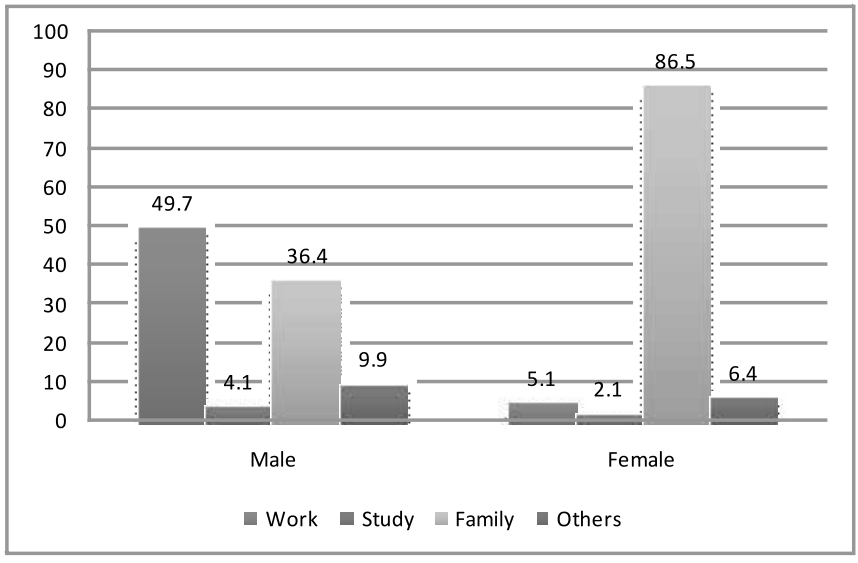
Internal Migration

Migrants who move within the boundaries of their own country are known as internal migrants. There are four streams of Internal migration.

- Rural to urban (R-U)
- Rural to Rural (R-R)
- Urban to Rural (U-R)
- Urban to Urban (U-U)

Causes of Internal Migration

The likelihood of internal migration for employment-related reasons is highest among the EAG (Empowered Action Group) states where it has become a livelihood strategy for many States. . The Census 2011 data also confirms this pattern, suggesting that employment-related out-migration is more prevalent among the lower-income states such as Uttar Pradesh and Bihar. The causes for migration are analysed separately for male and female migrants because male migration is mostly dominated by employment-related reasons, whereas female migration occurs due to combined effects of employment and marriage.



Source:https://thelogicalindian.com/storyfeed/awareness/understanding-impact-of-lockdown-on-migrants-in-india-21669

- *Urbanization*: An increase in the demand for labour in urban areas and better wages increase migration. The pull factors of better job facilities, good salary, more income, medical and educational facilities are attracting the rural people to move to the cities. The push factors of no job facilities, low salary, less income, drought, less medical and education compel people towards cities.
- *Marriage*: Marriage is an important social factor for migration, from one rural area to another rural or urban area, especially in case of females
- *Employment*: Search for better employment in industries, trade, transport and services results in R-U and U-U migration.
- *Education*: Due to lack of educational facilities in rural areas, people migrate to the urban areas for better academic opportunities. In the 2011 census, about 1.77% people migrated for education.

- *Lack of security*: Political disturbances and inter-ethnic conflicts is also a reason for internal migration.
- Environmental and disaster induced factors force people to move from rural to urban areas due to gradual deterioration of changing environmental conditions. There can also be forced displacement due to reasons such as developmental projects.

Economic Survey of India 2017

- It estimates that the magnitude of inter-state migration in India was close to 9 million annually between 2011 and 2016.
- Uttar Pradesh and Bihar are the biggest source states, followed closely by Madhya Pradesh, Punjab, and Rajasthan.
- The major destination states are Maharashtra, UP, Tamil Nadu, Gujarat, Andhra Pradesh and Kerala.

COVID Crisis and Internal Migrants

The lockdown due to COVID 19 crisis has severely impacted migrant, some of whom lost their jobs due to shutting of industries and wanting to get back their native places. Since, the government has announced relief measures for migrants and made arrangements to return their native places.

