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## **MISERY OF HANDLOOM INDUSTRY AND SOCIO-ECONOMIC STATUS OF WEAVERS DURING COVID 19 PANDEMIC SITUATIONS**

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### **Abstract**

*Our country is comprising of so many sectors such as Industrial, Agricultural and Service sector. Out of these three sectors, industrial sector contributes great role for economic development. From the great scenario, Textile Industry operates efficiently in India, Bangladesh and India. Our Indian countries contribution is enormous compared to other country where the resources are available in plenty. Textile industry can be divided into Handloom, Power loom, spinning, knitting etc., Prime and old ancestral occupation lied in Handloom and Power loom sector The Handloom is a traditional industry of India and it provides employment opportunities to millions of people in the rural and urban area of our country. The handloom sector is decentralized, un-organized and rural based, playing an important role in the country's economy in terms of employment and export earnings. The power loom industry is a weaving sector and an important segment of the decentralized cotton textile industry in India. The hand loom and power loom industry mainly depends on weavers but they always face hectic issues in their day to day lives such as finance, electricity, health etc. Also they don't get proper support from the Government as well. This paper focus on to identify the problems faced by the handloom and Power loom Weavers in Tamil Nadu*

**Keywords:** Hand loom, weavers, issues, Challenges

### **INTRODUCTION**

Overall globe is facing remarkable crisis named CORONA virus which pushed backward of all professional living style. Out of these overall victims, weaving sector affected very badly. It is a common perception and cum reality

where the weavers offer trendy and well-designed modest clothing for others. But weaver's way of clothing and even one-time meal per day becomes question mark. In one way it is considered as ever green sector where in the other end it is a dark room where the obstacles and

challenges will not be known to the stakeholders of weaver's segment. Weavers face lot of issues socially and economically and try to live with problems in their lives as how common public are to be accustomed to live with CORONA environment as per the Government words,

One Question arise in the mind of researcher is that why handloom and power loom plays dominant role when advanced technological revolution evolved in an external environment which can offer quality material at cheaper rates. Weaving work seems undeterred by anxiety of the virus that permeates the said situation. The condition created by CORONA virus forced weavers to be idle without any productivity. Also, their livelihood becomes ultimate question mark.

## REVIEW OF LITERATURE

**D.Gowreeswari & Dr. M. V. Sathiya Bama (2019)** Handloom weavers they are facing lot of problems like high cost of production, lengthy procedure to get loan, Ineffective Government schemes, increase quality of product etc. In present scenario, the handloom cotton sarees are traditional but its production is down due to high cost so that people do not prefer this cotton saree at this cost. But, the quality of the cotton saree is better than power loom saree.

**Dr.R.Velmurugan & Mr.K.P.Balraj (2018)** Power loom sector is growing on the strength of cluster wise product specialization, which is a major advantage for this sector. Tamilnadu and considering its well-established handloom mindset, there is need for "Operation Transformation" that will aim at raising its structural composition, technology levels of looms and preparatory machinery as well as processing capabilities, quality compliance in manufacturing processes, man-power training besides aggressive and competent and competitive marketing practices.

**D. Srinivasa Rao and Dr. N. Sreedhar (2017)**, focused on "socio economic condition of handloom weavers in Gannavaram Mandal of Krishna district in Andhra Pradesh. In this article, researcher highlighted the facts of living index of weavers where this study is based on extensive field work which symbolizes that though handloom weaving has many métiers and can be competitive under specific condition, the seeds of the crisis are inherent in the sector. All these parameters are to be traced to two major factors (i.e.) the low performance of the co-operative sector, and the very low economic condition of the weavers. With the involvement of these two factors can improvise the earnings of weavers which ultimately increase the standard of living.

**P.V. Sree Vaishnavi & Suja S Nair (2017)**, author insisted on handloom sector in this article. This study highlighted that Handloom is a traditional wear in India has lost its significance slowly with the advent of low cost and eye catchy synthetic materials. The notion of 'Make in India' campaign and the planning commission lavishly made economic sector as prime one with an unified identity. Handloom Exports are encouraged in various part of the world such as USA, UK, Germany. The Indian government launched Handloom brand to ensure its uniqueness, flexibility of production, openness to innovations, adaptability. The number of handloom weaver households decreased in the third handloom census compared to that of second. So as to support weavers the Indian government launched schemes and initiated exhibitions, crafts museum, trade facilitation centre and E-commerce. Market research on the Handlooms identified the need for publicity, availability, Handloom designer dresses and awareness campaigns on a large scale for its sustenance.

**Anu Varghese & Dr. M H Salim (2015)** In order to hold on to its market share and also to enter new market segments the

handloom sector needs some well thought-out and clearly uttered remedial strategies, supported by constructive policy initiatives. The government should establish functionary centers in order to collect market facts on products, total market distribution and their channels, consumer’s competitions, import rules and regulations, economic factors and specific market characteristics and price trends. Government should encourage the government-owned enterprises to purchase handloom products.

**RESEARCH GAP**

Majority of the researchers focused on socio-economic condition of weaver’s community but very few researches had been carried out in the wings of social status i.e. how the weaver’s dignity is affected in the society being in this weaving profession. Hence to close this gap, researcher took effort to bring out the facts of social problems faced by the weavers

**RESEARCH HYPOTHESIS**

Researcher framed hypothesis which is having multi-faceted dimension which are as follows:

- To what extent social status affect weaver’s community?

**OBJECTIVES**

- To gain insight into social status of handloom weavers
- To probe into the social problems faced by weavers
- To describe the aspects of issues faced by handloom weavers
- To draft conceptual model on societal issues of handloom weavers

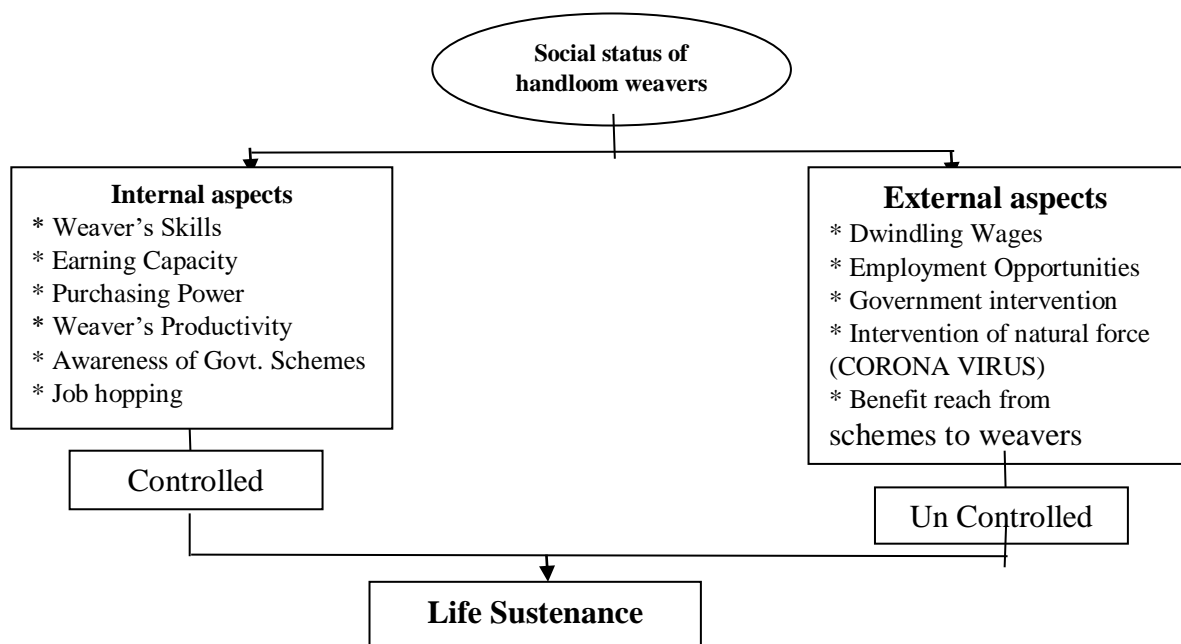
**SCOPE OF THE STUDY**

- This research covers all handloom weaver’s segment
- To achieve all objectives which are mentioned are crystal clear to uplift handloom weavers

**LIMITATIONS OF THE STUDY**

- This study covers only handloom weavers but not focusing on others involved in Textile industry
- Researcher tried to develop conceptual model based on literature review but analytical study will be still more effective.

**CONCEPTUAL MODEL**



*Fig. Conceptual Model of Social Status of handloom weavers*

The above conceptual model highlights the aspects which is of two divisions namely Internal and External. Both these aspects play vital role to determine the social status of handloom weavers. Internal aspects cover the issues faced by the weavers themselves. External aspect touch on the issues faced by the weavers from different sides.

All internal aspects can be Controlled which means that with weaver’s effort they themselves can find transformation and External aspects are purely uncontrolled where transformational process is not in the hands of handloom weavers.

Under Internal aspects, earning capacity and purchasing power decides their social status. If one individual weaver is not earning income, his social status will be damaged. Also being the bread winner of the family, basic necessities of weaver and his dependents should be satisfied or else the social status of this weaver will be affected by mere neighborhood.

This conceptual model framed by the researcher becomes ultimate when facts are found. Both of these aspects make the weavers to be questionable to

their sustenance of life. To resolve this, first government should interfere into this weaver’s community and all the schemes framed by central and state government should reach the weavers directly from the government without motivating intermediary interventions.

Today overall universe is facing major challenge to lead their lives due to CORONA VIRUS. Clothing is one of the basic needs of one human being. Every one raises their voice to uplift agriculture which is the prime occupation. But very few are focusing on this weaving communities. During this heavy pandemic situation, weavers engage themselves to sell vegetables in their surrounding places, selling snack items, food etc., to satisfy their needs and to have meal at least one time for parents and two times for their children which is the pettiest part.

Government offered fund assistance to certain portion of weaver’s segment. Few are benefited and many did not avail this benefit. Covering only few will not serve any purpose. Hence government should offer some facilities to the benefit the weavers

**Variables are mentioned below:**

Dependent Variables	Independent Variables
I. Social Status of Handloom weavers II. Life Sustenance III. Internal aspects i) Weaver’s Skills ii) Earning Capacity iii) Purchasing Power iv) Weaver’s Productivity v) Awareness of Govt. Schemes vi) Job hopping IV. External aspects * Dwindling Wages * Employment Opportunities * Government intervention * Intervention of natural force (CORONA VIRUS) * Benefit reach from schemes to weavers.	a) Strategies framed b) Government Policies c) Uncontrollable factors d) Functioning of Co-operative societies e) Owners pedagogy



## CONCLUSION

This conceptual study enables the researcher to identify solution for the issues of handloom weavers faced in today's scenario. Major issues are not reaching government. Without government intervention none of these issues will be resolved by any private bodies. Hence government should take active participation directly or indirectly. Indirect participation will activate co-operative societies, owner's community to be strengthened and to offer financial assistance to the handloom weavers.

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## CHANGING TREND OF WOMEN PARTICIPATION IN RURAL AND URBAN INDIA WITH SPECIAL REFERENCE TO MSME SECTOR

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**Abstract**

*In the post Covid-19 situation when Government of India is found committed to support the MSME (Micro, Small and Medium Enterprises) to play a dominant role for the recovery, it becomes indispensable to understand the future prospect of women participation in work. The study tried to explore the prospective position of women participation in future considering the present scenario. This will not only enlighten the prospective area of further expansion of economy but it will also give an idea on feasible small scale manufacturing sectors which can be strengthened by clustering similar value added industries. With this purpose an in depth analysis is made on the changes in female work participation rate for rural and urban areas separately from 1961 to 2011. With the forecasting method the study tried to find out the prospective states with relatively higher female participation rate. With the secondary data analysis the study tried to forecast the changes in FWPR from 2021 to 2061 in rural and urban areas separately. It is found that from 2021 till 2061, the urban areas are expected to witness moderately high and very high increasing FWPR, with the majority of states falling under the category of high increasing FWPR. In the current scenario it can be suggested that accommodative monetary policy such as reduction in interest rate and active fiscal policies primarily focusing on social protection measures should be adopted by the government.*

**Keywords:** MSME; Female Work Participation Rate; Agriculture; Women Empowerment; Fiscal Policy; Monetary Policy.

**JEL Code:** R23, J16

## 1. Introduction:

The new age of automation and artificial intelligence is on our doorstep. With the tech jobs offering an advanced economic opportunity to women; it becomes equally important for MSMEs to ensure transition of women into highly-skilled roles (Startup India, 2020). This transition holds an important role in case of MSMEs where the number of employees may not be many. In order to hold a key position in leadership roles, women have to be more mobile-both physically as well as mentally. The globe is currently witnessing the huge rise in SMEs where nearly 85% of the total workforce is getting absorbed (ILO, Platform economy, 2018). Micro, small and medium enterprises have significantly facilitated the growth in the country by empowering women on a global platform. (Ministry of micro, small and medium enterprises, 2017). They have emerged as the incubators of entrepreneurship. In emerging market economies, MSMEs contribute to 45% of total employment and 33% of the total GDP (UN, 2018). According to a study by World Bank, 4 out of 5 new positions in the next 15 years will be created by MSMEs, which nearly account for 90% of the total employment in the formal sector. Women, being the harbingers of change, are weaving their success stories, with their hard work. A large number of women are expanding their business horizons and stepping into the businesses. There is now a greater availability of options to women in the fields of employment, which have been a driving force for their emergence as bureaucrats, professionals and executives. The traditional skills of women are now being converted into livelihood which provides them with the income earning opportunities, by starting a home based business of textiles, catering, crafts and many more (Ministry of MSME, 2017). It is expected that nearly 15-170 million jobs will be created by Indian women entrepreneurs, which accounts for 25% of

the new jobs that are required for working age population by 2030 (Bain & Company, Google, 2019). Currently, these businesses represent 20% of all the businesses. According to a report titled 'Women Entrepreneurship in India – Powering the Economy With Her', women owned businesses are majorly owned by single-person wherein the largest share of 38% comes from rural non-farm home based business owners followed by urban self-employed women entrepreneurs at 31%, who usually prefer work from home. MSMEs play an effective role in ensuring women's participation in business and trade. The small business play an important role in reducing the gender gap as nearly 40% of the businesses are run by women. (International Trade Centre, 2017). It is estimated that there are 9.34 million formal women-owned MSMEs, which corresponds to approximately one-third of all the formal MSMEs. (International Finance Corporation, 2018). They are more likely to be present in the retail, healthcare, beauty and cosmetics sectors. They are equally present in the service sector like tourist, transport, hotels, and trade sectors. However, there is a slightly lower presence in sectors like manufacturing, agriculture and construction. In India, nearly 3.01 million businesses are owned either fully or partially by women. Women entrepreneurs collectively contribute 3.09 percent of industrial output (IFC, 2014). More importantly, they employ 13.48 million people, or 10.24 percent of the total workforce (6th Economic Census, 2016). A study by IFC finds that women constitute nearly one fifth of the total workforce in MSMEs. The rate of women's employment in registered MSMEs stand at 20.45 percent while it is 13.02 percent in unregistered MSMEs. However, women are mostly employed in low and medium skilled jobs, with the absence of social security benefits. Improving working conditions of the

women along with their greater participation can achieve the Sustainable development goal of Gender Equality (SDG 5). MSMEs, similar to the large companies should be encouraged to adopt gender inclusive practices with their business and value chains (UNDESA, 2017). MSMEs need to formally train the women with the skills required in the market by adopting integrated business tools. There should be zero tolerance towards all forms of violence at work, flexible work arrangements for women and providing child care (UN Women, 2016). Women employees prioritize sustainability by promoting gender balance in the businesses (DESA, UN, 2018). The companies which employ more women are likely to invest more in low-carbon products, renewable resources and energy efficiency. With The recent outbreak of COVID-19 globally, sustaining business operations will be particularly difficult for Small and Medium Enterprises (SMEs) (ILO, 2020). In view of the global outbreak, governments across the world are introducing a wide range of measures in order to infuse more confidence and increase credibility of small business lines. Some of these measures include provision of short term liquidity as done in India currently, provision of wage subsidy for a period of three to six months, compensation for the reduction in turnover particularly during lockdown period etc. while India must ensure the introduction of safety net measures for the workers as well, the real challenge lies in the identification of 63.4 million unincorporated MSMEs, of which approximately 99% micro enterprises that remain largely informal. A concessional interest rate loan which is announced by Small Development Bank of India (SIDBI), specifically target MSMEs which manufacture goods and services related to Covid-19. These packages are promising for ensuring short-term liquidity concerns and further stimulus

packages focusing on the MSME sector are required (Radhika Pandey, 2020).

## 2. Review of literature:

In a paper by Dr. Ajay Sharma, Sapna and Vinod in 2012, they found out that the main challenges faced by rural women entrepreneurs are the overlapping of responsibility of business and family, non-awareness of the best options available for finance, illiteracy among rural women because of which they lack knowledge of measurement and basic accounting, less decision making power for Indian women because of the male dominant society, lack of training to succeed as business owners, and restricted mobility among the rural women (Sharma, Dua, & Hatwal, 2012). There is a dearth of financial assistance available for women entrepreneurs and also they are the victims of exploitation by moneylenders. The repayment capacity of women is lower, either due to the low profits of their businesses, or a lack of financial support in the form of ownership of assets or other properties. According to a United Nations Industrial Development Organization (UNIDO), (2003), report, women suffer from various constraints, and cultural values and social norms hinder the equal participation of women in society (M & Khan, 2016).

**Wakilur Rahman (2012)** during his study of women entrepreneurship development in Bangladesh found that as mentioned in the goal 3 of the Millennium Development Goals to promote the gender equality and to empower women, the Article 28 of the constitution of Bangladesh mentioned the issue of equal economic right and opportunities and the development of women entrepreneurs. The country's 5<sup>th</sup> five year plan (1997-2002) integrated the macro framework and multi-sectoral economy to bring women into the mainstream of economic development and encourage potential women entrepreneurs (Rahman, 2012). Conducive policy environment during the liberalization era post 1991 resulted in a

steady increase in the number of MSMEs in India. It increased from 67.87lakh in 1990-91 to 133.68lakh in 2007-08. However, Bank's credit to micro enterprises declined from 4.2% in 2002-03 to 2.8% in 2007-08. This was because of the high administrative costs of small-scale lending, Asymmetric information, High risk perception, and Lack of collateral. However, a provision of raising funds from separate stock exchanges for SMEs was suggested by SEBI in 2009 (Ghatak). SME listing on stock exchanges will add significantly to creation of wealth in the economy. No listing is required for SMEs whose face value of capital is less than Rs.1crore. The SMEs having bank loans can also be converted to equity financing through SME listing (subject to listing guidelines). It may reduce non-performing advances of banks. A measure suggested to reduce the overall risk for SMEs was constructing SME index for the growth of SME platform. This reduces the risk due to volatility and broader portfolios (Kulkarni & Chirputkar, 2014).

**Santosh Mehrotra and Sharmistha Sinha (2019)** in their study have analyzed the trends in female work participation and have studied the underlying reasons behind the observed trend. They have estimated the NSS unit level data of various rounds and have found out that female workforce in rural areas declined by 28.4 million during the time period from 2005 to 2012. In urban areas, it increased, though marginally by 1.3 million. However there was a decline in total FWPR. There was an increase in non-agricultural employment in rural areas by 5 million from 2005 to 2012. The construction sector was the main driver of the increased employment in non-agricultural area. It was found that manufacturing and service sector together employed only 18% of the total female workforce in rural areas whereas it employed 28% of the total women in urban areas. 74% of the total women

employed in manufacturing are self-employed, with half of them being the unpaid family members. Tobacco, textiles and apparel industries are the top three sub-sectors of manufacturing which employ 68% of the women. Within services, women are confined to education (25%), retail trade (16%) and domestic workers (15%). In urban areas, significant numbers of women are employed as domestic workers. The authors identified various factors behind falling FWPR. Some of them are mechanization in agriculture, rise in household income, increase in the number of women engaged in domestic duties etc. there are structural factors as well such as lack of entrepreneurship, lack of skills, informalization etc that contributed to a fall in female workforce participation rate. They suggested measures to encourage female workforce participation rate. Few of the measures are creation of educated work force, focus on skill development vocational training, strengthening of the sectors predominated by women-education and health and encouraging entrepreneurship.

**Nasreen Khan and Adil Amin Bhatt (2015)** in their paper have studied the concept of women entrepreneurship in India. The study showed that of all the units owned by women entrepreneurs, 76% are located in rural areas while 24% are located in urban areas. Female enterprises contribute 13.62% to the MSME sector in India. Rural female SMEs (15.27%) are more than urban female SMEs (12.25%). Micro enterprises (14.19%) are the major contributor to female enterprises followed by small enterprises (5.06%) and medium enterprises (4.21%). According to the authors, there is a need that women identify their skills that can be transformed into livelihood earning opportunities. There is a need to spread awareness among female entrepreneurs regarding the scope in entrepreneurship. The unexplored talents of women should



be identified and trained that can be used by the industrial sector to increase their productivity.