Source:https://scroll.in/latest/957570/covid-19-lockdown-man-collapses-dies-halfway-while-walking-home-300-km-away-from-delhi

According to the World Bank report 'COVID-19 Crisis Through a Migration Lens', nationwide lockdown in India due to COVID-19 has impacted nearly 40 million internal migrants. Around 60,000 moved from urban centres to rural areas of origin in the span of a few days. The magnitude of internal migration is about two-and-a-half times that of international migration. Internal migrants have faced issues in health services, food, cash transfer and other social programmes. They are vulnerable to the loss of employment and wages during an economic crisis. Lockdowns in labour camps and dormitories increased the risk of contagion among migrant workers.

The state boundaries became the sites of violent migrant-police encounters, as police resorted to beating migrants for having violated the lockdown orders. Thousands of them, without any means of transport left to their villages back on foot, dying of starvation, fatigue, and road accidents. Though, on May 1, 2020, the Central government introduced special Shramik trains to take urban migrants back to their villages, due to train cancellations and exorbitant fares, these special trains brought little relief to urban migrants.

State Response

Source: *https://thelogicalindian.com/news/migrant-workers-quarantine-20358*

In order to capture the information regarding movement of migrants and facilitate the smooth movement of stranded persons

across States, National Disaster Management Authority (NDMA) has developed an online Dashboard – National Migrant Information System (NMIS). The online portal would maintain a central repository on migrant workers and help in speedy inter-State communication/ co-ordination to facilitate their smooth movement to native places. It has additional advantages like contact tracing, which may be useful in overall COVID-19 response work.

All the states have provided reliefs in terms of monetary and ration to the return migrants and started the skill mapping exercise of the return migrants to provide them the required employment within the state itself. In this process, Uttar Pradesh has already completed the skill mapping exercise of 3.2 million migrants and formed labour commission to ensure social and economic security for migrant workers who have been hit hard by the covid-19 pandemic and the ensuing lockdown.

In addition, the Prime Minister announced a special economic and comprehensive package of Rs 20 lakh crore on 12 May 2020. As part of the economic measures "Atma Nirbhar Bharat Abhiyaan" (Self Reliant India Campaign), the Finance Minister announced many short- and long-term measures for supporting the poor including migrant workers.

As an add on, the Prime Minister, during 'Mann Ki Baat', announced the setting up of a Migration Commission for the employment of migrant labourers after mapping out their skill matrix. He also emphasised the need for creating opportunities for self-employment and setting up of small-scale industries in villages.

Along with the above and some of the latest other announcements pertaining to migrant workers are:

- Free food grains supply to migrants for 2 months- Additional food grain to all the States/UTs at the rate of 5 kg per migrant labourer and 1 kg Chana per family per month for two months i.e. May and June, 2020 free of cost shall be allocated. Migrant labourers not covered under National Food Security Act or without a ration card in the State/UT in which they are stranded at present will be eligible.
- Allocation of an additional Rs 40,000 crore under the Mahatma Gandhi National Rural Employment Guarantee

Scheme (MGNREGS), which will help generate nearly 300 crore person days' work in total.

- Technology system to be used enabling Migrants to access PDS (Ration) from any Fair Price Shops in India by March, 2021 – One Nation one Ration Card.
- Scheme for Affordable Rental Housing Complexes (ARHC) for Migrant Workers and Urban Poor to be launched.
- National Migrant Information System (NMIS) – a central online repository on Migrant Workersis being developed by National Disaster Management Authority (NDMA) to facilitate their seamless movement across States.
- In order to ensure safer and quicker transportation of migrants, Indian Railways ready to run Shramik Special trains from all the districts connected by Railways in the country.
- PM CARES Fund Trusts allocates Rs.1000 Crores for Relief Measures for Migrants.