**Paramasivan C, Mari Selvam P (2013)** Suggested that Micro, small and medium enterprises are powerful segment of the industrial development of a country. These sectors performed well with multidimensional aspects of the socio-economic aspects. Growth and progress of MSME in India is an emerging aspects which directly associated with the sustainable development in the country. This article is focused on the Progress and Performance of Micro, Small and Medium Enterprises in India with reference to MSME in of India.

**Danabakym M and Swapna Kurian (2016)** conducted a study to identify the motivating factors of women entrepreneurs and contributing factors to the success. The authors have also analyzed the relationship between industries related factors and success of entrepreneurs. The convenience sampling method was used to select 100 respondents in and around Chennai city. The statistical tests that are used be the authors include percentage analysis, weighted average rank analysis and chi-square test. It was found that of all the total respondents surveyed, 77% owned manufacturing division while 23% owned retail industry. The first motivating factor came out to be education/ previous experience and government assistance/policies followed by social/economic independence. The most important factor to keep success in their job was found out to be achievement motivation and human relation followed by hard work and honesty. 39.33% of the respondents are highly successful in their business and 26.08% fall under low success category. There was a significant relationship between industrial related factors and success of women entrepreneurs. MSMEs played an important role in widening the base of industrial entrepreneurship in India.

**Saud Ilahi (2018)** in his paper have examined the obstacles faced by women entrepreneurs and suggested the initiatives that should be taken to uplift female entrepreneurs. The author has analyzed the findings of NSS 73<sup>rd</sup> round of NSSO. It was found that the share of women entrepreneurs in rural areas (22.24%) was more than the urban areas (18.72%). The share of female owners was decreasing with the increase in size of enterprises. Micro enterprises (20.44%) have the major share of women followed by small (5.26%) and medium enterprises (2.35%). The share of female enterprises was highest in West Bengal which is 23.42%. Tamil Nadu has the second largest share with 10.37% followed by Telangana with 7.85%. The biggest states such as UP and Rajasthan were the worst performers with 6.98% and 3.07% respectively. The author suggested that the holistic approach is needed to spread the awareness about entrepreneurship among women.

### 3. Objectives:

1. To find out the decennial FWPR from 2021 to 2061 for the rural and urban areas of the states in India.

To demonstrate the prospect of women participation on the MSMEs in India post COVID-19.

### 4. Methodology

The study is descriptive in nature. Secondary sources of data were used and were collected from the ILO reports, Periodic Labor Force Survey 2017-18, Annual reports of the Government of India, Decade wise census reports, MSME census report, various journals and research papers. An in-depth analysis is done on the basis of the changes in the FWPR for the rural and urban areas of the states of India separately from 1961 to 2011. With the secondary data analysis the study tried to forecast the changes in FWPR from 2021 to 2061 in rural and urban areas separately using the R software. The two states Uttar Pradesh and Uttarakhand are grouped together into

one state due to the non-availability of data as Uttarakhand was formed on 9 November 2000. The study also tries to demonstrate the prospects of women participation on MSMEs in India post COVID-19, which is the period starting from September 2020, as stated by the

Directorate General of Health Services of the Ministry of Health and Family Welfare in qualitative terms (India.com News Desk, 2020). Various secondary sources were also studied to obtain a clear picture of the situation of women in MSMEs in India.

**5. Findings and Discussion**

**Rural area:**

**Figure 1**

**Quadrants showing change in FWPR for Rural Area based on Table A1**

Haryana Himachal Pradesh Mizoram Rajasthan  <b>I</b>	Andhra Pradesh Karnataka Kerala Odisha Punjab Sikkim Tamil Nadu Tripura  <b>II</b>
Bihar Goa Madhya Pradesh  <b>III</b>	Arunachal Pradesh Gujarat Maharashtra Manipur Meghalaya Nagaland Uttar Pradesh West Bengal  <b>IV</b>

The 4 different quadrants in the figure 1 indicate the classification of the rural areas of the states in Indian according to the trend they showed in the forecasted values.

**Quadrant I** consists of the states that showed very high increasing FWPR.

**Quadrant II** consists of the states that showed moderately high increasing FWPR.

**Quadrant III** consists of the states that showed no significant change in the FWPR.

**And quadrant IV** consists of the states that showed a decreasing FWPR.

**Analysis of Quadrant I**

All the four states mentioned in quadrant 1 are expected to have a high increasing FWPR from 2021 to 2061. There are various factors that have influenced in the forecast of the same. They are as follows:

- **Falling birth rates:** All the four states have witnessed continuous falling birth rates since 2008 in the rural areas. The birth rate fell from 24.2 in 2008 to 21.9 in 2017 in Haryana, 18.2 in 2008 to 16.3 in 2017 in Himachal Pradesh, 22 in 2008 to 17.7 in 2017 in Mizoram, and 28.8 in 2008 to 25 in 2017 in Rajasthan. This indicates a fall in the maternity leaves and quitting the work after pregnancy over the years which enables more women to take up work. Thus, more women in the productive age group of 15-49 will be available for work.
- **Increasing literacy rates:** The states have seen an increase in their literacy rates for females in the rural areas from 2001 to 2011 as it increased from 49.27 to 60 for Haryana, 65.68 to 74.6 for Himachal Pradesh, 77.26

to 79.8 for Mizoram, and 37.33 to 45.8 for Rajasthan. This has provided the female youth a chance to opt for a better job for a better living and to know their rights which helps to prevent the income disparity at work.

- **Increased female participation in agriculture:** The states have seen an increase in the participation of women in agriculture from 1981 to 2011 as it increased from 12.29 to 20.83 for Haryana, 33.4 to 47.4 in Himachal Pradesh, 2.16 to 41.86 in Mizoram, and 24.99 to 42.68 for Rajasthan. More women are participating in the production activity over the years along with offering themselves for various other jobs.

### Analysis of Quadrant II

All the eight states in the second quadrant are expected to obtain increasing FWPR from 2021 to 2061. The various factors that have influenced in the forecast of the same are as follows:

- **Gradually falling Birthrate:** The states have witnessed a fall in their birthrates from 2008 to 2017 in the rural areas as it decreased from 19.1 to 16.5 for Andhra Pradesh, 20.9 to 18.2 for Karnataka, 14.6 to 14.1 for Kerala, 22 to 19.3 for Orissa, 18 to 15.5 for Punjab, 18.7 to 15.2 for Sikkim, 16.2 to 15 for Tamil Nadu, and 16 to 14.1 for Tripura. Like in the case of first quadrant even this shows a situation of less maternity leave and less quitting of work after pregnancy which improves the women participation.
- **Improving literacy rates:** All the states in this quadrant has seen a notable increase in their literacy rates from 2001 to 2011 in the rural areas as it increased from 43.5 to 51.5 for Andhra Pradesh, 48.01 to 59.7 for Karnataka, 86.69 to 90.8 for Kerala, 46.66 to 60.7 for Orissa, 57.72 to 65.7 for

Punjab, 58.01 to 72.4 for Sikkim, 55.28 to 65 for Tamil Nadu, and 60.5 to 79.5 for Tripura. With improved education and literacy, women got a platform to come out of the social norms that prevented them to undertake certain activities which were considered to be reserved for men.

- **Considerable increase in female participation in Agriculture:** There has been a considerable improvement in the participation of women in agriculture as there has been an increase in the women participation rate in agriculture from 1971 to 2011 as it increased from 27.4 to 44.65 for Andhra Pradesh, 15.8 to 38.79 for Karnataka, 14.1 to 20.24 for Kerala, 6.8 to 29.69 for Orissa, 0.7 to 14.34 for Punjab, 3.16 to 44.63 for Sikkim, and 17.6 to 41.22 for Tamil Nadu. Improved women participation in the mainstream agriculture will enable them to explore new aspects of agricultural markets.

### Analysis of Quadrant III

All the three states in the third quadrant are expected to maintain similar FWPR from 2021 to 2061. The various factors that have influenced in the forecast of the same are as follows:

- **Not much fall in the Birth rate:** The states does not show considerable fall in their birth rates in the rural areas as during the time period from 2008 to 2017 they just fell from 29.7 to 27.2 for Bihar, 13.4 to 12.1 for Goa, and 30 to 26.8 for Madhya Pradesh. The women in the working group are still exposed to the volatility in the women participation in work caused by maternity leaves and then quitting the work there after.
- **Considerable improvement in literacy rate:** There has been an improvement in the female

literacy in the rural areas during the time period from 2001 to 2011 as it increased from 29.61 to 49 for Bihar, 71.92 to 81.6 for Goa, and 42.76 to 52.4 for Madhya Pradesh. This could be considered as the driving force for the probable minute increase in the FWPR in the coming decades.

- **Combination of increase and decrease in agricultural participation:** There has been a considerable increase in the participation of rural women in agriculture in Bihar as the women participation rate in agriculture increased from 14.6 in 1981 to 20.16 in 2011. On the contrary, there has been a fall in the rural female participation in the agriculture from 35.8 in 1981 to 30.25 in 2011 in Madhya Pradesh. This could be another reason for the FWPR to not show an improving trend in the coming decades.
- **Increasing violence against women:** There has been an increase in the rape cases against women in these states over the span of 2 years. The incidence of rape per one lakh female population has increased from 4.03 in 2011 to 9.67 in 2013 in Goa and 9.73 in 2011 to 12.11 in 2013 in Madhya Pradesh. This could have prevented various women from going out of their homes in search of work.

#### Analysis of Quadrant IV

All the eight states in the fourth quadrant are expected to witness falling FWPR from 2021 to 2061. The various factors that have influenced in the forecast of the same are as follows:

- **Nominal fall in the Birth rate:** There has not been any significant fall in the birth rates in the rural areas of most of the states during the time period from 2008 to 2017 as it fell

from 23.1 to 18.3 in Arunachal Pradesh, 24.1 to 19.9 in Gujarat, 18.4 to 15.7 in Maharashtra, 15.9 to 14.8 in Manipur, 27.3 to 24.8 in Meghalaya, 17.8 to 14 in Nagaland, 30 to 27 in Uttar Pradesh, and 19.4 to 16.7 in West Bengal. Since the situation is similar to that of the third quadrant, it could be assumed that the states are volatile to the risk of quitting the jobs after pregnancy.

- **Considerable increase in literacy rate:** There has been an improvement in the female rural literacy rate in the states from 2001 to 2011 as it increased from 36.9 to 52 for Arunachal Pradesh, 47.84 to 61.4 for Gujarat, 58.4 to 68.5 for Maharashtra, 56.62 to 68.9 for Manipur, 53.24 to 68.4 for Meghalaya, 57.52 to 71.5 in Nagaland, 36.9 to 53.7 in Uttar Pradesh, and 53.16 to 65.5 in West Bengal. This could be considered as the supporting factor for not allowing the FWPR to fall much in the coming decades. Literate women could shift their area of residence in search of a better job which results in the outflow of potential female workers which could also result in the fall of rural FWPR for the particular state.

**High risk of women molestation:** There has been a considerable increase in the rape cases in the states during the time period from 2011 to 2013. During the span of 2 years the incidence of rape per one lakh female population has increased from 6.27 to 10.7 in Arunachal Pradesh, 1.52 to 2.54 in Gujarat, 3.14 to 5.52 in Maharashtra, 4.14 to 5.77 in Manipur, 8.81 to 13.74 in Meghalaya, 2.41 to 2.82 in Nagaland, and 2.14 to 3.09 in Uttar Pradesh. Increased violence against women could have restricted themselves to their house which again could be the reason for the fall in the FWPR in the coming decades.

URBAN AREA

**Figure 2**  
**Quadrants showing change in FWPR for Urban Area based on Table A1**

Gujarat Karnataka Himachal Pradesh Maharashtra Meghalaya Punjab Tamil Nadu	Goa Andhra Pradesh Arunachal Pradesh Bihar Haryana Kerala <b>II</b> Manipur Mizoram Madhya Pradesh West Bengal Sikkim Rajasthan Odisha Tripura UP & Uttarakhand
NIL	NIL
<b>III</b>	<b>IV</b>

The 4 different quadrants in the figure 2 indicate the classification of the urban areas of the Indian states according to the trend they showed in the expected future values.

Quadrant I consists of the states that showed very high increasing FWPR.

Quadrant II consists of the states that showed moderately high increasing FWPR.

Quadrant III consists of the states that showed no significant change in the FWPR.

And quadrant IV consists of the states that showed a decreasing FWPR.

Out of the 28 states taken, the analysis found that the highest number of states fell into high increasing FWPR followed by very high increasing FWPR. None of the states showed sufficient change or decreasing FWPR.

**Analysis of Quadrant I**

All the seven states mentioned in quadrant 1 are expected to have a high increasing FWPR from 2021 to 2061.

There are various factors that have influenced in the forecast of the same. They are discussed below:

**Very high increasing FWPR:**

The seven states which fell in the category of very high increasing FWPR showed a rise in educational enrollment of young women. Rise in the urban population was another important reason behind the rise in female WPR. Women at home in Kerala are more likely to be engaged either in tutoring children at home and opening tuition centers or working in their kitchen garden. They have found their own innovative ways to participate in the labor force. They are transforming the empty spaces at their homes into income earning sources which thereby contributes to the rising FWPR. Hill states like Sikkim and Himachal Pradesh have notices a significant proportion of men traditionally moving out for work while leaving women behind to look for their own work. The women in such states have become entrepreneurs by



transforming their ideas into innovative solutions. Nearly 88.2% of women are literate in Himachal Pradesh and so it shows a very high increasing FWPR.

### **Analysis of Quadrant II**

All the fifteen states in the second quadrant are expected to obtain increasing FWPR from 2021 to 2061. The various factors that have influenced in the forecast of the same are discussed below:

#### **Moderately High increasing FWPR:**

Around 20% of the urban females receive vocational training to upgrade their skills. There has been an increase in the training received in skills which are traditionally 'female domain', such as handlooms and apparels. The sectors which showed a larger number of women getting training, is related to nutrition, childcare, pre-schools etc. Recent NSSO survey found out that garment workers, domestic cleaners and directors and chief executives are the most common jobs for urban women. Nearly 99% of the women are self-employed. Gujarat has the highest number of women working in garment sector followed by Rajasthan because of the large handloom industry in these states. Women in Haryana, as entrepreneurs they manage smaller firms and concentrate in less-profitable sectors. In terms of formal employment, they are concentrated in "female" occupation and sectors. In Uttarakhand, women are playing a central role in earning livelihood primarily through providing their labor in cultivation and allied activities. Most of the women in Kashmir are either engaged in apple industry or in the handloom industry. They make purse, shawls, and various other handicraft items. They also provide their services in the apple industry either in plucking apple from the trees or processing those apples in the factories. Goa is increasingly coming up with cafes and due to rise in urban culture during the tourist season women are entering the labor force. The north-eastern states like Manipur, Mizoram, Tripura and

Arunachal Pradesh have experienced an increase in FWPR because of the rise in small and medium cottage industries. Being rich in natural resources and art, these states have the large number of women in making wooden items and handicrafts. They are turning into small entrepreneurs as well.

#### **Discussion on women participation in MSMEs**

From the study of various secondary sources it is observable that the MSMEs being the second largest employer after agriculture in India create more than a million jobs annually. Agriculture and its allied activities are still predominant in rural India. There has been a considerable improvement in the female participation of agriculture in rural areas in most of the states however a few states are still exposed to the low participation of women. Despite of the various economic variables considered for the evaluation of women participation affecting the female work participation in the rural areas, the FWPR is expected to rise in 12 of the 23 states selected to study the rural performance. This could be possible as there is an increase in the female participation in the MSMEs. There has been a 38% increase in the enterprises established by women under the Prime Minister's Employment Generation Program. Agro-based industries like Coir industry producing in states like Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, West Bengal, Tripura etc. belong to the states that are expected to experience a moderately high increasing FWPR in the coming 5 decades and they have extended the potential of exports of the coir industry by value addition through technological interventions and diversified products like Coir Geotextiles etc. It is observed that female participation in labor force tends to rise with the reduction in time-cost of unpaid work, when shared equally with men or made compatible with market work. Women are considered to provide unique

set of skills and perspectives that men do not provide with. Therefore, women's inclusion in these firms and activities may provide better insights into consumer's needs, as women make the majority of household decisions. Manipur, Mizoram and Telangana are the states with maximum number of women owned MSMEs because of the large handicraft sector in these states. The government introduced stimulus packages to deal with COVID19 pandemic that primarily focuses on MSMEs. They have targeted MSMEs for the path of economic recovery. The introduction of the Rs.3lakhcrore emergency credit line by the government will ensure that 45 lakh units will have access to working capital to resume business activity and safeguard jobs. For the MSMEs that are considered as non-performing assets, the government made the provision of Rs.20000crore as the subordinate debt. The financial institutions that serve the MSME sector will get a financial support of Rs.30000Crore that will be fully funded by the government. The COVID-19 pandemic, which is disturbing the stability of the economies across the globe due to the shortage of personal hygiene materials have opened a new scope for the MSMEs in the country. Various MSMEs in the country have undertaken the manufacturing of different varieties of hand sanitizers varying from alcohol based to ion based sanitizers, manufacturing of masks, creation of ventilator facilities etc. which provides a new area to explore for the existing and prospective MSMEs. As a long term strategy for the sustainability of MSMEs, collateral free small loans under the MUDRA Yojana is adopted in order to encourage women to take up entrepreneurship. Despite of the various packages provided by the government in order to boost the MSMEs as well the female participation in the country; certain other economic factors remain untouched. The states observed with no

improvement in the FWPR and decreasing FWPR in the coming decades faces various economic evils that have to be addressed at a grass root level. North Eastern states like Mizoram, Sikkim, Meghalaya, and Arunachal Pradesh etc. are reported to have 17.8, 14.58, 13.74, and 10.7 rapes per lakh female population respectively. Female security must be assured in the states and lack of female safety measures have resulted in the probable fall of female participation in the coming years. The holistic framework that will focus on multiple scenarios is required to be set up to serve the dual purpose of the continuation of business activities and containment of spread of the virus. The framework will consider the measures to mitigate the impact on MSME Labor workforce. With nearly 99% of the enterprises categorized as micro enterprises, the majority of the workforce is in informal enterprises. There is need to incentivize this workforce by providing them with the wage subsidy assistance. The need of the hour is to design the curriculum that will impart the basic knowledge of entrepreneurship and lobby the holistic policy to achieve the full potential of female entrepreneurs.

## 6. Limitations:

The study lacks uniformity in the availability of data since the data was collected from 1961 to 2011 however many states were formed after the 1960s and more towards the 1980s and 1990s. Limited availability of data and missing values in between acted as a hindrance in the forecasting the FWPR for states. The study considers the census data for obtaining the FWPR which only shows the decadal trend but not the annual trend thus not providing a clear picture of the female participation in the rural and urban areas of the state.

## 7. Conclusion

From the above analysis, it is observed that the FWPR is expected to rise in 12 out of 23 states in rural area and 7 states

showing very high increasing FWPR in urban area using forecasted values. Some of the factors responsible for a rise in FWPR include increase in literacy rate, fall in birth rate, rise in urban female population and rise in educational enrollment of young women. Women, being the harbingers of the change, play a significant role in the MSME sector of the country. It is forecasted that the states will show a rising FWPR in the coming 10-20 years which represents the better picture of Indian labor market and thus closing the wide prevalent gender gap in the labor market. The women inclusion in MSME sector will not only enlighten the prospective area of further expansion of economy but it will also give an idea on feasible small scale manufacturing sectors which can be strengthened by clustering similar value added industries.

## 8. Suggestions

Suggestions to improve women participation in rural areas:

- Kerala 'Kudumbashree' model: The Kudumbashree model works with a socially representative leadership. The community farms run by Kudumbashree groups are now acknowledged as a critical avenue for the rejuvenation of agricultural production in Kerala (The Hindu, 2018). The Kudumbashree model can be converged with the MGNREGA for converting fallow land into cultivable land. Income could be enhanced by linking joint liability groups to the market (Kudumbashree).
- Increase in the disbursement of Agricultural loans: More funds should be disbursed to the states falling in the fourth quadrant initially and then to those in the third quadrant. During the year 2016-17 among the states in the fourth quadrant, Arunachal Pradesh received a total of Rs.132.59crores, Manipur received Rs.251.12crores, Meghalaya received Rs.368.31crores,

and Nagaland received Rs.129.39crores. This shows an inequitable disbursement of the agriculture loan in the North-East Region compared to the rest of the country and this should be improved.

- Promotion of Agri-Clinics: To provide expert advice and services to female farmers, agri-clinics should be promoted.
- Strict laws to deal with female molestations and creation of a support system to uplift the victims like the zero tolerance approach to domestic violence and sexual abuse adopted by Australia (UN Women).
- Conjunction of FICCI Ladies Organization (FLO) with the Government of India (GOI): FLO and GOI can work together to establish a National Women Entrepreneurship Fund and undertake gender-sensitization training for various agencies to make women contribute more economically (Shah, 2013).

Suggestions to improve women participation in urban areas:

- Reduction in time burden on women in child care support: Child care subsidies free up the women's time to enter into the labor force and thus increasing the female participation.
- Introduction of skill training program: Several programs aimed at transforming the traditional skills of women into income earning opportunity enhance the probability of women entering into the workforce.
- Vocational training: 3.3% of females received formal vocational training while 6.2% of females received non-formal vocational training in fields like handicrafts, media, journalism, IT, Communication and office related work.
- Establishment of Women Industrial Training institutes, National Vocational Training Institutes and

Regional Vocational Training Institutes.

Suggestions to combat covid19 through financial support:

- The monetary policy that is accommodative in nature such as reduction in interest rate, relaxation in reserve rate and targeted liquidity provisions.
- Active fiscal policies with a primary focus on social protection measures which include both targeted transfers

as well as automatic stabilizers, such as unemployment benefits along with tax relief for MSMEs.

Financial support in order to support specific sectors especially, MSMEs and targeted lending to protect enterprises. Investment in health care system is the need of the hour against COVID-19 that will also provide an opportunity for the creation of decent jobs.

## Appendix Table A1

**Region wise FWPR for states from 1961-2011 and the forecasted FWPR from 2021-2061**

States	Region	1961	1971	1981	1991	2001	2011	2021	2031	2041	2051	2061
Andhra Pradesh	Rural	46	27.4	40.03	42.48	43.24	44.6	45.93	47.26	48.59	49.92	51.25
	Urban	18.7	11.05	11.81	11.94	12.62	19.1	24.83	30.1	35.93	41.75	47.58
Arunachal Pradesh	Rural	NIL	NIL	47.64	40.86	41.33	39.5	38.32	37.15	35.98	34.81	33.63
	Urban	NIL	NIL	11.62	11.94	16.69	21.3	13.97	17.54	21.11	24.68	28.25
Assam	Rural	32.4	5.6	NIL	23.27	22.28	23.7	NIL	NIL	NIL	NIL	NIL
	Urban	9.9	4.25	NIL	7.52	10.29	14.9	NIL	NIL	NIL	NIL	NIL
Bihar	Rural	28.5	9.3	14.65	16.26	20.19	20.2	20.8	21.12	21.45	21.77	22.1
	Urban	10.4	6.42	4.78	5.11	6.83	10.4	13.97	17.5	21.11	24.18	28.25
Goa	Rural	NIL	NIL	24.99	24.31	25.71	22.6	22.27	21.59	20.91	20.23	19.55
	Urban	NIL	NIL	15.22	15.54	17.84	21.5	20.88	24.96	29.03	33.12	37.25
Gujarat	Rural	34.1	12.1	26.85	35.6	39.04	32	26.54	21.08	15.62	10.16	4.7
	Urban	9.2	5.74	6.52	10.09	9.11	11.4	13.45	17.89	21.32	24.56	27.89
Haryana	Rural	NIL	3.17	12.29	12.62	34.18	20.8	40.48	46.4	52.31	58.22	64.13
	Urban	NIL	3.17	4.45	5.08	10.27	12.1	15.66	19.7	23.45	27.67	30.23
Himachal Pradesh	Rural	NIL	22.37	33.37	36.61	46.47	47.4	52.69	55.95	59.22	62.48	65.74
	Urban	NIL	7.51	11.26	14.09	14.96	19.9	20.88	24.96	29.03	33.12	37.2
Jammu & Kashmir	Rural	29.5	4.2	37.08	NIL	25.84	20.8	NIL	NIL	NIL	NIL	NIL
	Urban	5.8	3.45	9.39	NIL	9.5	14.5	NIL	NIL	NIL	NIL	NIL
Karnataka	Rural	36.8	15.8	30.66	36.6	39.86	38.8	39.08	39.37	39.66	39.95	40.23
	Urban	NIL	NIL	11.83	12.9	16.06	20.8	20.88	24.96	29.03	33.12	37.2
Kerala	Rural	20.9	14.1	17.72	16.86	15.88	20.2	21.76	24.38	26.99	29.61	32.22
	Urban	13	10.5	11.76	13.02	13.55	16	19.89	21.34	24.56	27.04	30.02
Madhya Pradesh	Rural	48.6	20.7	35.78	39.26	40.68	39.3	38.87	38.44	38.02	37.59	37.17
	Urban	14.5	7.62	9.63	10.24	11.7	15.1	18.13	21.35	24.57	27.78	31.08
Maharashtra	Rural	46.7	24.4	40.85	46.06	46.52	42.5	40.43	38.37	36.31	34.25	32.19
	Urban	13.4	9.16	10.14	11.44	12.72	16.8	20.88	24.96	29.03	33.12	37.2

Manipur	Rural	44.18	43.24	43.38	43.22	43.2	41.2	40.26	39.32	38.38	37.44	36.5
	Urban	25.54	27.23	28.61	27.88	32.28	33.2	34.83	36.31	39.29	43.45	47.67
Meghalaya	Rural	NIL	NIL	42.05	38.85	38.92	35	32.56	30.13	27.69	25.26	22.82
	Urban	NIL	NIL	16.12	17.22	19.15	23.6	17.17	21.02	24.87	28.71	32.56
Mizoram	Rural	NIL	NIL	42.81	47.11	54.73	41.9	60.01	64.31	68.61	72.91	77.21
	Urban	NIL	NIL	21.88	39.37	40.5	31.1	18.13	21.35	24.57	27.78	31
Nagaland	Rural	NIL	50.22	48.3	42.78	42.92	52.3	32.94	34.86	36.78	38.78	41.23
	Urban	NIL	9.08	10.93	12.09	14.87	25.9	27.67	29.07	31.23	33.09	35.03
Odisha	Rural	27.4	6.8	21.09	22.62	27.1	29.7	32.94	36.07	39.2	42.33	45.46
	Urban	13.1	7.1	9.49	8.1	9.76	13.2	17.17	21.02	24.87	27.01	32.56
Punjab	Rural	16.5	1.4	6.9	4.37	23.15	14.3	22.52	25.07	27.63	30.18	32.73
	Urban	4.7	3.01	4.2	4.49	9.24	13.2	17.57	21.92	26.17	30.63	34.98
Rajasthan	Rural	40.8	9.3	24.99	33.25	40.7	42.7	45.59	48.49	51.39	54.29	57.19
	Urban	10.1	5.4	5.88	7.22	9.24	12	14.76	17.52	20.28	23.04	25.8
Sikkim	Rural	39.8	40.76	41.37	31.47	40.67	44.6	44.03	44.99	45.95	46.91	47.87
	Urban	12.34	14.45	15.58	18.75	21.42	24.8	26.91	29.02	31.13	33.24	35.35
Tamil Nadu	Rural	37.1	17.6	33.55	38.5	41.33	41.2	42.26	43.33	44.4	45.47	46.54
	Urban	9.87	10.1	11.97	13.1	18.42	21.83	26.15	30.49	34.82	39.16	43.5
Tripura	Rural	11.23	12.5	13.28	14.58	22.86	26.3	29.6	32.91	36.21	39.52	42.83
	Urban	6.78	7.02	8.73	9.27	12.09	16	19.69	25.57	27.5	31.42	35.34
Uttar Pradesh	Rural	19.9	7.3	9.04	14.16	18.89	18.3	17.71	17.12	16.53	15.94	15.35
	Urban	5.3	4.07	3.46	4.78	6.85	11.3	15.75	20.2	24.65	29.1	33.05
West Bengal	Rural	10.6	4.6	8.89	13.07	20.7	19.4	19.63	19.21	18.79	18.37	17.95
	Urban	5.1	4.74	5.59	6.21	11.13	15.4	20.07	24.78	29.89	34.2	38.91

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## **EVOLUTION OF TECHNOPRENEURIAL ENTREPRENEURS IN THE COVID-19 PANDEMIC SITUATION**

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### **Abstract**

*Nowadays new types of entrepreneurs are emerging due to the nature of specialized skills and innovative thinking. Technopreneur is a person who destroys the existing economic order by introducing, new products and services, by creating new forms of organizations and by exploiting new raw materials. It is someone who perceives an opportunity and creates an organization to pursue it. More opportunities and prospectus are associate with technopreneurs in the recent origin. Technopreneurs can be defined only with the help of their application of technology in the business. A person who sets up a business concerned with computers or similar technology. Simply we can mean that those who are all ready to incorporate the innovation and creativity in their business process with the help of technical background is generally called as technopreneurs. It may lead the nation with a new breed to train the entrepreneurial ventures in the technical world.*

**Keywords:** *Technopreneurship, Corona Virus, Entrepreneurship Development*

### **Introduction**

Technology is one of the dominated factors in the present industrial establishment. Application of technology has transformed into technology based business plays a key role in the entrepreneurship. Technopreneurship, it is a simple entrepreneurship in a technology intensive context. It is a process of merging technology powers with entrepreneurial talents and skills. Technopreneurship is one of the emergent concepts in the topical developments of business, particularly in developing countries which helps to attract the latest technology in entrepreneurship to achieve the sustainable development. Creativity in

entrepreneurship is the pillar of economic growth of developing countries.

Entrepreneurship is one of the dynamic tools to endorse the economic development of the country which facilitates to accomplish the sustainable and balanced growth. Promoting entrepreneurship is the mission of the country that accelerates the employment generation, income generation, improving lifestyle and removal of poverty. Therefore every country should concentrate on promoting the entrepreneurial activities through their innovative policies and incentives. India is one of the emerging countries in the field of entrepreneurship with multi-

dimensional aspects, which makes specialized financial institutions at national and state level, technical consultancy organizations and other specialized institutions to encourage the entrepreneurship which is connected with technology and innovations. Ministry of India provides more promotional campaigns to induce the entrepreneurs to become a technopreneur. Every entrepreneurship activities should adopt appropriate technology in their process, production and distribution of final products.

### **Impact of COVID-19 in Entrepreneurship**

In the face of the worldwide COVID-19 pandemic, Entrepreneurs have to face a new reality: that it is not only a huge sanitary and health crisis affecting million or even billion people in all over the world. This is also an unprecedented downturn on the global economy. For instance, France has lost 6 GDP points in 15 days and 10 million people in USA has been laid off. This reveals the breakability of our economies and its fundamentals. If the world has quickly shifted under our eyes, the different scenario and reality are not the same depending on where you are running your business today.

The government, public health and economic responses are tremendously different if you are an entrepreneur based in USA or in Europe. As founders, you also don't have the same action plan to put in place depending on your sector and industry. If you are in online shopping, food delivery, video gaming or video conferencing industries where businesses are currently booming, is not the same as if you are running a business in the hotel, restaurant, retail, entertainment, or sport industries. These industries could take the opportunity to innovate with more digitalization and disruption implemented in their business models in order to increase the touch points with their customers.

Those Entrepreneurs should be ready to lose 50 to 80 per cent of their turnover as well as their valorization. The Lime start-up (the urban mobility e-scooter star company), for instance, lost 80 per cent of valorization in one month. Last year, its last fundraising (\$310M USD) established its valorization at 2,4Billion USD and now after the company laid off 110 people out of 600. According to theinformation.com, Lime start up is short on cash and must raise money. Today its new valorization dropped at \$400M USD. Ditto for Airbnb, the accommodation star company, Airbnb planned to enter the stock market in 2020 but the IPO will be postponed to next year. According to Financial Times, the company lost 16% of its valorization which decreased from 30 billion USD (2019) to 25 USD billion last week.

It's also time to innovate with new collaborations, restaurants can move to take away food, some restaurant provide every morning some recipe on their social media page or account and client could order food or dishes and send them to their customers through collaboration with Uber EATS or other delivery food apps, they never imagined one month before.

### **Support of Technopreneurship to Society**

As cases in Tamil Nadu continue to rise, several experts have come forward to state that there will be a greater need for ventilators in the coming days. As the number of cases of COVID-19 continue to soar in Tamil Nadu, several health experts have raised concerns about lack of ventilators available to support those who might be more critical. TNM spoke to Chennai-based Krishna Kumar, the founder of Kriti Kare, which produces low-cost ventilators within the country. Ventilators are machines which help individuals who are unable to physically breathe due to an issue with the lungs. They work by pushing air into the lungs. In many people with COVID-19, who are



very sick, the lungs are affected and they are unable to breathe efficiently. In the market, currently available ventilators range from Rs 10 to 15 lakh, depending on the type of ventilator and the manufacturer who produces them. Krishna Kumar's company however sells ventilators at a market price of Rs 2 lakh.

There are currently three models of ventilators available on the market at present; of these, the ACUVent is what is largely required now, as it is what is used for those with severe cases of COVID-19. The model of ventilator which is currently sought, for those who require ventilatory support is a basic model which uses high pressure gases (usually oxygen) to provide proper respiratory support. This model produced by his company is called ACUVent and can be used on both children and adults. It is designed in a manner so that it doesn't take up a lot of space and can also be loaded onto an ambulance for emergencies. It uses oxygen gas blended with air from the environment to provide 50 to 100 percent oxygen delivery to the individual requiring it for support.

Generally speaking, India isn't a place where the components of a ventilator are produced. These materials are generally shipped in from Germany or Japan or some other country. The current restrictions have also made it difficult to procure some components, however we are looking to make do with our own equipment, produced in India itself. With the new production facilities, we are aiming to manufacture anywhere from 400 to 500 ventilators a month, which can be increased to 1,000 per month if the need arises. Earlier in April, Tamil Nadu health minister C Vijayabhaskar, reportedly stated that there were 3,000 ventilators available in the state and that the government was looking to procure another 2,000. However, given the increase in the number of cases of COVID-19 since then, several doctors have expressed concerns that ventilatory

support would be needed for more patients in the near future.

### **Insights of Entrepreneurs after COVID-19**

During this crisis time your employees must remain more than ever committed in order to go through it. Communication is crucial. Increase your daily communication and try to reduce as much as possible the uncertainty in order to keep your employees relieved. Take care about them, protect them, be sure they are healthy and safe. Be crystal clear and honest with your teams on what you know, what you don't know. Bear in mind, remote working offers more flexibility, but it will kill serendipity time, spontaneous time (decision taken at the coffee machine). Trust and humility are critical to reinvent or innovate your managerial practices. Be closer to your teams. Managerial innovation could be less control and more trust. You should reinvent and change your way of working with their inputs. This troubling time requires different cultural shifts. Don't hesitate to ask them how they would like to work when the normal routine will be there.

Do not forget that during crisis the most disruptive or interesting companies have been created and took off such as Google, eBay, LKDN after 2001 and Uber, Airbnb, Instagram, WhatsApp, after 2008 crisis, this means there are great opportunities for great leaders!

#### ***After the COVID-19 crisis the lessons learnt are:***

- The travel limitation of goods and business travelers (more remote working and remote meetings) due to the impact of the physical distancing. There will be other sanitary crisis or new wars due to the global overcrowding.
- The potential growth dematerialization of products and services: we could witness of the booming of 3D printers to produce

masks and ventilators in each country.

- Agility is when we see Apple changing their operations to design, produce and ship face shields for medical workers.

The low-cost model where China and India, are the worldwide manufactures will be ended. Globalization as well. This crisis will change the relationships between countries and states, new challenges, new stakes, new dangers, new threats (health and climate). Governments must and will demand to be independent and autonomous with critical medical supplies and medicines but not only they would like to reduce future vulnerabilities. We can learn how Korea, Singapore, and Taiwan have rapidly contained COVID-19, but these people are ready to accept person tracking and facial recognition which are not yet acceptable in democracy (i.e. Europe for instance). A world less open and probably, less free is to be expected.

With Containment in the main parts of the Globe, we'll see for sure new ways of life producing new needs, then new opportunities for entrepreneurs. Some new business models, new offers about dematerialization have to be invented. In the coming years, the new king of the world will be the "Amazon of dematerialization" and Entrepreneurs will be those ones who will implement this new world.

### **Innovation Examples from Previous Crises**

Let's bear in mind that previous wars saw the birth of the International Red Cross and a nursing profession that – having slipped down the greasy pole of perceived necessity over the last few decades – is highly valued as an “essential” service to society in these troubled times. Indeed, wars and crises have stimulated innovation on multiple levels, leapfrogging technological innovation and enabling social

empowerment, human rights or environmental movements, and even the creation of multilateral organizations such as the United Nations and the World Health Organization, an institution that is so pivotal to getting our heads around what is going on currently.

Other than triggering significant economic shock-waves, the 2008 financial crisis stirred innovation; think of the tech innovations driving prominent businesses in the last decade and manifested in companies such as Airbnb, Uber, Amazon, Netflix and other service platforms.

### **Organizations and Industries Stepping up to the Plate**

Currently, industry is adapting to new circumstances by innovating, with global players sometimes even taking on a social entrepreneurship role. It's inspiring when global companies start to think like start-ups and encourage “intrapreneurship”. And it does show that manufacturing industry can find a social purpose rather rapidly when push comes to shove. In Switzerland, where I sit in lock-down, companies such as Firmenich (Swiss based fragrance and flavor B2B) have switched some production lines to producing hand sanitizer, as have Dow, Shiseido, l'Oréal and others. More unlikely targets for such a switch – such as distilleries – are doing likewise.

Fashion brands have re-purposed production chains to make hospital gowns, masks and much-needed protective equipment for medical staff and patients. Automotive and other manufacturing companies are producing desperately sought-after ventilators. Online platforms for entrepreneurs such as Shopify have found that their mid- to long-term strategic ambitions were made more immediate with a global rush from multiple start-ups to move online during the lock-downs.

### **Opportunity Knocks**

So, once the lock-downs are over, what will the brave new world look like?

The COVID-19 crisis will no doubt help advance our health-care systems in parts of the world that are not tone deaf to the fact that we desperately need effective public health systems.

- ❖ Will businesses really abandon “working from home” routines completely and go back to business as (pre-pandemic) usual? Unlikely.
- ❖ Will social entrepreneurship become more mainstream? The jury is out on that.
- ❖ Will there effectively be new opportunities for entrepreneurs? Definitely.
- ❖ However, will they be able to take advantage of them? It depends.
- ❖ To what extent will the expected massive levels of unemployment push more “necessity-” as opposed to “opportunity-” driven entrepreneurs into the business space? A great deal, probably.

Some of these questions will be tracked by our organization, Global Entrepreneurship Monitor (GEM). GEM has been providing policymakers with data on how to foster entrepreneurship for the past 21 years. In the midst of the current challenges facing the world, GEM will provide robust data on how entrepreneurs and policy-makers are thinking and acting mid and post-crisis, including in reaction to stimulation policies. GEM is akin to a diagnostic tool or health check allowing policy-makers to take the temperature of policies targeted at motivating entrepreneurs to create businesses, wealth, and much needed jobs in economies.

And make no mistake, during this prolonged lock-down period, consumers are changing their habits...and permanently. Those that were dragging their heels on becoming technologically savvy, will re-enter normal life so much more accustomed to online learning, online teaching, online ordering and home delivery. Business travelers and other

professionals will all have done a crash course in online meetings, online workshops and online consultations. Habits will have been disrupted.

Attitudes and expectations will have changed. An emerging “crisis-woke” generation will seize the day to encourage continued saving of carbon emissions and reductions in natural resource destruction. Businesses will see easy ways of reducing travel costs further (which, by the way, are likely to go up exponentially as costs of risk are integrated in price profiles post-crisis). Companies that wish to experience rapid growth in the aftermath of this crisis, can do so if they become competent or re-purpose in areas that are relevant to economic and social recovery. They will do well if they can capitalize on the transformed mindsets, attitudes, perceptions and behaviors of customers and consumers. This is what will enable strategic competitive advantage in a post-pandemic economy.

### **Conclusion**

Companies that did things well and with a social conscience during the lock-downs may be able to capitalize on a newly loyal customer base and trust. And crucially, companies that are thinking ahead may reflect more strategically on looming future crises such as further pandemics or climate catastrophe and provide goods and services in a meaningful way to avert further meltdowns. This means rethinking product and process innovations (including supply chain resilience), but also thinking about the value added of businesses or start-ups to society and as well as their environmental impact. This will be hard to do when economies are failing so badly, so resilient leadership, solidarity, institutional collaboration and the sheer grit demonstrated during the lock-downs will be required.

Is COVID-19 the mother of all crises? Maybe the ultimate is yet to come if we do not listen to today’s harsh lessons. It rather has to do with Mother

Nature; global meltdown owing to ecosystem collapse and the knock-on effects of extreme climate change effects is an even greater threat to mankind than the insidious COVID-19 virus. Let's hope we do not bury our heads in the short-term thinking sand yet again.