Skill mapping exercises for migrants during COVID-19

Source:https://world360news.com/en/durg-skill-mapping-129-migrant-workers-employment-camp-10-got-employment-immediately-13-employers

As massive reverse migration has taken place in the last few months across India and when workers and various State Governments have been adversely impacted, Skill Mapping has

become a buzz word. Skill mapping seems to have proved as a major tool for benefitting all, which is why many states have taken various steps for the same. It is pertinent to highlight here that various states have given the name of skill mapping to their initiatives, but so far they have basically done sector mapping identifying the industry or sector the workers belong to. It has given a clear picture to availability of workers from a particular trade like garment manufacturing or construction, etc.

Skill mapping, in fact, recognises the talents, skills and knowledge of workers and even categorises them under skilled, semi-skilled or highly skilled groups. Their earnings and further growth depend on the category they get. Skill mapping draws a line between skilled and unskilled people and plans for the restoration of their livelihoods.

This is the most crucial time for all stakeholders and steps taken at this time will set a direction for the future also. The main labour-source state, Uttar Pradesh has already completed the skill mapping of more than 3.2 million migrant workers, while Bihar has done the same for around 2 million workers.

Uttar Pradesh and Bihar have taken a step forward in this regard, and with the help of Apparel Made-Ups Home Furnishing Sector Skill Council (AMHSSC) stated the exact assessment of the workers. After the proper assessment, which is as per industry standards, these workers get certificates which not only create job opportunities for them, but also make them eligible for schemes like MUDRA (Micro Units Development and Refinance Agency) loan. Under Atma Nirbhar Uttar Pradesh Rozgar Abhiyan, UP seeks to promote local entrepreneurship and create partnership with industrial associations to provide employment opportunities to 1.25 crore migrant workers who lost their jobs during the Covid-19 pandemic. The state government has already mapped the skill of the workers so that they can be provided employment as per their expertise.

Atma Nirbhar Gujarat Sahay Yojana is for those who wish to avail guarantee-free loans of Rs 1 lakh from banks at 2 per cent annual interest and the state, with this scheme, aims to help small businessmen, skilled labours, workers, electricians, auto-rickshaw owners and others whose livelihood has been impacted by COVID 19.

Comparatively, Governments of small states like Assam and Manipur, with fewer workforces, have started maintaining records

of their workers of not only their basic information, but also their skills and aspects which can help them get employment. As the use of technology adds value to every system, it is good to know that Assam is using SAMPARKA (Software Application for Migrated People to Assam for Rejuvenating Karma Abhiyan). Manipur launched a website (www.mssd.in) for a similar initiative.

There are examples wherein various states in India have supported each other and when it comes to employment of labour, both labour-source states and labour-host states can help one another in the process. So various states can explore the opportunities of working together, be it skill mapping or further employment generation.

One must appreciate that apart from the State Governments, NGOs are also coming forward for this initiative. Bhartiya Mazdoor Sangh (BMS) has set up help desks, and details collated are shared with the Government. Apart from the skill-related question, BMS also gathered information which will be helpful for the overall upliftment of workers.

Way forward

Source:https://www.bhaskar.com/local/bihar/bhagalpur/munger/news/migrants-will-get-work-in-the-district-itself-skill-mapping-is-being-done-127349961.html

It shall be a highly progressive measure if government seizes this opportunity to build a database of migrant workers that could be used in the future to create a social security system for them. Migration Commission could play an important role. It can be used for the mandate to prepare an appropriate social protection and welfare system for migrant workers. Existing schemes like MGNREGA needs to be adequately funded to provide employment to migrants for at least the remaining months of this year.

Also, more clarity is required on how different stakeholders—ministries/departments, district administrations, banking systems—shall coordinate on things such as timely payments to the workers. There is also a requirement to bring all the stakeholders on a single IT-based platform, especially when the government is facilitating the role of an aggregator. Most of the States conducted skill mapping exercise but this exercise should be regularly updated and dynamic in nature.

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