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## A REVIEW ON CORONA VIRUS (COVID-19) IN GOVERNMENT OF TAMILNADU

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### *Abstract*

*The precautionary measures are to be strengthened against the spread of Corona virus in the coming days. Tamil Nadu government needs the participation of industrialists, leading private companies, NGOs, donors and the people of Tamil Nadu to efficiently take these precautions.*

**Keywords:** Corona viruses, COVID-19,

### **INTRODUCTION**

The severe acute respiratory syndrome corona virus 2 caused a pandemic of corona virus disease 2019 (COVID-19). Unprecedented public health actions were introduced, including social distancing, travel restrictions and quarantine. The Tamilnadu government announced a national emergency plan, thereby postponing all non-urgent medical consultations and operations. This report analyses the impact of these measures on cancer screening, through assessment of the workload of a laboratory.

### **STATEMENT OF REPORT COVID-19**

The Tamil Nadu Health Department is keeping a guarded watch on Chennai, state's coronavirus epicenter, even as its daily COVID-19 figures showed a dip for the fifth consecutive day. As 1,140 people tested positive in the state capital on Monday, the overall fall in

daily numbers was 53 per cent. More than 2,000 cases were registered in Chennai between July 29 and June 3.

However, the temple town of Madurai seems to be emerging as a [new Covid hot spot](#). There has been a six-fold rise in daily COVID-19 numbers in a little over two weeks - from 988 to 6,539 total cases on Monday. Dr Radhakrishnan added that the congested pockets and urban slums in Madurai along with lack of compliance with regard to masks and physical distancing are posing a challenge in containing the spread of the highly contagious virus. Kancheepuram, Chengalpattu and Thiruvallur districts adjoining Chennai have also see a spike in coronavirus cases. Dr Radhakrishnan attributed the spike in cases to inter-district movement even as the government extended suspension of bus services till the end of the month. The health department said it is rapidly increasing COVID care centres across the state, where 60% of Covid patients are



recovering without the need for administering oxygen. "The Chief Minister has sanctioned another Rs 75 crore for beds with oxygen supply. We are on the safe side as far as infrastructure is concerned," he said.

The health department added that they are also replicating the Chennai model in these districts by increasing testing to 10 times the number of people found positive and tripling the number of fever camps.

Though Tamil Nadu's daily testing has increased to 45,000 people, the state does not give a district-wise split of the tests conducted giving rise to speculation that the state had not ramped up testing in districts other than Chennai.

#### REVIEW OF LITERATURE

**Naoyaitou (2020)** In early December 2019, an outbreak of [coronavirus](#) disease 2019 (COVID-19), caused by a novel [severe acute respiratory syndrome coronavirus 2](#) (SARS-CoV-2), occurred in Wuhan City, Hubei Province, China. On January 30, 2020 the World Health Organization declared the outbreak as a Public Health Emergency of International Concern. As of February 14, 2020, 49,053 laboratory-confirmed and 1,381 deaths have been reported globally. Perceived risk of acquiring disease has led many governments to institute a variety of control measures. We conducted a literature review of publicly available information to summarize knowledge about the pathogen and the current epidemic. In this literature review, the causative agent, [pathogenesis](#) and immune responses, [epidemiology](#), diagnosis, treatment and management of the disease, control and prevention strategies are all reviewed.

#### TAMIL NADU LOCKDOWN GUIDELINES

Tamil Nadu has allowed a number of activities that are permitted in Thiruvallur, Kancheepuram and Chengalpet areas. These guidelines are not being enforced in the containment zones. Temples, mosques, dargahs and churches in rural areas with an annual income of less than Rs 10,000 are allowed to open to the public. Restaurants, Tea shops, vegetable shops and provision shops are permitted to function from 6 am to 8 pm. Restaurants can operate with dine-in facilities with 50 per cent of seating facility. Fish stalls and meat shops are allowed to resume activity. Rental vehicles and taxis, including private cab aggregators, are allowed to operate with up to three passengers.

#### COVID-19 TESTING

Currently, there are 40 private laboratories and 49 government laboratories approved to test Real-Time PCR (RT-PCR) tests; 8 government laboratories and 8 private laboratories to test for TrueNat tests; 1 government laboratory and 9 private laboratories to test CBNAAT testing for COVID-19 in Tamil Nadu.

#### Methods:

Data on monthly numbers of histological and cytological samples, immunohistochemistry and molecular tests were extracted from the laboratory information management system.

#### Results:

The global histopathological and cytological workload was substantially reduced. The impact on oncology-related surgical procedures was rather limited. The anti-COVID-19 measures significantly diminished all screening-related samples, such as colon biopsies, breast biopsies and cervical cytology, and strongly reduced the number of samples related to "functional" pathology, such as thyroidectomies and gastric biopsies.

**TAMILNADU GOVERNMENT COVID-19 CORONA VIRUS TOTAL DISTRICT –  
WISE TALLY (25.07.2020)**

Contact	Total cases	Cured	Active	Deaths
<b>Tamilnadu</b>	<b>206737</b> <b>+6988</b>	<b>151055</b> <b>+7758</b>	<b>52273</b>	<b>3409</b> <b>+89</b>
Chennai	93537 +1331	77625 +1137	1926	1986 +20
Chengalpattu	11764 +456	8787 +583	2755	222 +4
Thiruvallur	11395 +387	7337 +682	3823	199 +6
Madurai	9595 +293	7394 +946	1999	202 +9
Kanchipuram	6796 +435	4273 +382	2437	86 +2
Virudhunagar	5573 +380	3164 +217	2357	52 +9
Thoothukkudi	5291 +320	2897 +307	2366	28 +1
Thiruvannamalai	4933 +152	3212 +322	1673	48 +4
Velure	4854 +208	3702 +330	1132	40
Thirunelveli	3595 +208	2116 +207	1458	21 +2
Theni	3556 +235	1940 +246	1570	46 +3
Ranipettai	3467 +244	1615 +95	1828	24
Kanniyakumari	3393 +269	1720 +397	1644	29 +2
Thiruchirappalli	3289 +200	2096 +333	1136	57 +6
Coimbatore	3237 +271	1826 +167	1373	38 +6
Ramanathapuram	2951 +86	2029 +12	867	55 +2
Kallakkurichi	2938 +105	2042 +39	877	19 +3
Villupuram	2923 +157	2100 +115	791	32 +1
Salem	2845 +113	2045 +107	778	22 +1
cuddalore	2250 +88	1570 +38	659	21
Dindukkal	2115	1603	478	34

	+103	+153		+3
Sivagangai	1991 +85	1159 +177	799	33 +1
Thanjavur	1892 +162	943 +7	932	17
Tenkasi	1607 +101	837 +387	760	10 +1
Pudukkottai	1504 +110	897 +124	587	20 +2
Airport Quarantine	1262 +16	974 +23	287	1
Thiruvarur	1256 +100	751 +40	504	1
Tirupathur	864 +86	507 +24	349	8 +1
Ariyalur	800 +4	661 +29	135	4
Tirupur	668 +51	355 +30	306	7
Krishnagiri	664 +31	328 +14	322	14
Nilgiris	661 +40	469 +47	190	2
Erode	586 +22	433 +17	145	8
Dharmapuri	570 +29	278 +25	290	2
Nagapattinam	533 +10	302 +1	229	2
Namakkal	510 +51	234 +11	272	4
Railway Quarantine	424	412	12	0
Karur	352 +24	197 +8	146	9
Perambalur	296 +25	209 +5	84	3

Source: grainmart.in.

The table 1.1 shows the covid-19 corona virus Perambalur District total cases respondents 296+25, total cured 209+5 total active 84 total deaths 3 have low level, followed by Chennai District total respondents 93537+1331, total cured 77625+1137 total active 1926 total deaths 1986 have high level in Tamilnadu.

### COVID-19

In 2019, the Centers for Disease Control and Prevention (CDC) started monitoring the outbreak of a new corona virus, SARS-CoV-2, which causes the respiratory illness now known as COVID-19. Authorities first identified the virus in Wuhan, China.

More than 74,000 people have contracted the virus in China. Health

authorities have identified many other people with COVID-19 around the world, including many in the United States. On January 31, 2020, the virus passed from one person to another in the U.S.

The World Health Organization (WHO) has declared a public health emergency relating to COVID-19.

The first people with COVID-19 had links to an animal and seafood market. This fact suggested that animals initially transmitted the virus to humans. However, people with a more recent diagnosis had no connections with or exposure to the market, confirming that humans can pass the virus to each other.

### Symptoms

Cold- or flu-like symptoms usually set in from 2–4 days after a corona virus infection and are typically mild. However, symptoms vary from person-to-person, and some forms of the virus can be fatal.

### Symptoms include:

1. Sneezing
2. Runny nose
3. Cough
4. Watery diarrhea
5. Fever in rare cases
6. Sore Throat
7. Exacerbated asthma

Scientists cannot easily cultivate human corona viruses in the laboratory unlike the rhinovirus, which is another cause of the common cold. This makes it difficult to gauge the impact of the corona virus on national economies and public health. There is no cure, so Treatments include self-care and over-the-counter (OTC) medication. People can take several steps, including:

1. Resting and avoiding overexertion
2. Drinking enough water
3. Avoiding smoking and smoky areas
4. Taking acetaminophen, ibuprofen, or naproxen for pain and fever
5. Using a clean humidifier or cool mist vaporizer

6. A doctor can diagnose the virus responsible by taking a sample of respiratory fluids,

Such as mucus from the nose, or blood

7. Standard recommendations to prevent infection spread.

### CONCLUSIONS

A pandemic is not new in human history. But what makes the COVID-19 pandemic special is that it takes place in an unprecedented backdrop when the interconnectivity and interdependence between people, between countries and between continents are so deep. The achievements people have made in technology, intelligence and transportation make them both physically and psychologically globalized.

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## IMPACT OF COVID-19 ON BANKING SECTOR IN INDIA

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### *Abstract*

*COVID-19 is undoubtedly one of the biggest global events of our lifetimes, presenting unprecedented challenges to many industries, governments and people all over the world. It could be the most serious challenge to financial institutions especially banking sector in nearly a century. As the economic fallout spreads, banks find themselves juggling some big priorities that require concrete steps to reposition now while also recalibrating for the future. They are working to keep their distribution channels open, despite social distancing advice and supervisory and compliance functions that were never designed for remote work. They are trying to manage revenue and customer expectations, despite near-zero interest rates and growing pressure on consumers. And, they need to keep an eye on strategy and brand issues that will define their future, as market forces and customer behaviors potentially change coming out of this crisis. Now, the banks can take concrete steps to support the communities and customers they serve while balancing medium to long term positioning. Hence, the paper will discuss about the impact of COVID -19 on banking sector and also give some suggested ways to recapture their position after COVID -19.*

**Keywords:** Covid-19, Consumer, Banks, Banking sector, Customer, Market.

### **INTRODUCTION**

COVID-19 is undoubtedly one of the biggest global events of our lifetimes, presenting unprecedented challenges to many industries, governments and people all over the world. The pandemic remains a health and humanitarian crisis and the business and economic impact has been

deep and far reaching. It has also emerged as the “black swan event which is going to require extraordinary measures from governments across the globe to help resume economic stability. Based on when the pandemic is likely to come under control, several economic scenarios indicate global recession of varying

magnitudes. The situation has hit the Indian economy at a time when growth has slowed to the lowest in a decade. In the recent past, there were signs of green shoots of recovery in the Indian economy. However, the impending outbreak of the virus is likely to severely impact the recovery process. The government and the regulators have responded by providing an economic stimulus package with several measures to shore up liquidity and provide forbearance on several financial and compliance commitments. The banking sectors have taken responsive measures to the pandemic and aim to reduce in-person interactions, downsize operations while providing financial support to retail and institutional customers.

### **IMPACT OF COVID – 19**

The pandemic is impacting the banking sector in multiple ways from business continuity issues and operational considerations to the overall financial outlook. As Banking companies are mobilizing and taking steps to minimize these impacts, they will likely face short and long-term implications on both profitability's as well as balance sheet items. A continued spread of the pandemic and its results will significantly slow down business, hence financial institutions particularly banks must take additional measures to ensure business continuity to remain relevant to their customers. Banks must also prepare for scenarios that might occur post the lockdown period as well. This would be essential in developing a flexible contingency plan that best equips the banks for crisis management and provides supportive solutions to its customers.

The Reserve Bank of India has taken certain measures to give some relief to the lending institutions in the areas of liquidity, regulation and supervision, and financial markets. The following are some of the business and accounting considerations for banks.

### **Credit risk assessment**

The RBI has given certain waivers to the borrowers which include moratorium to pay principal and interest with relaxation on their classification as a non-performing asset or a restructured asset. This has been implemented to help borrowers tide over temporary financial difficulties. However, banks will have to identify and monitor the borrowers who are facing temporary and long-term financial difficulties. Such borrowers will be provisioned accordingly. Due to the pandemic, it might become too cumbersome or difficult for banks to determine the extent and adequacy of collaterals available with them and the subsequent provisioning. There may be additional disclosures required in the financial statements and the computation of capital adequacy for COVID-19. Banks would therefore be required to maintain robust risk management functions and track their borrowers individually to determine and segregate the permanent impact from the temporary impact and make appropriate provisions. The following are the some of the key areas that merit consideration.

#### **Liquidity**

Given the situation of the lock down in the country, the defaults may have increased substantially as many companies would have lost revenue for a long time. An increase in defaults is likely to cause issues in liquidity and capital adequacy. However, the RBI has come up with certain measures to provide liquidity to all the lending institutions.

#### **Going concern and impact of subsequent events**

Given the unpredictability of the potential impact of the out break of COVID-19, there may be material uncertainties that cast significant doubt on the entity's ability to operate under the going-concern basis. If the entity

prepares the financial statements under the going-concern assumption, it will be required to disclose these material uncertainties in the financial statements to clarify that the assumption is subject to such material uncertainty. The degree of consideration required, the conclusion reached, and the required level of disclosure will depend on the facts and circumstances in each case. This is because not all entities will be affected in the same manner and to the same extent. Significant judgment and continual updates to the assessments till the date of issuance of the financial statements may be required, given the evolving nature of the outbreak and the uncertainties involved. Further the BFSI sector in India will need to ensure that effective processes are in place to identify and disclose material events such as bankruptcies of the borrowers or the impact on lending portfolio due to liquidity or business issues in particular sectors such as real-estate, Small and Micro Enterprises (SME), etc. after the reporting period.

#### **Revisiting hedging strategies**

Business transactions may be postponed or cancelled, or they may occur in significantly lower volumes than initially forecasted due to COVID-19 lockdown. If an entity has designated a transaction such as the expected issuance of debt, as a hedged forecasted transaction in a cash flow hedge, the entity will need to consider whether the transaction is still a highly probable forecasted transaction. This includes whether the volume or amounts involved will be lower than how they were forecasted or whether there is uncertainty on the duration about the forecasted transaction. Currently, increased volatility and decline in prices across many asset classes have impacted the trading books of banks and consequently, the capital allocated to address such market and counterparty credit risks. Firms will

need to consider how quickly they can adjust their hedging strategies across forex, commodities, equities or fixed income as the COVID-19 situation evolves.

#### **Adverse impact on specific loan covenant ratios being triggered**

Given the current crisis and its impact on capital markets and businesses across, banks and NBFCs will face clients who are potentially experiencing stressed financial conditions, including deterioration of their credit ratings and credit quality. In certain cases, there is a like illness of borrowers to breach certain covenants linked to ratios like the current ratio, profitability ratios, return on equity (ROE), debt coverage ratios, etc. In some cases, the covenants breach could lead to classification of a loan as a non-performing asset.

#### **MEASURES TO BE TAKEN FOR RECAPTURE THEIR POSITION**

While it may be early to foresee a post COVID-19 Era, especially since we are facing an uncertain future, it is important for Banks to keep tackling the challenges on an ongoing basis to stay relevant and to continue business as usual.

- Shorter Perspective: Returning to Business As Usual
- Safety & Trust: Ensuring the safety of employees and all other stakeholders should be the top priority in addition to returning to BAU and gaining the trust of employees/ customers. Normally, trust cannot be built overnight. However, in a moment of crisis, minds too can change quickly, and hence, now is the right time to build Trust.
- Communication: Develop exclusive Communication Strategy and enhance channels to engage with all the stakeholders and specifically develop ad hoc

channels to manage and overcome temporary disruptions.

- Profitability: Multiple factors will test the Banks profitability in the coming Quarters and will put it under tremendous pressure. All possible efforts (lowering the cost of funds, booking profits from SLR portfolio, cost optimization, digitization, squeezing other income streams) should be taken to offset these challenges and to retain/enhance profitability.
- Stress: Impact of the heightened delinquencies, may surface by Q2 and Q3 of FY 21 and all major industries are likely to face the wrath of COVID 19. The adequate focus must be laid on addressing these challenges. Additionally, collective efforts should be made to seek regulatory approvals for one-time restructuring or relaxation in asset classification.
- Recovery: Focus should be given on revamping digital channels for recovery processes. This may be the right time to think about creating a digitalized Operational Models for collection and recovery.
- Cost: All possible cost-saving measures, be it reducing paper usage, reduction in electricity consumption, avoiding travel or strategic calls such as pay cut, should be adopted.
- Longer Perspective: Seven ways to consider crisis as an opportunity to do things could not do before
- Creating a flatter organization with a matrix structure for agility, swiftness in decision making, and faster response to the crisis.
- Rationalize costs on an ongoing basis: Centralization, reducing brick and mortar setup and its related overhead costs, going digital, Employee Cost, etc.

- Promoting virtual work, extensive use of collaboration tools, and changing the way work.
- Transforming: Work (humans with machines), People (getting right Talent and reskilling/upskilling existing Talent) and Workplace (Optimal blend of the physical and virtual workspace)
- Reinforcing hygiene, wellness, and healthcare.
- Permanent Crisis Management Team to be developed and their scope to be made broader.
- Developing a strong policy for ESG and become a Socially Responsible organization.

### CONCLUSION

Banks must sustain the momentum gathered in breaking stereotypes (even though out of fear and desperation) and keep improvising. In short, by the time, COVID-19 situation is past, the crisis should be used as an opportunity to do things that could not do before and create a gamut of new normal that will shape the future of Banking.

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## NEGATIVE IMPACT OF COVID-19 IN THE LIFE OF WOOD CHARCOAL ENTREPRENEURS

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### Abstract

*In the face of the worldwide COVID-19 pandemic, Entrepreneurs must face a new reality: it is not only a huge sanitary and health crisis affecting millions or even billions of people all over the world but also an unprecedented downturn on the global economy revealing its breakability and fundamentals. The government, public health and economic responses are tremendously different if you are an entrepreneur based in India. As an entrepreneur, you also don't have the same action plan to put in place depending on your sector and industry. Compared to online shopping, food delivery, video gaming or video conferencing industries all currently booming, while businesses in the hotel, restaurant, retail, entertainment and sports industries, could take the opportunity to innovate with more digitalization and disruption implemented in their business models to increase the touch points with their customers. Likewise, the wood charcoal-based entrepreneurs are facing very highlighted problems in their business activities as well as the family situation.*

**Keywords:** Wood Charcoal, Entrepreneurs, COVID-19, Pandemic Situation

### Introduction

The Covid-19 pandemic could help trigger an uptake in renewable power infrastructure and generation in India, according to a new report published by the Institute for Energy Economics and Financial Analysis (IEEFA). The report, 'Who would still fund a new coal power plant in India?', draws on a decade of data to highlight a steady decline in new coal projects in India, noting that there was an 80% decline in new thermal power installations in the four years to the 2015-16 financial year alone, while renewable energy delivered more than two-thirds of

India's new generating capacity in the 2019-20 financial year.

It went on to highlight a disparity between planned and actual spending on new power infrastructure to the tune of \$70bn, with the Indian Government planning to install at least 70GW of new coal power plants between 2018 and the 2026-27 financial year, but there are now concerns as to where this funding will come from.

This trend has been intensified by the spread of Covid-19 and the resulting lockdown, which has caused energy demand to collapse across the world, and



India is no different. While the International Energy Agency has reported a 25% fall in global weekly energy demand, India saw its energy need decline by 26% over just ten days in late March, according to figures from the country's Power System Operation Corporation. This collapse was led by a 34% decline in energy need in the country's western region alone. This has had a significant impact on Indian coal power generation; in the first 33 days of the 2020-21 financial year, coal-fired power generation fell by 30TWh compared to previous years, raising concerns about the long-term viability of the sector as the world deals with the impacts of the Covid-19 pandemic.

Due to increasing COVID cases, the State government of Tamil Nadu has ordered a 12-day complete lockdown in the Greater Chennai Police Commissionerate Limits areas in Tiruvallur District, Chengalpattu District and in Kancheepuram District. This lockdown will be in effect between 19 June 2020 and 30 June 2020. The notification provides, among other things:

- ❖ Auto, taxis, and private vehicles will not be permitted, except for medical emergencies.
- ❖ E-pass will be restricted to those applicants only who intend to travel from Chennai to other districts for marriage, funeral and medical emergencies, provided they submit relevant documents.
- ❖ A full-day lockdown will be enforced on two Sundays - 21 June 2020 and 28 June 2020 - without any relaxations.

The existing procedure with respect to operation of trains, and international and domestic flights will continue to be in effect.

### **Current Situation**

COVID-19 has adversely impacted the overall investment sector. While businesses across all sectors can sense the repercussions of COVID-19,

start-ups have particularly been one of the most vulnerable, and in fact, are facing various formidable challenges both, from a business as well as from an operations' perspective. Most start-ups have witnessed a decline in supply and or demand, except for those start-ups that are engaged in the supply and, or delivery of 'essential services', educational technology, gaming or streaming services. Notwithstanding the above, glitches in the supply chain network have either way presented challenges for all start-ups. However, the start-up ecosystem has been continuously striving to adapt to the present situation as flexibly as possible, by focussing on the need to innovate and diversify their business techniques and its operations.

In the past couple of years, the start-up ecosystem in India has emerged as a reckoning force, largely attributable to the efforts of the stakeholders, and the initiatives implemented by the government to facilitate the growth of the start-ups. Investments in start-ups have dramatically surged to \$14.5 billion in 2019 from the previously \$550 million in 2010.

### **Changes in Bamboo Charcoal Industry**

Bamboo Charcoal Manufacturing Business. Production of Activated Charcoal from Bamboo. Bamboo charcoal powder consists of pieces of bamboo plants, which are harvested after a minimum of five years. It is manufactured using the pyrolysis or carbonization process, which usually consists of heat treatment at the temperature of 800°C to 1200°C. The process imparts high adsorption properties to the bamboo charcoal powder, thus making it useful for a wide range of applications. Bamboo charcoal powder can attract and hold a variety of materials, minerals, chemicals, humidity, radio waves, odors, and other substances. Thus, it provides these materials with healing and detoxification characteristics. The use of bamboo

charcoal powder is also popular because it is an environmentally-friendly product.

Bamboo charcoal can be used as household fuel for heating and cooking, as well as in a range of purification and absorption applications, such as purifying drinking water, in air filters, in mattresses and pillows as a deodorizer, and for certain industrial purification uses. Bamboo vinegar, a by-product of the manufacturing process, is also used as an ingredient in health products. Bamboo is an excellent resource for charcoal because of its high surface area (up to 385 m<sup>2</sup>/g) and the ability to reach high temperatures (the surface temperature of bamboo charcoal can reach 700°C). Bamboo grows naturally because of the country's largely undisturbed forests and the limited agriculture practiced in areas where bamboo proliferates. Four dzongkhags have a significant production of bamboos. These are Samtse, SamdrupJongkhar, Tsirang and Zemgang.

Bamboo charcoal can be used for a wide range of different purification and absorption application. Reduce Indoor Air Pollution - Bamboo charcoal absorbs harmful chemicals in the air. It is especially useful for absorbing formaldehyde, ammonia, benzene from paints and strong adhesives, or when antifreeze is kept indoors. It also reduces smog as it absorbs carbonic oxide, ammonia, formaldehyde, benzopyrene, nicotine, and tar.

Purifying Drinking Water - As bamboo is naturally anti-bacterial and anti-fungal, bamboo charcoal also possesses similar properties. Bamboo charcoal also absorbs 2, 4-dichloro-hydroxybenzene, a major harmful pollutant in drinking water. Bamboo charcoal also eliminates harmful substances such as surplus chlorine, chloroform, and contains rich natural mineral, like, potassium, magnesium, sodium, calcium etc. Water quality is improved when bamboo charcoal is used in cooking and boiling.

Adjusting Humidity - Bamboo charcoal is both an effective natural humidifier and dehumidifier, a result of the pores present in its substructure which can trap and release moisture. Promote Metabolism and Blood Circulation - As bamboo charcoal absorbs and emit far infrared rays, it promotes blood circulation. Bamboo charcoal in mattresses, cushions and comforters help to warm the body faster. Due to its absorbent properties, bamboo charcoal is often used in refrigerators, trash cans, shoe insoles, etc. to absorb odor. Bamboo charcoal products are not only functionally sound, but also good for protecting the environment.

#### **Market Outlook**

Based on the raw material required for manufacturing bamboo charcoal, bamboo charcoal market is categorized into raw bamboo charcoal and bamboo briquette charcoal. Raw bamboo charcoal and bamboo briquette charcoal are prepared from branches, roots, and culms of bamboo plants. Different manufacturing method for preparation of bamboo charcoal powder include the brick kiln process and mechanical process. The bamboo charcoal market is broadly categorized into three major segments based on the application type such as food industry, textile industry and cosmetics industry. Cosmetics industry segment is growing rapidly in the bamboo charcoal market with substantial revenue generation in the last few years. Growing popularity of bamboo charcoal in cosmetics industry segment is attributed to the increasing product penetration in newer market and increasing use in household applications.

The global charcoal market is estimated to value \$5,813.2 million in 2017 and is projected to grow at a CAGR of 2.0% during the forecast period. The growing demand for charcoal as a metallurgical fuel in the metal and mining industries is driving the growth of the market. On the basis of type, the charcoal

market is segmented into lump charcoal, charcoal briquettes, Japanese charcoal, sugar charcoal, and others. Others include various forms of activated charcoal. In terms of value, lump charcoal is estimated to contribute the largest share, of more than 67.0%, to the market in 2017. Lump charcoal burns quickly and produces a high amount of heat on burning. Owing to these properties, the demand for lump charcoal is growing for barbecue cooking purposes.

Charcoal is increasingly being used in the production of steel, ferroalloys, aluminium, lead, cast iron, tin, copper, lanthanides, nickel, and some rare metals. It is also employed in the smelting of certain types of brass and bronze. The demand for charcoal is increasing due to technological developments and growing inclination toward the use of clean and renewable resources. Charcoal briquettes compressed from biomass materials produce less ash and reduce greenhouse gas emissions. They are therefore more preferred than traditional fuels. Such environmental sustainability benefits are fuelling their demand among users, which, in turn, is driving the growth of the charcoal market.

Asia-Pacific region is estimated to hold a major share in the bamboo charcoal market with massive growth in forecast period. Countries such as India, China and Singapore are leading the Asia-Pacific market with strong economic growth, rapid industrialization, rising demand from end-use industries, and significant investment by leading industry players considering potential growth opportunities in the region. The key players in the bamboo charcoal market are Hangzhou Fuyang Motor Carbon Ltd., Guilin Hsinchu Nature Biomaterials, Apex Biotechnology Corp., Jiangshan City Green, The Charcoal House, Japan Daisentakuzumi Corp., Quzhou Modern Carbon Industry, Shanghai Hainuo

Carbon Industry, and the Suichang Bamboo Charcoal Factory.

A lot of support services for entrepreneurs have shifted online to ensure that they have access to the guidance they require even in the absence of physical convenings. However, in doing so, the assumption that both men and women have equal access to space, internet, and available time to leverage these resources, is in itself flawed. Additionally, charcoal entrepreneurs often do not have the same network of peers to reach out to for moral or technical support.

#### **Activated Charcoal from Wood**

NIIR Project Consultancy Services (NPCS) through its network of project consultants in a wide range of business and technological disciplines is engaged in providing services to its clients by way of preparation of project reports. We provide the pre-investment information and business plans required for promoters, business leaders, young entrepreneurs, women entrepreneurs, investors, NRI (Non-Resident India), startups, professionals looking to start their own venture. The comprehensive project profile reports cover all the aspects of business, from analyzing the market, confirming availability of various necessities such as plant & machinery, raw materials to forecasting the financial requirements.

The scope of the report includes assessing market potential, negotiating with collaborators, investment decision making, corporate diversification planning etc. in a very planned manner by formulating detailed manufacturing techniques and forecasting financial aspects by estimating the cost of raw material, formulating the cash flow statement, projecting the balance sheet, break-even point, rate of return, etc. the DPR is formulated by highly accomplished and experienced consultants and the market research and

analysis are supported by a panel of experts and digitized data bank.

Capacity	15MT/Day	Plant and Machinery cost	80.00 Lakhs
Working Capital	113.00	Rate of Return (ROR)	24.13 %
Break Even Point (BEP)	62.30 %	TCI	262.00 Lakhs
Cost of Project	262.00Lakhs		

Source: [www.entrepreneurindia.co](http://www.entrepreneurindia.co)

Activated wood charcoal is a very important chemical widely employed by certain gases and vapours in purification in catalytic chemical reactions and decolorization of vegetable oils and sugar solutions. Activated wood charcoal is available in diverse forms like symmetrical pellets, irregular shaped

granules and in cubical form. Due to expansion of pharmaceutical and vegetable oil industries the demand of activated wood charcoal is expected to rise sharply in the coming years. New entrepreneurs venture in to this field will be successful.

Capacity	1,200 MT per Annum	Plant and Machinery cost	216.00 Lakhs
Working Capital	0.00	Rate of Return (ROR)	27.00 %
Break Even Point (BEP)	56.00 %	TCI	0.00 Lakhs
Cost of Project	498.00Lakhs		

Source: [www.entrepreneurindia.co](http://www.entrepreneurindia.co)

Activated charcoal of three grades namely powder, granular and pelletized finds hundreds of different applications. By chemical activation, predominantly powder activated charcoals are made and these qualities are mostly used for wastewater treatment. Granular products and pellets used for gas purification are predominantly made by gas steam activation. To cite some examples from the numerous applications: decolorization of sugar and sweeteners, drinking water treatment, gold recovery, production of pharmaceuticals and fine chemicals, catalytic process, off gas treatment of waste incinerators, automotive vapor filters, colour correction in wines and fruit juices.

Wood activated charcoal market has been segregated based on product, application, end-user and region. The product segment comprises powdered and granular wood activated charcoal. Among these, powdered form will hold over two-thirds of the entire wood activated charcoal industry in 2024. As a whole

there is a good scope for new entrepreneur to invest in this business.

Few Indian major players are as under:

- Active Char Products Pvt. Ltd.
- Acuro Organics Ltd.
- Birla Carbon India Pvt. Ltd.
- Core Carbons Pvt. Ltd.
- Kalpaka Chemicals Pvt. Ltd.
- Kan Carbon Pvt. Ltd.
- Phillips Carbon Black Ltd.

#### What can we do?

Supporting charcoal entrepreneurs with relevant trainings, and providing access to flexible financing options to help keep their businesses afloat are definitely good places to start. We have an opportunity to pivot and rebuild support structures. Here are some things to keep in mind as we do so:

#### ***1. Make interventions business responsive***

We need to ensure that, in addition to considering business norms, roles, and relations, our interventions understand how these affect access to resources, and

offer remedial action to overcome these obstacles. Collaborating with known experts in the field is a good way to work towards this. For example, the Indian Charcoal Social Entrepreneurs Network (ICSEN), formed from one such collaboration, seeks to provide charcoal social entrepreneurs across India with leadership and management skills to help scale their businesses, especially in these times.

### **2. Make financial services more inclusive**

Charcoal Entrepreneurs in developing countries tend to not have the same access to information, skills, or awareness to fully leverage financial services. The pandemic provides governments and private finance providers an opportunity to design or tweak existing financial services to be made more inclusive for women entrepreneurs, both from rural and urban backgrounds.

### **3. Focus on digital inclusion**

SGBs are undergoing a transformation to make it through this crisis. In a country where the female internet user population is only half of that of the men, with the divide being more distinct in rural India, this overhaul of services to digital platforms can widen inequalities. Entrepreneur-support organisations must work with SGBs to set in place an inclusive plan to gradually build digital awareness and adoption.

This pandemic has acted as a mirror for the unequal systems and structures we had become accustomed to as a society. However, it is also presenting us with an opportunity to change the status quo and look at designing inclusive and sustainable support systems for entrepreneurs. Let us use it to build back better.

### **Conclusion**

Black Death, for instance was a turning point that increased real wages which subsequently led to innovation in production process that improved

productivity ultimately culminating in Industrial Revolution. The SARS CoV2/COVID – 19 Pandemic is a Black Swan event that poses a challenge for countries across the world as the trade-off is between saving lives and protecting livelihoods. It also presents a unique opportunity to undertake bold, courageous reforms that can unshackle India's productive potential. We would be compounding the tragedy if we waste this opportunity. Swift policy response will be the key to recovery as government's combat a simultaneous demand and supply shock unlike ever seen before. The prospects of recovery in the short run ultimately demand on the scale, mechanism and instrument of policy action.

Customers — both individual consumers and businesses — are becoming accustomed to new forms of business, such as online ordering for home delivery. Their established habits have been disrupted, changing attitudes and expectations. For example, the surge in video meetings creates comfort with this method of interaction, and users learn how to be effective in meetings without face-to-face interactions. After the shutdown, many people will expect more integration of online and offline offerings. They will likely also be more at ease with using new technologies, especially video conferencing that can also reduce travel costs and carbon emissions. It's clear the post-pandemic future will be different. What's happening during the crisis will have a lasting impact on society. Current signs of entrepreneurial initiative and goodwill give us some cause for optimism.

In the words of Stanford economist Paul Romer: "A crisis is a terrible thing to waste."

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## IMPACT OF COVID – 19 ON HOUSEHOLD BUYING DECISIONS OF SALARIED PERSONS IN MADURAI CITY

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### *Abstract*

*The outbreak of the corona virus not only impacted the physical health of those it infected, but its impact has been felt in every aspect of life, financially, socially, economically, psychologically and environmentally. The world needs to develop a coping mechanism for the various aspects of life. With this backdrop, a clear paradigm shift can be seen taking place in the way consumers behave in response to this unique scenario. Panic – buying, stock piling, herd behavior, have become trademark behavior traits commonly seen across households not only in India but across the globe. This study has been undertaken in order to understand the extent to which the Covid-19 pandemic has impacted and influenced lives not only on a health level. Through the usage of convenience sampling, 30 samples have been collected from salaried persons of varying professions across Madurai City. This paper attempts to study the basic conceptual framework that influences buying decisions, to identify the factors that influenced buying decisions before and after Covid – 19 and to give suitable suggestions to face future challenges. Using various tools such as likert scale, simple average, and weighted average the data has been analyzed, inferences made, and findings and suggestions given for salaried consumers to make better buying decisions in the face of crisis..*

**Keywords:** Covid – 19, Buying Decisions, Salaried persons

### **I INTRODUCTION**

The outbreak of the corona virus not only impacted the physical health of those it infected, but its impact has been felt in every aspect of life, financially, socially, economically, psychologically

and environmentally. On July 18<sup>th</sup>, 2020 Reuters recorded for the first time the global number of active cases surging to 1 million in under 100 hours. Therefore, it is clear that the need of the hour is for the world to develop a coping mechanism for

various aspects of life. We are in a situation where we are forced to put the principle of prudence into practice in real life, where although we expect profits, or in this case another corona free day, we must prepare for losses.

Since the first 21 - day nationwide lockdown was implemented on 24<sup>th</sup> March, 2020 till date, every state is still going through some form of lockdown with varying degrees of restrictions depending on the number of active cases. With this backdrop a clear paradigm shift can be seen taking place in the way consumers behave in response to this unique scenario. Panic – buying, stock piling, herd behavior, have become trademark behavior traits commonly seen across households not only in India but across the globe. This study has been undertaken in order to understand the extent to which the Covid-19 pandemic has impacted and influenced lives not only on a health level.

## II. CONSUMER BUYING BEHAVIOR

Consumers display certain behavior in the process of searching, purchasing, using, reviewing and ultimately disposing of products and services that are required to satisfy their needs. Dynamic changes can be seen in this process as a result of the crisis.

### Decision Making:

Consumers make decisions at every level of purchase whether the goods are essential goods of low value or luxury goods. When presented with two or more alternatives, the consumer chooses the product which best suits their needs at a given point in time. There are various factors that influence these decisions, they can be broadly categorized as economic, functional, personal, psychological, social, and marketing mix factors. The reason that these factors are said to ‘influence’ the behavior of a consumer is because they have the capacity to change the intended buying behavior of the consumer.

It is therefore important to be aware of the process that goes into decision - making. (1) Identify the Problem (2) Gather Relevant Information about the Problem (3) Identify and Evaluate Alternatives (4) Act based on the chosen alternative and (5) Review the decision and its consequences.

### Decision Making During Crisis:

While the above - mentioned process may be true for decision – making under normal circumstances, a dynamic change takes place when consumers are faced with crisis such as the one currently being faced. As on the date of writing this paper, at the national level Tamil Nadu has the second largest number of confirmed cases of the corona virus and Madurai the fourth largest number of confirmed cases. Therefore, it can be clearly said that a major factor that influences any and all buying decisions of consumers is fear and anxiety. The word decision – making itself implied that there is an alternative available for a consumer to choose from but in times of crisis, the alternatives are significantly reduced, and the consumer has no other go but to make a forced choice. The crisis determines the goal and direction of the choice being made rather than the normal deciding factors.

### III. REVIEW OF LITERATURE:

The review of literature contains work that has already been done in the area of factors that influence household buying decisions. It is needed in order for the researcher to develop a better understanding of the topic for study and to be able to draw relevant parallels. The literature review is as follows:

**Dr. Parimala, G (2020)** in the research article titled, ‘A Study on Impact of Covid – 19 on the Consumers’ Buying Behavior in Indian Retail Industry – With Special Reference to Coimbatore City’ studied the specific fears and emotions of consumers during Covid – 19 and how it impacted their perception towards luxury items. The study shows that even after the

end of the pandemic, there will be relatively a smaller number of consumers who will prefer to spend on travel and tourism, fashion, and cars. Although preference for essential commodities and homes would grow.

In the research article, 'Analysis of Impulsive Buying Behavior in Fashion Industry', **Saamarth, Gandhi (2020)** revealed how online shopping has increased the propensity of impulsive buying behavior. Furthermore, the paper also showed how men are more likely to engage in impulsive buying behavior in comparison to women and e-commerce has played a pivotal role in this aspect.

**Dr. P. Mohanasundarum (2019)** in his paper titled 'Factors influencing customers over buying FMCG: With Reference to Dharmapuri Town' states that it is only when a study is made of the factors considered before buying, can it be determined whether a brand is successful or not. It was concluded that the efforts of retailers, and well-established brands have more sway over the decisions of consumers and marketing strategies need to be developed accordingly.

In the paper titled 'Crisis Management: HR's Strategic Leadership Role', the authors **Abishek, Sharma; Hotam, Singh and O.P. Upadhyaya (2019)** the steps in planning to manage a crisis are outlined viz., establishment of a planning team, analysis of capabilities and hazards, development of a plan, and its implementation. The main objective of crisis management is to secure, defend and guarantee.

**Anant, Agarwal (2017)**, in the thesis titled 'Dynamics of Spousal Joint Purchase Decision Making Towards Household Consumer Durables', discuss the main factors affecting the purchase decisions of spouses. Gender bias, and marital duration played key roles in the decision - making process. It was also observed that in recent years the family

plays a significant role in purchase decision - making.

**Pandya, Gitesh S. (2005)** in the paper titled 'A comparative analysis of various attributes of few selected durable vis a vis non- durable consumer products and their impact on buying decisions' mentions that high competition and changes in the market at the global level such as socio-cultural changes, increase in per capita income, strength and weaknesses of domestic players against multinationals, increasing literacy levels, etc. are changing the behavior and buying decisions of customers.

#### IV. OBJECTIVES OF THE STUDY:

- (i) To study the basic conceptual framework influencing buying decisions
- (ii) To identify the changes in buying decisions before and after Covid – 19
- (iii) To study the impact of Covid – 19 on salaried persons
- (iv) To give suggestions to salaried persons on how better to face the upcoming challenges as a result of Covid – 19

#### V. SCOPE OF THE STUDY:

Madurai is one of the districts of Tamil Nadu and is among the top districts worst affected by the outbreak of the Corona virus. This city that goes by many nicknames such as the city that never sleeps, the city of Jasmines, Temple City amongst others, has seen everything that is iconic about itself come to an abrupt halt. This study aims at determining the impact and influence that the Covid – 19 pandemic has influenced the household buying decisions of salaried persons within the study area.

#### VI. RESEARCH METHODOLOGY

##### Research Design

A descriptive design is followed to identify the various factors that influence the buying decisions of consumers before and after the pandemic.

##### Data Collection and Analysis Technique:

The study was conducted based on primary data collected through

convenience sampling using a structured questionnaire sent electronically to the respondents. The respondents (30) for this study are salaried persons across Madurai city. Secondary data was also collected

through the usage of various internet portals, magazines, journals, and the like. Analysis has been done using simple percentage, weighted average and garette ranking.

## VII. FINDINGS AND DISCUSSIONS

**Table 1**  
**Demographic Profile of the Respondents**

Factors	Variables	Frequency	Percentage
Gender	Male	13	43.33
	Female	17	56.67
Age	Less than 35 yrs.	17	56.67
	35 yrs. to 45 yrs.	9	30
	45 yrs. to 50 yrs.	3	10
	More than 50 yrs.	1	3.33
Marital Status	Single	12	40
	Married	18	60
Type of Family	Joint	10	33.33
	Nuclear	20	66.67
Number of Family Members	Less than 3	9	30
	3 to 5	13	43.33
	More than 5	8	26.67
Monthly Income	Below Rs. 25,000	9	30
	Rs. 25,001 to Rs. 35,000	5	16.67
	Rs. 35,001 to Rs. 45,000	1	3.33
	More than Rs. 45,000	15	50

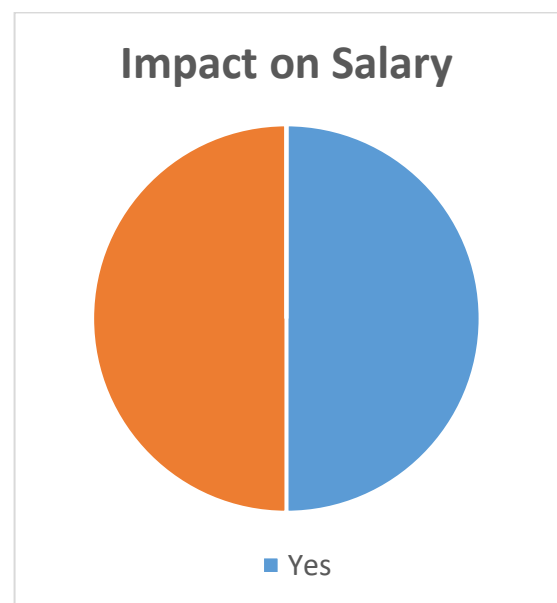
*Source: Primary Data*

From the above table, it is found that majority of the respondents were female (56.67%) who fall under the age group less than 35 years (56.67%). Majority of them are married (60%) and belong to a Nuclear family (66.67%) comprised of 3 to 5 members (43.33%) and earning a monthly income below Rs. 25,000 (30%).

**Table 2**  
**Classification based on impact on Salary as a result of Covid – 19**

	Frequency	Percentage
Yes	15	50
No	15	50

*Source: Primary Data*





The above table shows that the salary of 50% of the respondents was affected by the Covid – 19 pandemic and

the salary of 50% of the respondents' salaries was not affected.

**Table 3**

**Showing Response of Consumers to Reduction in Salary:**

Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Scores	RANK
Reduction of Impulse Buying	4	3	1	6	1	42	2
Purchase of Essential Products alone	2	0	4	5	4	54	1
Change over to brands with lower pricing	4	1	5	4	1	42	2

*Source: Primary Data*

The above table shows that the main response of the respondents as a result of reduction in salary was to give preference to purchase of essential products alone

(54) followed by the reduction in impulse buying (42) and changing over to brands with lower prices (42).

**Table 4**

**Factors that influenced Household Buying Decisions BEFORE Covid – 19**

Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Scores	RANK
Affordability of the Product	8	3	7	9	3	86	2
Impulse buying	10	8	6	3	3	71	6
Panic - Induced Buying	13	5	4	4	4	71	6
Stock - Piling/ Hoarding	14	5	5	3	3	66	8
Pre-Planned Purchases	8	8	3	5	6	83	4
Brand Loyalty	10	4	7	5	4	79	5
Advertisements	13	7	3	7	0	64	9
Convenient Location of Store	8	6	1	6	9	92	1
Peer Pressure	15	6	3	4	2	62	10
Needs/ Suggestions of Family Members	9	6	3	5	7	85	3

*Source: Primary Data*

The above table shows that prior to the Covid – 19 pandemic, the convenient location of a store (92) was the main factor that influenced the household buying decisions, followed by

the affordability of the product (86) and the needs/ suggestions of family members (85).

**Table 5**  
**Factors that influenced Household Buying Decisions AFTER Covid – 19**

Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Scores	RANK
Affordability of the Product	7	6	8	5	4	83	4
Impulse buying	8	9	6	4	3	75	8
Panic - Induced Buying	9	3	9	4	5	<b>83</b>	<b>4</b>
Stock - Piling/ Hoarding	7	9	5	3	6	82	6
Pre-Planned Purchases	6	6	3	7	8	<b>95</b>	<b>1</b>
Brand Loyalty	8	8	7	4	3	76	7
Advertisements	19	4	2	3	2	55	10
Convenient Location of Store	7	4	4	7	8	<b>95</b>	<b>1</b>
Peer Pressure	13	8	1	4	4	68	9
Needs/ Suggestions of Family Members	6	7	2	8	7	<b>93</b>	<b>3</b>

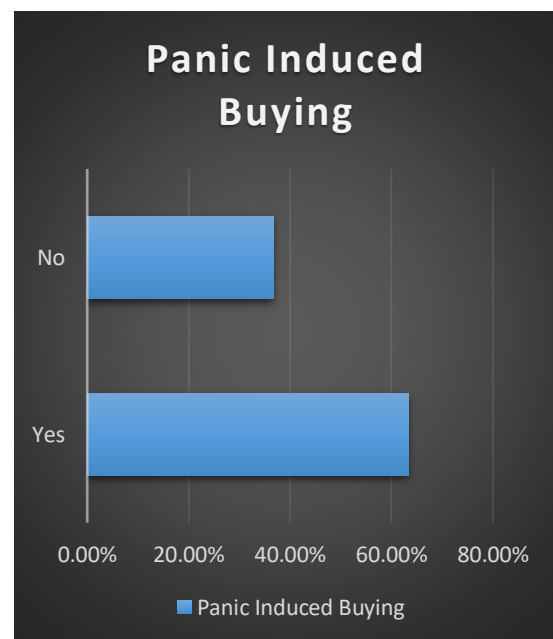
Source: Primary Data

From the above table it can be seen that after the Covid – 19 pandemic although the preference for convenient location of the store (95) remains the top priority, purchases are planned in advance (95) and impulse buying has dropped significantly (75). The needs and suggestions of family members are taken into consideration and there is an increase in panic – induced buying (83).

**Table 6**  
**Classification based on Panic Induced Buying as a Result of Lockdown**

	Frequency	Percentage
<b>Yes</b>	19	63.33
<b>No</b>	11	36.67

Source: Primary Data



The above table shows that majority of the respondents (63.33%)

engaged in some form of panic induced buying as a result of the lockdown.

**Table 7**  
**Reasons for Engaging in Panic Buying**

Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Scores	RANK
Stock out situation	2	2	3	5	7	<b>70</b>	<b>2</b>
Lack of Essential Commodities	1	2	2	7	7	<b>74</b>	<b>1</b>
Rumors of Lock Down Extension	3	1	6	2	7	<b>66</b>	<b>3</b>
Fear & Anxiety	3	4	2	2	8	65	4
Peer Pressure	7	4	1	3	4	50	5

*Source: Primary Data*

It can be inferred from the above table that the main factor that influences consumers to engage in panic – buying is the fear of lack of essential commodities (74). They fear that a stock out situation may arise (70) because of the rumors of extension of the lockdown (66) that causes them more fear and anxiety (65). This is further compounded by pressure from peers (50).

#### **FINDINGS FROM THE STUDY:**

- Majority of the respondents were female (56.67%) who fall under the age group less than 35 years (56.67%). Majority of them are married (60%) and belong to a Nuclear family (66.67%) comprised of 3 to 5 members (43.33%) and earning a monthly income below Rs. 25,000 (30%).
- The salary of 50% of the respondents was affected by the Covid – 19 pandemic and the salary of 50% of the respondents' salaries was not affected.
- Majority of the respondents as a result of reduction in salary have given preference to purchase of essential products alone (54) followed by the reduction in

impulse buying (42) and changing over to brands with lower prices (42).

- Prior to the Covid – 19 pandemic, the convenient location of a store (92) was the main factor that influenced the household buying decisions, followed by the affordability of the product (86) and the needs/ suggestions of family members (85).
- After the Covid – 19 pandemic although the preference for convenient location of the store (95) remains the top priority, purchases are planned in advance (95) and impulse buying has dropped significantly (75). The needs and suggestions of family members are taken into consideration and there is an increase in panic – induced buying (83).
- Majority of the respondents (63.33%) engaged in some form of panic induced buying as a result of the lockdown.
- The main factor that influences consumers to engage in panic –

buying is the fear of lack of essential commodities (74). They fear that a stock out situation may arise (70) because of the rumors of extension of the lockdown (66) that causes them more fear and anxiety (65). This is further compounded by pressure from peers (50).

#### SUGGESTIONS:

We have seen a forced change in the lifestyle of consumers as a result of the pandemic, based on this study we have the following suggestions:

- Everyone has been forced into survival mode, because of the crisis. Rather than being influenced by peer pressure resulting in herd behavior, it will be better if consumers think twice before rushing to make purchases.
- Rather than looking for the convenient location of a store to make purchases and altering the needs depending on the location, the consumer can look towards contactless and door delivery services.
- Panicking benefits no one. The consumer needs to process their needs and wants and make rational buying decisions based on them.

#### CONCLUSION:

Although a paradigm shift can be seen in consumer behavior because of the Covid – 19 pandemic, a proper and in – depth study of the economic consumer, the passive consumer, the cognitive consumer, and the emotional consumer will help marketers to better determine the needs of the consumer and alter their products accordingly. In future, studies can be conducted taking a deeper look of the response of consumers to a crisis. This understanding will help the consumers to channelize their fears rationally, and it will also help marketers to meet the needs of consumers more accurately.

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## IMPACT OF COVID-19 LOCKDOWN ON STATUS OF COLLEGE STUDENTS IN INDIA

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### Abstract

*COVID 19 or Corona viruses are a large family of viruses that infect people and cause respiratory disease. Lakhs of people have affected by this virus all around the world. It mainly spreads from person to person. The severe impact of COVID-19 as pandemic, the government had taken the steps to protect its people by way of lockdown the whole. In India, the Government had announced nationwide lockdown, due to this lockdown all educational institutions had closed from the end of March 2020. Our system of education is based on curriculum with classroom based teaching learning process. It was totally collapsed and students are affected more and stress on their educational part of life. The main objective of this study is to know the status of college students during Covid-19 Lockdown, today's e-learning system of education and it focuses on progress of educational system by offering some suggestions. The study is based on secondary data that has been collected from websites, reports of AISHE, UNESCO, relevant articles, journals and other published information. It concludes that the government would provide more infra-structure facilities like electricity, internet connectivity to both urban and rural places to upgrade the college students in teaching learning process and to overcome the present pandemic situation.*

**Keywords:** Covid-19 Lockdown, college students, e-learning, educational system, online courses, online classes.

### Introduction

A Novel Corona virus or COVID-19 is causing respiratory illness in people. Most of the people all over the country infected the mild to moderate respiratory illness and recover without requiring special treatment. But older people and those with medical problems like

cardiovascular disease, diabetes, chronic respiratory disease and cancer are affected to serious illness. It leads to death in some cases. This virus spreads from person to person even when an infected person coughs or sneezes. At this time, there are no specific vaccines or treatments for COVID-19.



Table-1

## No. of People Infected by COVID-19

COVID-19	America	Brazil	India	Russia	World
Infected People	43,15,926	23,96,434	13,85,522	8,12,485	1,62,37,957
Death	1,49,400	86,496	32,063	13,269	6,49,186

Sources: Report on Dinamalar Newspaper as on 27<sup>th</sup> July 2020

The Dinamalar newspaper reported that globally as many as 1,62,37,957 people have been infected with the Coronavirus while 6,49,186 had died. In India 13,85,522 people have been affected where as 13,269 had died. (Table 1) On 11<sup>th</sup> March World Health Organisation declared Novel Coronavirus Disease (COVID-19) outbreak as a pandemic and asked the countries to take immediate actions and scale up response to treat, detect and transmission to save people's lives. The government had taken the steps to protect its people by way of lockdown the whole. These nationwide closures are impacting over 91% of the worlds' student population. UNESCO is supporting countries in their efforts to mitigate the immediate impact of school closures, particularly for more vulnerable and disadvantaged communities, and to facilitate the continuity of education for all through remote learning. The UNESCO report estimates that the coronavirus pandemic will adversely impact over 290 million students across 22 countries.

Because of lockdown for continuation of education to students, the government has come up with e-learning program. The main challenge of higher education system through e-learning now-a-days is lack of infra-structure facility in our country. The main objective of this study is to know the status of college students during the Covid-19 lockdown and understand the e-learning system of education. It highlights modes to progress the system of education.

## REVIEW OF LITERATURE

**Vikram R. Jadhav et. al. (May 2020)** explained that lockdown has a definite effect on education. Due to Lockdown issues, students can't concentrate on their studies and some students say that there is positive impact. These issues have increased the cost of education to some extent and these issues have not only affected the education sector but also all sectors.

**Pravat Kumar Jena (June 2020)** has outlined that the recent pandemic created an opportunity for change in pedagogical approaches and introduction of virtual education in all levels of education. UGC and MHRD have lunched many virtual platforms with online depositories, e-books and other online teaching/learning materials. It would enhance better accessibility and flexibility to education.

**Veena Shenoy et.al. (April 2020)** had specified that the revolution in Indian higher education, as there was lots of resistance in teaching fraternity towards adapting to technology pre-COVID 19 crisis and due to the situation most of the faculty has adapted technology and started taking virtual classes and their experience is great.

## OBJECTIVES

1. To know the status of college students during COVID 19 Lockdown.
2. To understand the e-learning system of education.
3. To offer the suggestions to progress the educational system in India.

## RESEARCH METHODOLOGY

In the present study, an attempt has been made to know the status of college students in higher education during COVID-19 Lockdown. It exhibits the various applications for e-learning system. It is concept based and descriptive study. This study is based on secondary data that has been collected from websites, reports of AISHE, UNESCO, articles, journals and other published information.

## IMPACT OF COVID-19 LOCKDOWN IN INDIA

In India the Prime Minister Narendra Modi ordered a nationwide lockdown for 21 days on 24<sup>th</sup> March 2020 that affected the entire 1.3 billion populations. The lockdown was placed when the number of confirmed positive cases was approximately 500. The growth rate of pandemic was doubling for every six days. As the end of the first lockdown period approached, state governments and other advisory committees recommended extending the lockdown. But COVID-19 was spread severely. It showed in the table 2.

**Table-2**  
**No. of people Infected by COVID-19 in India**

COVID-19	1 <sup>st</sup> April 2020	1 <sup>st</sup> May 2020	1 <sup>st</sup> June 2020	1 <sup>st</sup> July 2020	22 <sup>nd</sup> July 2020
No. of New Cases	437	1755	8392	18653	37724
Death	6	77	230	507	648

Sources: Corona.mygovt.in

Table 2 described that Number of people infected by Coronavirus in India from the starting on 1<sup>st</sup> April 2020 to now on 22<sup>nd</sup> July. On 1<sup>st</sup> April 2020 number of new cases recorded was 437, on that day number of people died was 6. On 1<sup>st</sup> May new cases recorded was 1755 and death was 77. New cases and death were increased day by day. Indian Government reported that the overall Tally in India rose to 12,38,635 after over 45,000 fresh cases were registered within a span of 24

hours. The death toll also increased from 28,732 to 29,861.

Impact of Covid-19 lockdown has not decrease the spreading of disease. Moreover it increases enormously and threatens the people in negative way of approach. In India, the Government had announced nationwide lockdown, due to this lockdown all educational institutions had closed from the end of March 2020. The UNESCO estimates that about 32 crores students are affected in India, including those in schools and colleges. Our system of education is based on curriculum with classroom based teaching learning process. It was totally collapsed and students are affected more and stress on their educational part of life.

## E-LEARNING SYSTEM OF EDUCATION

E-learning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom and it refers to a course, program or degree delivered completely online. Professor is teaching or communicating and also interactive with teachers, professors or other students in that class.

Each and every one of the world uses technology for their everyday lives. Whatsapp, telegram app are widely used to share and chat the communications though mobile phone. These education apps allow students to develop the learning process and to have access to invaluable resources and learning materials on laptops and mobile devices. Online classes and online courses are carried out with the help of following apps:

**Zoom** - It is a powerful cloud video conferencing platform that allows person to host “meetings” with hundreds of participants. Using zoom, educators can share lesson plans, give instruction, swap files with students and communicate

directly with the group of individuals via chat, all within the app.

**Cisco Webex** - Webex is a videoconferencing app that was acquired by Cisco in 2007. It is used mainly for business application and continuous to focus on service companies. For current emergency, it has used in educational purposes and widened the features like minimum 50 to 100 participants with time limit extended to 40 minutes on meetings and added call-in abilities.

**Google Meet** - Google Meet is available for those who have Google accounts, it is used to video chat with colleagues, friends and family. Now-a-days it is used for academic activities to conduct meetings, conferences, educate the students within simple process of online mode. It has a number of security features like admit to allow or deny entry within 40 minutes of time for upto 100 participants.

**Google Classroom** - This app, teacher share code with the class and the students can join by entering the codes. By using this app, student can complete the given homework and submit the assignments to the teacher. Teachers also have to review and grade them at the earliest. Many educational institutions are utilized this App for sending announcements, creating classes, starting discussions, submitting and grading assignments, asking for remarks and answers, sharing resources, and so on.

**edX** - This app is helpful to study the courses of top universities like Harvard, MIT, Columbia, etc. Students can learn desired courses from this app. There are more than 2000 courses of top universities in edX such as computer science, business studies, linguistics, engineering, and many more. They get the professional certificates and university credit from these courses that always valuable for building a professional career.

**Khan Academy** - Khan Academy invariably is one of the best free educational apps for students to provide a free and world-class education for all curious minds across the globe. It has a unique way to drive knowledge into student's brains. All lessons are in forms of video tutorials. Videos display a recording of drawings on a virtual blackboard (like a teacher giving a lecture). And the narrator describes each lesson through these drawings.

**Udemy** - Udemy is one of the best learning apps for students with more than 130,000 video tutorials includes machine leaning, artificial intelligence and block chain for courses ranging from technology and business to personal development lessons like drawing, writing, yoga, and photoshop.

Mobile apps along with new and advanced learning management software are changing the educational landscape. All students including medical, professional, arts and science are learning the courses through online platforms.

### **IMPACT ON COVID-19 LOCKDOWN ON THE STATUS OF COLLEGE STUDENTS**

Lockdown has made significant disruption in academic activities of college students in India. New technologies adopted by this time are not aware by the rural students. Student's attendance in online classes slows down. Total number of universities and colleges are initiated the students to learn through online classes.

**Table 3**  
**Registered Number of Institutions in India**

	University	Colleges	Stand-alone Institutions
<b>Listed for AISHE 2018-19</b>	993	39931	10725
<b>Actual Response in AISHE 2018-19</b>	944 (95.1%)	36308 (91%)	8354 (77.9%)
<b>Total No. of Institutions after pooling data from AISHE 2016-17 to 2017-2018</b>	962 (96.9%)	38179 (95.6%)	9190 (85.7%)

Sources: AISHE Reprt-2019

According to All India Survey on Higher Education report, there are 944 Universities, 36,308 Colleges and 8,354 Stand-alone Institutions are running for educational services. All are closed the classroom based education and started the process of teaching and learning through online. (Table 3)

Universities created e-portal websites to offer the e-content of syllabus to students. College students are aware of e-portal system but they are not showing much interest to learn. Enrolment of UG and PG students in Academic and Professional course are listed in Table 4.

**Table 4**  
**Enrolment in Professional Courses**

Level	Management	Academic			Professional		
		Male	Female	Total	Male	Female	Total
Under Graduate	Government	5037807	5052191	10089998	919826	622714	1542540
	Government Aided	2060256	2457462	4517718	4517718	311328	568322
	Private	3052963	3270098	6323061	3289051	2266061	5555112
Post Graduate	Government	707275	1052210	1759485	235279	182373	417652
	Government Aided	150219	307244	457463	33972	35442	69414
	Private	191451	330483	521934	415506	333832	749338

Sources: Report on AISHE (2018-19), Ministry of HRD, New Delhi.

Ministry of HRD reported that the students enrolment in Professional Courses in India. Female students are enrolled more in Academic education but

in the case of Professional education male students are enrolled than female (Table 4).

**Table-5**  
**Population in India**

State	Rural	Urban	Total Population	%
<b>Uttar Pradesh</b>	15,53,17,278 (77.73%)	4,44,95,063 (22.27%)	19,98,12,341	16.51%
<b>Maharastra</b>	6,15,56,074 (54.78%)	5,08,18,259 (45.22%)	11,23,74,333	9.28%
<b>Tamil Nadu</b>	3,72,29,590 (51.6%)	3,49,17,440 (48.4%)	7,21,47,030	5.96%
<b>Other States and Union Territories</b>	57,93,60,506 (70.12%)	24,68,75,363 (29.88%)	82,62,35,869	68.25
<b>India</b>	<b>83,34,63,448</b>	<b>37,71,06,125</b>	<b>1,21,05,69,573</b>	<b>100%</b>

*Sources: Population census Report 2011, Planning Commission of India*

Table 5 showed the population census report. In India Rural population is more than urban population. The status of college students in rural area is that they are not much involved in their academic activities. They are mainly affected by lack of internet facilities, lack of personal mobile phone, financial status of family, unemployment of family members and lack of interest to continue their study due to poverty. Many students are undergone by doing small income earning works like vegetable, greens, retail groceries selling etc.

College students in urban area are continuing their education through online mode. They attended online courses, seminars, quiz to equip themselves. They are also affected by financial issues in the family and unemployment in family members and also suffering from fear, stress and anxiety by the present unfavorable situation and poor economic condition.

The present status of them is psychologically affected, their mindset feared about the problems of disease, quarantine, unemployment, job insecurity, examination, evaluation pattern and uncertainty. They are financially affected

and afraid of present economic condition, poverty and cost of living.

Some students are taking risk and working as micro entrepreneur like vegetable seller, retailer, selling of essentials, etc. Some are developing their personal skill like learning tailoring, soft and hardware in computer, data entry operator, to do the online courses etc.

#### **SUGGESTIONS**

- The government should take steps to develop the online education for rural students in this pandemic period and quality of education.
- For development of online education, it should provide uninterrupted electricity and internet services.
- It should offer the financial aid like subsidies and loan to economically backward people to overcome from the fear and stress.
- It should declare the examination system, evaluation pattern and date of reopening of colleges.
- It should support the Higher Education Institutions to engage the students in both rural and urban by way of using advanced technology.



- It should motivate the learners by way of joy security and job opportunities.
- It should provide the online platform to enrich the knowledge, to progress the quality of education and to create interest to learn among the students. It should maintain regularity of teaching learning process by recording each and every class.
- It should initiate the process of earning by learning. Earnings help the students to carry on the higher education.

### CONCLUSION

The Covid-19 lockdown has not decrease the range of spreading the disease but it increases the rate of infection among the people. The COVID-19 pandemic has exhibited inequalities in education systems in India. In this situation online education is carried out smoothly by teachers but college students are not showing much interest to learn. They are fear about Covid-19, lockdown and stress on their entire part of life. The government should raise the confidence in younger generation and to reduce the psychological stress by way of sureness of employment opportunities, skill development program and Personal development program. Then only they can concentrate on their education. It should offer loans and financial aid to decrease the dropouts of college students. Students should realize that online learning has lot of potentials, which create self-learning and to raise satisfaction of insight thirst of learning. In this situation also college students should acquire the knowledge, skills and competencies to rise the economic condition of family and our country.

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## **JOB SATISFACTION & SENSE OF COHERENCE AMONG COLLEGE TEACHERS DURING COVID-19 PANDEMIC**

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### *Abstract*

*The study attempts to investigate the social impact of COVID-19 through the relationship between job satisfaction and sense of coherence among the teachers of different colleges during the pandemic situations. For a just appraisal of the topic, two separate questionnaires were prepared to collect data on Job Satisfaction and Sense of Coherence respectively, on the basis of Likert's 5 point scale and administered through an online survey. Data were collected from 164 teachers with purposive sampling technique and analysed with the help of descriptive and inferential statistics. The results indicate that there exists significant difference between Govt. Employee & Private/ Contractual Employee in their Sense of Coherence level during COVID time and there exists slight, almost negligible relationship between Job Satisfaction and Sense of Coherence among college teachers.*

**Keywords:** Job Satisfaction, Sense of coherence, College teachers, COVID-19, Pandemic.

### **Introduction**

India is passing through the crisis along with the world. She is now standing at the crossroad of history and the course of future has to be determined by our very own actions and the thought processes involved. Due to COVID-19 and several other accompanying measures, we have to experience LOCKDOWN that ultimately makes ourselves just like the sailor in Coleridge's poem who stuck 'in a painted ship/ Upon a painted ocean'.

Like every other aspects of people's life, be it economic or social or environmental, the teaching-learning process is also affected due to this global pandemic crisis. As the part and parcel of the education system, teachers are also affected by both the direct and indirect measures of the crisis as they are the pivot based on which the whole education system revolves round. The system itself is stuck and again the societal demand from the teaching community grows high

to continue the teaching-learning process and to show some future directions, meeting the changing demands of time. Thus, the study wants to make an attempt to revisit the idea that cognitive science stands in need of trendy empirical support for a proper evaluation of existing job related psychological paradigms during the lockdown periods. Secondly, it also advocates a realistic appraisal that is not only plausible, rather to say feasible, but constitutes deep-rooted forms of human well-being and mental health so far as the college teachers are concerned. This process should be examined in terms of the job experience and cognitive realities that inform today's societal pattern through a wide survey. That is why, the study wishes to examine the social impact of COVID-19 through the relationship study between job satisfaction and sense of coherence among the teachers of different colleges. A just appraisal of prevalent digital culture, the marker of modern trend is also appreciated in this case.

The job satisfaction of employees is determined by the presence of pleasure, related to job and absence of related dissatisfactions (Kapoor, 2018). The duty of a teacher is, in actuality, to enable the students to think rationally and deal effectively with his/her environment and also to inculcate values that are in terms with the societal platforms. But at the same time the issue of job satisfaction is also important enough so far as the service of teaching itself is concerned. We have a handful of psychological theories, supporting the idea of job satisfaction, i.e., Maslow's theory, The ERG Theory - Clayton Alderfer (1969) Herzberg's Two Factor Theory, Expectancy Theory by Edward C. Tolman (1930), Goal Setting Theory (Goal Setting Theory is developed by Locke and Latham), are there to name a few.

The concept of sense of coherence (SOC) was put forward by Aaron Antonovsky in 1979 to explain why some

people become ill under stress and others stay healthy. It arose from the salutogenic approach, that is, the search for the origins of health rather than the causes of disease. The SOC gained widespread attention and has since been linked to health outcomes in many studies. Collingwood (2020) defines sense of coherence as: "The extent to which one has a pervasive, enduring though dynamic, feeling of confidence that one's environment is predictable and that things will work out as well as can reasonably be expected." In other words, it's a mixture of optimism and control. It has three definite components – comprehensibility, manageability, and meaningfulness.

There are several different works on job satisfaction on different levels of teaching community till date. Among them, [both](#) Raisani (1988) and Demato (2001), Ali et al, (2004) and Nisamudheen (2013) found that females were more satisfied than males in terms of Job satisfaction. Tomar & Capri (2019) opined that teachers from urban areas are better satisfied in comparison to rural areas. On comparing the job satisfaction level between private and government school teachers, it was found that there is no significant difference in their level of satisfaction irrespective of gender. (Knigma et al., 2018). Satos (2002) found that teacher's age, gender and teaching experience do influence job satisfaction. George et. al. (2008) pointed out that teacher's job satisfaction is influenced by experience, demographic variables, personality, physical, psycho-social, economic and emotional factors.

So far as the sense of coherence is concerned, Chu et. al. (2016) stated that Sense of coherence is positively associated with academic performances and shaping of stress responses towards the effective coping style is associated with a strong sense of coherence. According to Bracha & Hoffenbartl (2015), it is a personal internal component that is helpful in dealing with difficult

situations and crisis in teaching. Olivia et al. (2019) opined that teaching Performances is associated with sense of coherence.

### Objectives

- **O<sub>1</sub>** : To compare the Job Satisfaction level of college teachers during lock down period under different categorical variables like, Gender (Female & Male), Habitat (Rural, Urban & Suburban), nature of Appointment (Govt. Employee & Private Employee).
- **O<sub>2</sub>** : To compare the Sense of Coherence level of college teachers during lock down period under different categorical variables viz., Gender (Female & Male), Habitat (Rural, Urban & Suburban), nature of Appointment (Govt. Employee & Private Employee).
- **O<sub>3</sub>** : To compare the relationship between Job Satisfaction and Sense of Coherence among college teachers.

### Hypotheses

**H<sub>01</sub>**: There would be no significant difference between female and male college teachers in their Job Satisfaction level.

**H<sub>02</sub>**: There would be no significant difference between college teachers based on their habitat (rural, urban and suburban) in their Job Satisfaction level.

**H<sub>03</sub>**: There would be no significant difference between college teachers based on their nature of appointment ( Govt. Employee & Private Employee) in their Job Satisfaction level.

**H<sub>04</sub>**: There would be no significant difference between female and male college teachers in their Sense of Coherence level.

**H<sub>05</sub>**: There would be no significant difference between college teachers based on their habitat (rural, urban and suburban) in their Sense of Coherence level.

**H<sub>06</sub>**: There would be no significant difference between college teachers based on their nature of appointment ( Govt. Employee & Private Employee) in their Sense of Coherence level.

**H<sub>07</sub>**: There would be no significant relationship between Job Satisfaction and Sense of Coherence among college teachers.

### Methodology:

#### Population & Sample

The population of the study was the college-level teachers across the state. Teachers who are teaching at the undergraduate levels, are the main focus of the study.

In the present case, the researchers have selected 164 responses of college teachers of undergraduate level from the state of West Bengal through snowball sampling technique.

#### Variables

##### Major Variables:

1. Job Satisfaction
2. Sense of Coherence

##### Categorical Variables:

1. Gender (Female & Male)
2. Habitat (rural, urban and suburban)
3. Nature of appointment ( Govt. Employee & Private Employee)

#### Development of Tools

Two different tools have been used for the present study—

1. Job Satisfaction Scale
2. Sense of Coherence Scale

#### Job Satisfaction Scale:

For the measurement of Job Satisfaction of college teachers, the researchers prepare a self-reporting questionnaire with 15 items based on five point Likert-type scale (strongly agree, agree, neutral, disagree, strongly disagree). After testing the reliability through Cronbach's alpha five items were deleted for weak correlation. The final version of the scale has 10 items with Cronbach's alpha of 0.693.

#### Sense of Coherence Scale:

For the measurement of Sense of Coherence of college teachers, the researchers prepare a self-reporting questionnaire based on five point Likert-type scale (strongly agree, agree, neutral, disagree, strongly disagree). Initial items



of the scale were eight. After testing the reliability through Cronbach's alpha one item was deleted for weak correlation. The final version of the scale has 7 items with Cronbach's alpha of 0.658.

#### Data Collection:

Both the questionnaires were administered through online survey on Google Form format. Data were collected from college teachers of undergraduate level of different parts of West Bengal.

#### Interpretation of Results:

**H<sub>01</sub>: There would be no significant difference between female and male college teachers in their Job Satisfaction level.**

Table 1

Scale	Sex	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig.(2tailed)
Job Satisfaction	Female	72	36.39	4.743	.559	162	1.919	0.057*
	Male	92	37.90	5.212	.543			

(\*not significant at 0.05 level of significance)

Table 1 shows that t-value is 1.919 calculated for female and male college teachers for the case of their Job Satisfaction level with df 162 and p value 0.057 ( $p > 0.05$ ), hence H<sub>01</sub> is not rejected

here. Thus it can be said that there exists no significant difference between female and male college teachers in their Job Satisfaction level.

Table 2

**H<sub>02</sub>: There would be no significant difference between college teachers based on their habitat (rural, urban and suburban) in their Job Satisfaction level.**

Scale	Habitat	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig.(2tailed)
Job Satisfaction	Urban	77	37.14	5.668	.646	119	.620	.536*
	Suburban	44	36.55	3.885	.586			
	Suburban	44	36.55	3.885	.586	85	1.655	.102*
	Rural	43	38.12	4.919	.750			
	Urban	77	37.14	5.668	.646	118	.945	.347*

(\*not significant at 0.05 level of significance)

Table 2 shows that the calculated t-values of Urban-Suburban, Suburban-Rural and Urban-Rural are .620, 1.655 and .945. The corresponding p values are .536, .102 and .347 ( $p > 0.05$ ). Hence t-values are not significant at 0.05 level. So H<sub>02</sub> is not

rejected and it can be said that there exist no significant differences between college teachers based on their habitat (rural, urban and suburban) in their Job Satisfaction level.

Table 3

**H<sub>03</sub>: There would be no significant difference between college teachers based on their nature of appointment ( Govt. Employee & Private Employee) in their Job Satisfaction level.**

Scale	Nature of Employment	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig. (2tailed)
Job Satisfaction	Govt. Employee	89	37.19	4.395	.466	162	.129	.898*
	Private/ Contractual Employee	75	37.29	5.768	.666			

(\*not significant at 0.05 level of significance)

Table 3 shows that t-value is .129 calculated for Govt. Employee & Private/ Contractual Employee college teachers for the case of their Job Satisfaction level with df 162 and p value 0.898 ( $p > 0.05$ ), hence H<sub>03</sub> is not rejected here. Thus it

can be said that there exists no significant difference between Govt. Employee & Private/ Contractual Employee college teachers in their Job Satisfaction level during COVID time.

Table 4

**H<sub>04</sub>: There would be no significant difference between female and male college teachers in their Sense of Coherence level.**

Scale	Sex	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig. (2tailed)
Sense of Coherence	Female	72	21.04	3.773	.445	162	1.422	.157*
	Male	92	21.93	4.153	.433			

(\*not significant at 0.05 level of significance)

Table 4 shows that t-value is 1.422 calculated for female and male college teachers for the case of their Sense of Coherence level with df 162 and p value 0.157 ( $p > 0.05$ ), hence H<sub>04</sub> is not rejected here. Thus it can be said that there exists

no significant difference between female and male college teachers in their Sense of Coherence level.

Table 5

**H<sub>0</sub>5: There would be no significant difference between college teachers based on their habitat (rural, urban and suburban) in their Sense of Coherence level.**

Scale	Habitat	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig.(2tailed)
Sense of Coherence	Urban	77	21.58	3.718	.424	119	.516	.607*
	Suburban	44	21.23	3.562	.537			
	Suburban	44	21.23	3.562	.537	85	.614	.541*
	Rural	43	21.79	4.902	.748			
	Urban	77	21.58	3.718	.424	118	.259	.796*
	Rural	43	21.79	4.902	.748			

(\*not significant at 0.05 level of significance)

Table 5 shows that the calculated t-values of Urban-Suburban, Suburban-Rural and Urban-Rural are .516, .614, and .259. The corresponding p values are .607, .541 and .796 ( $p > 0.05$ ). Hence t-values are not significant at 0.05 level. So H<sub>0</sub>5 is

not rejected and it can be said that there exist no significant differences between college teachers based on their habitat (rural, urban and suburban) in their Sense of Coherence levels.

Table 6

**H<sub>0</sub> 6: There would be no significant difference between college teachers based on their nature of appointment ( Govt. Employee & Private Employee) in their Sense of Coherence level.**

Scale	Nature of Employment	N	Mean	Std. Deviation	Std. Error of Mean	Degrees of Freedom (df)	t-value	Sig.(2tailed)
Sense of Coherence	Govt. Employee	89	20.93	3.667	.389	162	2.149	.033**
	Private/ Contractual Employee	75	22.27	4.282	.494			

(\*\*significant at 0.05 level of significance)

Table 6 shows that t-value is 2.149 calculated for Govt. Employee & Private/ Contractual Employee college teachers for the case of their Sense of Coherence levels with df 162 and p value 0.033 ( $p < 0.05$ ), hence H<sub>0</sub> 6 is rejected here. Thus it can be said that there exists

significant difference between Govt. Employee & Private/ Contractual Employee college teachers in their Sense of Coherence level during COVID time.

Table 7

**H<sub>0</sub> 7: There would be no significant relationship between Job Satisfaction and Sense of Coherence among college teachers.**

		<b>Job Satisfaction</b>	<b>Sense of Coherence</b>
Job Satisfaction	Pearson Correlation	1	.029***
	Sig. (2tailed)		.715
	N	164	164
Sense of Coherence	Pearson Correlation	.029***	1
	Sig. (2tailed)	.715	
	N	164	164

(\*\*\* not significant at 0.05 level of significance)

From Table 7 it is seen that the Pearson's Coefficient Correlation(r) calculated for Job Satisfaction and Sense of Coherence among college teachers is 0.029 and p value is 0.715. Higher p value indicates that H<sub>0</sub>7 is accepted. But the r value shows slight, almost negligible relationship between Job Satisfaction and Sense of Coherence among college teachers.

### Conclusions:

The obtained data shows no significant difference exists between female and male college teachers in their Job Satisfaction level during COVID time. Regarding Job satisfaction level, no significant differences can be found in terms of sex (male-female), habitat(rural, urban, suburban) and nature of appointment (govt. and private/contractual employee). Although no significant differences can be found regarding Sense of Coherence in terms of sex (male-female) and habitat(rural, urban, suburban) but in terms of nature of appointment (govt. and private/contractual employee) significant difference exists. Govt. Employees show more sense of coherence than the private/contractual employees.

It is important to mention that in case of job satisfaction, there are other factors as well, like promotion

opportunity, salary, freedom in workplace, training opportunity etc. (KNigama et .al. ,2018). The items of both the questionnaires are limited. This study is on limited background variables (e.g. gender, Nature of appointment and habitat). A large number of potentially interesting moderators of the relationship between SOC and JS were not examined in this study, including job conditions (e.g. workload, autonomy, salary and type of job), personality variables (e.g. conscientiousness, agreeableness and emotional stability).These variables could be the focus of further studies.

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## CHALLENGES FACED BY PROFESSORS IN ONLINE TEACHING DURING COVID-19 PANDEMIC WITH SPECIAL REFERENCE TO MADURAI DISTRICT OF TAMILNADU

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Madurai

### *Abstract*

*The COVID-19 pandemic forces educational institutions in and around the country, to make its courses available online. The pandemic is making it less possible for professors to physically be available in classrooms. With each level of education, facing its own challenges in the midst of the pandemic more importance has to be given to the higher level of education. Both students and professors are expected to be technology-savvy for the education process to be successful. The study is conducted with an aim to identify the challenges faced by professors in assessing the academic performance of the students. The primary data is collected using questionnaire from commerce professors of different colleges in Madurai District of Tamilnadu. Secondary data from various sources have been reviewed and conclusions are drawn based on the analysis of previous studies. Percentage analysis, Factor Analysis and Likert's scaling technique is used to analyse data*

**Keywords:** COVID-19, pandemic, online teaching, screen time, eye strain, connectivity issues, virtual classrooms.

### **Introduction**

The COVID-19 pandemic situation has rendered the educational institutions closed mandatorily by the government. Online teaching has become the solution to various educational institutions offering continuity and access

to quality education during this pandemic. With the rise of online teaching, activities like teaching, learning, acquisition of study material, sharing of resources and evaluation of academic performance are carried out remotely on digital platforms. Though various teaching methodologies

are followed by professors in communicating concepts to students through online mode, they also face certain challenges. The researcher aims to identify the factors influencing the quality of online teaching during this pandemic and analyse the challenges faced by professors in online teaching during this pandemic.

#### STATEMENT OF THE PROBLEM

Professors and teachers have begun adapting themselves to an almost universal distance education as nearly 94 per cent of students have faced school and college closures. Many educational institutions have embraced this challenge, although in many developing countries professors and teachers lack the skills and equipment to provide distance education effectively. There is an immediate need for the education sector, to adapt and evolve technologically to cater to the needs of students during this COVID-19 pandemic. (ILO 2020)<sup>1</sup>. With every level of education, facing its own unique challenges, more emphasis is to be given to the higher education systems which are responsible for the major educational revolution in online teaching during this pandemic<sup>2</sup>. Hence, the researcher aims to ascertain the circumstances and challenges undergone by professors while imparting education through online teaching.

#### REVIEW OF LITERATURE

**Azzi-Huck & Shmis (2020)** in their study state that, all stakeholders, institutions, teachers, publishers, and parents have joined hands together to create digital resources like textbooks and learning materials, so that they could be delivered through virtual classrooms<sup>3</sup>.

**Pudasaini (2020)** in her study acknowledges “four categories of special needs learners that revolve around parental literacy levels, atypical living situations, physical/mental abilities and learning needs.” This requires, a comprehensive framework to address each type of students is needed<sup>4</sup>.

**Mohamedbhai (2020)** in his study points out that it is a fallacy to believe that online learning can be effective by merely posting a lecturer’s notes online or having a video recording of the lecture. Yet, this is what is generally happening at present during the pandemic. Online learning requires that the teaching material is prepared by a professional instructional designer, that the lecturer is pedagogically trained for delivering the programme and the students are equally exposed to the pedagogy of online learning. The unprepared online delivery will have an impact on the quality of the educational programmes<sup>5</sup>.

#### OBJECTIVES OF THE STUDY

1. To ascertain the socio-economic profile of the respondents.
2. To analyse the factors influencing the quality of online teaching during this pandemic.
3. To identify the challenges faced by professors in online teaching during COVID-19 pandemic in Madurai district of Tamilnadu.
4. To offer findings, suggestions and conclusion to the study.

#### METHODOLOGY

The researcher aims to ascertain the quality of online teaching and the challenges faced by professors in online teaching during this COVID -19 pandemic. The study is conducted among the Commerce Professors of various colleges in Madurai district. The sample size of the study is 60. Purposive sampling technique is used in the study. Quantitative data was collected from professors using questionnaire. Since the study has its own predetermined objectives and methodology, it is both descriptive and analytical in nature. The data were analyzed using the Statistical Package for the Social Science (SPSS). The statistical tools used for the analysis of data in this study are inferential statistics, Factor analysis and Likert’s Scaling technique.

**DATA ANALYSIS****Socio-economic profile of the respondents**

Socio-economic variables such as age,

gender, educational qualification, income, and marital status indicate the socio-economic profile of the respondents.

**Table 1**  
**Socio-economic profile of the respondents**

Variables	Characteristics	Respondents (In Percentage)
Age	20-30 years	43.33
	30-40 years	30
	40-50 years	21.67
	Above 50 years	5
Gender	Male	35
	Female	65
Educational Qualification	Master's Degree	23
	M. Phil	33.33
	Doctorate	41.67
	Others	2
Monthly Income	₹10,000-20,000	53.33
	₹20,000-30,000	16.67
	₹30,000-40,000	8.33
	Above ₹40,000	21.67
Marital Status	Married	61.67
	Unmarried	38.33

Source: Primary data

Table 1 shows the socio-economic profile of the respondents which reveals that 43.33% of the respondents are between the age group 20-30 years of age. 41.67% of the respondents have

completed their Doctorate. More than half of the respondents earn a monthly income of below ₹ 10,000 – ₹20,000 (53.33%) are females (65%) and are married (61.67%).

**Table 2**  
**Mode preferred by professors for online teaching**

S. No	Modes of Online Teaching	No. of respondents	Respondents (In Percentage)
1	Google Meet	37	61.68
2	Microsoft Team	8	13.33
3	WebEx	2	3.33
4	Zoom	11	18.33
5	Others	2	3.33
	<b>Total</b>	<b>60</b>	<b>100</b>

Table 2 shows the various modes of online teaching preferred by professors for online teaching. The table reveals that Google meet (61.68%) is the most

preferred mode of online teaching followed by Zoom (18.33%), Microsoft team (13.33%), WebEx (3.33%) and other modes (3.33%).

**Table 3**

**Ranking of the Challenges faced in online teaching using Likert's scaling Technique**

Challenges	*Total Score	**Mean Score	Rank
More screen time causes head ache and eye strain	268	4.666	I
Internet connectivity issues	265	4.416	II
Creativity of the physical classroom is lacking in online teaching	259	4.316	III
Individual care for every student is not possible	258	4.300	IV
Long hours with technology causes stress, fatigue and mental exhaustion	255	4.250	V
Student Counselling done online is not very effective	252	4.200	VI
Follow up on Academic and co-curricular activities of students is difficult	249	4.150	VII
Cost of data for online classes	248	4.130	VIII
Student misbehavior in online classes	239	3.980	IX
There is discomfort and I feel lost while adapting to technology in online teaching	211	3.520	X

\*Total Score = (SA× 5) + (A ×4) + (NO×3) + (DA×2) + (SDA×1)

\*\*Total Score /No. of respondents

Source: Primary data

Table 2 indicates the ranking of the challenges faced in online teaching using Likert's scaling technique. 'More screen time causes head ache and eye strain' was reported to be a major challenge in online teaching and thus it ranked first with the mean score of 4.666 followed by 'Internet connectivity issues' which ranked second with the mean score of 4.416 and 'Creativity of the physical classroom is lacking in online teaching' ranked third with a mean score of 4.316. 'Individual care for every student is not possible' with the mean score of 4.300 and 'Long hours with technology causes stress, fatigue and mental exhaustion' with the mean score of 4.250 got the fourth and fifth ranks respectively. 'Student Counselling done online is not very

effective' with the mean score of 4.200 ranked sixth. The challenges like 'Cost of data for online classes' with the mean score of 4.130 and 'Student misbehavior in online classes' with the mean score of 3.980 have less impact on online teaching during this pandemic thus got the seventh and eighth ranks respectively. 'There is discomfort and I feel lost while adapting to technology in online teaching' with the mean score of 3.520 got the last rank.

**KMO and Bartlett's Test**

The Kaiser-Meyer-Olkin is a measure of sampling adequacy. The results of KMO and Bartlett's test is given in Table 3

**Table 3**  
**Factors influencing the quality of online teaching - KMO and Bartlett's test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.795
Bartlett's Test of Sphericity	Approx. Chi-square	436.897
	Df	120
	Sig.	.000

Source: Primary data

From table 3 it is clear that the KMO value of .795 (>0.5) was found to be acceptable, the Bartlett's test of Sphericity yields a high Chi-square value of 436.897, and a significance level of 0.000 which is also under the acceptable

limit of 0.05. Thus, both the tests used have verified that the data are appropriate for performing factor analysis.

**Principal Component Method of Extraction**

The factor extraction process helps to identify how many factors can be extracted from the data. The rotation sums of squared loadings shown in the table represent the distribution of the variance after the varimax rotation. The first factor accounts for the most variance and hence has the highest Eigen values. The percentage of variance represents the percent of total variance accounted by each factor and the cumulative percentage gives the cumulative percentage of variance accounted by the present and the preceding factors. The factors influencing the quality of online teaching were analysed in table through factor analysis using 16 variables, which were reduced to 4 underlying factors.

**Table 3.1**  
**Initial Eigen Values and Variance Table**

Component	Total Variance Explained								
	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.440	40.250	40.250	6.440	40.250	40.250	3.811	23.817	23.817
2	1.479	9.246	49.496	1.479	9.246	49.496	2.543	15.891	39.708
3	1.308	8.174	57.670	1.308	8.174	57.670	2.376	14.852	54.561
4	1.147	7.171	64.841	1.147	7.171	64.841	1.645	10.280	64.841
5	.895	5.596	70.436						
6	.847	5.292	75.728						
7	.728	4.552	80.280						
8	.610	3.815	84.095						
9	.516	3.222	87.317						
10	.454	2.835	90.152						
11	.403	2.517	92.669						
12	.325	2.031	94.700						
13	.278	1.740	96.441						
14	.250	1.565	98.005						
15	.183	1.142	99.147						
16	.136	.853	100.000						

Extraction Method: Principal Component Analysis.

Source: Primary data

Table 3.1 shows the total variance explained listing the Eigen values associated with each component before

extraction, after extraction and after rotation. In using Kaiser's criterion, the component Eigen value should be 1 or



more in the total variance. In this study, only the first four components recorded Eigen values above 1. These four components explain a total of 64.841 percent of variance.

### Varimax rotation method with Kaiser's Normalization

The varimax rotation maximizes the loading of each variable on one of the extracted factors while minimizing the loading on all other factors.

Table 3.2

### Summary of Exploratory Factor Analysis Results (N = 60)

Rotated Component Matrix <sup>a</sup>				
Variables	Component			
	1	2	3	4
Norms and values of the organization are maintained in online teaching	<b>.783</b>	.161	.177	.184
The level of commitment of professors in online teaching creates interest among the students	<b>.723</b>	.070	.299	.206
Students can be motivated to contribute their ideas and Independent learning can be encouraged	<b>.718</b>	.144	.188	.084
Collaboration among professors has improved in online teaching	<b>.704</b>	.242	.126	-.016
Healthy interaction and discussion are possible in online teaching	<b>.654</b>	.392	-.062	.044
Student's with different learning capabilities will be benefited through online teaching	<b>.625</b>	-.033	.334	.442
Different teaching methodology can be adopted for different subjects	<b>.622</b>	.316	.223	-.252
Resource sharing becomes easy among professors	.193	<b>.726</b>	.187	.048
The role played by internet connectivity during the pandemic is vital in online teaching	.247	<b>.724</b>	.193	.025
Study material can be shared over different online platforms with ease	.177	<b>.719</b>	.343	.217
Assessing and Monitoring Student Attendance in online classes can be done with high accuracy	.094	.257	<b>.717</b>	-.182
Quality teaching and learning materials can be curated	.179	.499	<b>.671</b>	.134
Student's level of understanding of the topics taught can be ascertained	.364	.082	<b>.648</b>	.235
Student Assignments can be collected with ease and on time	.345	.138	<b>.643</b>	.350
Distance learning reinforces teaching and learning approaches that we know do not work very well	.051	.091	.177	<b>.834</b>
Video-conferencing apps like Zoom and WebEx are becoming the lifeline of online teaching	.181	.510	-.140	<b>.571</b>
Extraction Method: Principal Component Analysis.				
Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 13 iterations.				

Source: Primary data

Table 3.2 represents the rotated component matrix. The variables 'Norms and values of the organization are maintained in online teaching', 'The level of commitment of professors in online teaching creates interest among the students', 'Students can be motivated to contribute their ideas and Independent

learning can be encouraged' 'Collaboration among professors has improved in online teaching' 'Healthy interaction and discussion are possible in online teaching' 'Student's with different learning capabilities will be benefited through online teaching' and 'Different teaching methodology can be adopted for

different subjects' have a high loading of .783, .723, .718, .704, .654, .625 and .622 respectively on factor I representation. Thus, factor I is named as "Academic Progress". On factor II, it is evident that the variables 'Resource sharing becomes easy among professors', 'The role played by internet connectivity during the pandemic is vital in online teaching' and 'Study material can be shared over different online platforms with ease' are loaded as .726, .724 and .719. So, factor II can be named as "Connectivity". On factor III, the variables 'Assessing and Monitoring Student Attendance in online classes can be done with high accuracy', 'Quality teaching and learning materials can be curated', 'Student's level of understanding of the topics taught can be

ascertained' and 'Student Assignments can be collected with ease and on time' have loadings of .717, .671, .648 and .643 respectively, therefore factor III is named as "Follow up". The factor IV consists of variables like 'Distance learning reinforces teaching and learning approaches that we know do not work very well' and 'Video-conferencing apps like Zoom and WebEx are becoming the lifeline of online teaching' having factor loadings of .834 and .571 and this factor is named as "Communication".

#### Factors derived from Factor variables:

The factors identified with variables that influence the quality of online education are presented in table.

**Table 3.3**  
**Factors derived from factor variables**

Factors	Variables
Factor I Academic Progress	Variable 13: Norms and values of the organization are maintained in online teaching Variable 15: The level of commitment of professors in online teaching creates interest among the students Variable 16: Students can be motivated to contribute their ideas and Independent learning can be encouraged Variable 6: Collaboration among professors has improved in online teaching Variable 7: Healthy interaction and discussion are possible in online teaching Variable 11: Student's with different learning capabilities will be benefited through online teaching Variable 8: Different teaching methodology can be adopted for different subjects
Factor II Connectivity	Variable 2: Resource sharing becomes easy among professors Variable 12: The role played by internet connectivity during the pandemic is vital in online teaching Variable 10: Study material can be shared over different online platforms with ease

Factor III Follow up	Variable 1: Assessing and Monitoring Student Attendance in online classes can be done with high accuracy Variable 3: Quality teaching and learning materials can be curated Variable 9: Student's level of understanding of the topics taught can be ascertained Variable 14: Student Assignments can be collected with ease and on time
Factor IV Communication	Variable 4: Distance learning reinforces teaching and learning approaches that we know do not work very well Variable 5: Video-conferencing apps like Zoom and WebEx are becoming the lifeline of online teaching

### FINDINGS

- From the foregone analysis, it is found that 43.33% of the respondents are between the age group 20-30 years of age. 41.67% of the respondents have completed their Doctorate. More than half of the respondents earn a monthly income of below ₹ 10,000 – ₹ 20,000 (53.33%) are females (65%) and are married (61.67%).
- Google meet (61.68%) is the most preferred mode of online teaching.
- The results of factor analysis used for identifying the factors influencing the quality of online teaching show that there are four factors that influenced the quality of online teaching – namely Academic Progress, Connectivity, Follow up and Communication.
- The results of the study show that among the various challenges encountered by the respondents, 'More screen time causes head ache and eye strain' with the mean score of 4.666 ranked first followed by 'Internet connectivity issues' with the mean score of 4.416. 'There is discomfort and I feel lost while adapting to technology in online teaching' with the mean score of 3.520 got the last rank.

### SUGGESTIONS

- ❖ Both professors and students can limit their screen time by taking

their time away from technology at regular intervals.

- ❖ The government can provide data at low cost for educational purposes.
- ❖ More emphasis can be made on handling classes in face to face mode during online teaching to ensure the attendance and involvement of students
- ❖ Classes taught online could be recorded for further use in future, saving time and energy of both professors and students.

### CONCLUSION

College professors are expected to keep themselves abreast of the trends in the education sector and be capable of adapting themselves to the various tech-savvy methods of online teaching. Study materials during this pandemic comprises of videos, web links and resources shared over Google classroom, etc. In short, this is the new 'normal' in the education sector post COVID 19. The organisations which adapt to this kind of online education system survive the race where everyone is digitally connected, though socially distanced.

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## OUTBREAK OF COVID19 PANDEMIC – A REVIEW OF ITS SOCIO-ECONOMIC IMPLICATIONS ON INDIA

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### *Abstract*

*December'19 marked the grim outbreak of Covid-19 in the Wuhan City of China. It emerged as a highly contagious respiratory illness caused by the novel coronavirus – SARS-CoV-2. The number of infected cases rose exponentially across the globe causing the World Health Organisation to declare the breakout a pandemic. In spite of taking precautionary measures like securing its international boundaries and restricting mass gatherings, India was not spared of the terror. A nationwide lockdown was announced to contain the spread of the deadly disease. The catastrophic impact of the unprecedented shutdown on the Indian economy and society is unscalable. The sudden halt created panic and confusion \_in the peasant community as it delayed the harvest of the rabi crops. A disruption in logistics and inability to access the market further aggravated the problem as most perishables were getting spoilt in transit. Lower demand, smaller workforce, fewer hours of operation and slower banking processes caused many producers to disengage from active production. Weary of incurring huge losses, industry owners devised survival strategies to remain afloat in the market. The tertiary sector was not spared from the wrath of the virus. The transition of traditional teaching to digital learning created a turmoil in the education sector. The pandemic has devastated the real estate, tourism and hospitality industry. Stringent social distancing norms and a constant trepidation has caused a steep decline in the demand for several services thereby rendering many people unemployed. Social dynamism also has been adversely altered due to the mounting levels of anxiety amongst the citizens. The fear of contagion has drastically reduced social interactions thereby creating a sense of isolation and seclusion amongst individuals. The pandemic has also worsened the gender disparity at work as women are at a greater threat of losing their jobs. Rising cases of self immolation and domestic violence has pulled back the progress of the society by several years. Hence vaccination and immunisation shall definitely aid in wiping out the virus but the Indian economy and society will take years to rebuild again.*

**Keywords:** Covid 19, Corona virus, Pandemic, disease, market, SARS.



## 1. INTRODUCTION

December'19 marked the grim outbreak of Covid-19 in the Wuhan city of China. It emerged as a highly contagious respiratory illness caused by the novel coronavirus, SARS-CoV-2. Insufficient containment measures adopted by China led to an exponential increase in the number of active cases around the globe. The virus successfully engulfed the main countries of America, Europe and Asia within few months of breakout. Consequently, in March'20 the World Health Organisation declared COVID-19 a global pandemic. India reported its first case in January'20 in Kerala. The infected was a student of Wuhan University. In order to protect a population of 1.38 billion from the deadly virus, the Government announced a nationwide lockdown in March'20. International borders were sealed and inter-state movements were restricted. Social distancing was identified as the only measure to curb the spread of the virus. The lockdown brought an unprecedented halt to the lives of the citizens. It resulted in a complete shutdown of business operations, educational institutions and entertainment venues. Limited transactions, disrupted logistics, lower demand and loss of employment jolted the economy of the country. The pandemic also had several adverse social implications. Perpetual uncertainty and anxiety hindered the daily regime and mental health of a commoner. It also led to an increase in cases of domestic violence, child abuse, racism and also intensified the prevailing inequality in the society. Hence the effect of the pandemic on a densely populated, developing country like India is unscalable.

## 2. Economic impact of the pandemic

India is characterised to have a developing market economy. It has an

employment rate of 45.4% wherein the majority is still dependent on agriculture for a living. The share of industries and service sector in creation of jobs and contribution to the GDP was witnessing an upward trend during the breakout of the pandemic. However COVID-19 has brought a major setback in the modest progress of the economy. It's impact is evident across various sectors.

### 2.1. PRIMARY SECTOR

#### 2.1.1 Impact on Agriculture

The primary sector is the backbone of an economy. It generates maximum employment and commences the entire process of economic circulation. In India agricultural activities predominate the primary sector. It not only is a source of livelihood for 58% of the population but also ensures food security to the 1.26 billion people of the country.

Indian farmers constantly battle against irregular monsoons, limited irrigation facilities, poor quality of inputs, interrupted supply chain and unstable prices. Covid-19 further magnified the vulnerability of the peasant community.

The lockdown initiated a phase of confusion and panic especially among the lower income groups. In India, it also coincided with the harvest season of rabi crops. A dearth of labour and equipments hindered the process of harvesting the ripe crops. The shortage of migrant workers and vague social distancing norms led to a steep incline in per day wages. Limited tools and equipments which were earlier borrowed or shared further aggravated the problem. Hence several acres of land were abandoned and the yield of the agricultural sector observed a significant decline.

Absence of proper transportation facilities and disruption in supply chains affected the sale of fruits, vegetables, dairy products and other perishables. Agricultural products that have a short shelf life witnessed a high spoilage rate due to the inoperative markets.

The shutdown of eateries and hotels and the scaling down of social gatherings considerably reduced the demand for agricultural products. The procuring pattern followed by the public also became erratic due to reduced income and narrowed purchasing power. Panic buying further affected the food availability and prices in the country.

Restrictive movements and high prices have made inputs such as fertilizers, seeds and pesticides unaffordable to the small and medium farmers. This shall further affect their produce of kharif crops. Hence the impact of the pandemic on the agricultural sector shall not fade easily and only careful Government intervention can help the farmers to sail through it.

## **2.2. SECONDARY SECTOR**

### **2.2.1 Impact on Manufacturing Industries**

The manufacturing sector is of crucial importance to a nation's success. It paves the path of development by helping a country become self reliant and prosperous. Modernisation, urbanisation and an improved standard of living are results of a flourishing industrial base. In India, manufacturing units play the significant role of an employment generator. Apart from reducing the burden on agriculture it also promotes regional equality.

The ongoing pandemic has adversely affected the Indian manufacturing sector in several ways. Operations have been drastically scaled down due to limited workers and difficulty in procuring raw materials. The lockdown compelled a majority of labour to return to their home towns thereby creating a scarcity of employees. The uncertainties in the logistics disrupted the entire supply chain right from procurement to dispatch. Smaller workforce, fewer hours of operation, slower banking processes, stringent social distancing norms and a constant fear has

lead to a sharp decline in the production capacity of industrial units.

The reduction in transactions and a restricted flow of income in the economy have altered the purchase patterns of a consumer. Procurement of non-essential commodities have been postponed thereby reducing the demand for durable consumer goods. Weary of incurring losses, suppliers have hence disengaged from active production processes.

Deferred payment schedules and longer credit cycles are permitted by producers who are keen on continuing operations in the current uncertain scenario. This has proportionally elevated monetary risks for the industrial sector. As the economy picks up momentum will there be greater clarity on the number of defaulters.

Expansion and growth strategies have been replaced by survival plans as firms fear to reach the shutdown point.

A respite in such chaos is the boycott of Chinese products. Inexpensive and widely available Chinese commodities have since forever flooded the global market. India's policy of self-reliance shall benefit the economy and also boost sales of small local businesses.

## **2.3. TERTIARY SECTOR**

### **2.3.1 Impact on Education Sector**

Covid-19 has drastically altered the educational system of India. Regular classes in schools, colleges and other educational institutions have been at a halt since the third week of March'20. This was done to contain the spread of the novel Corona virus. However, it has had severe repercussions on the students as well as teaching fraternity.

The transition of traditional teaching to digital learning witnessed several obstacles. The new approach to education created an atmosphere of ambiguity. Prevalence of uncertainty in terms of syllabus coverage, class hours, assessments and assignments created

panic in the minds of the young learners. Furthermore, a section of mentors struggled to adopt the new technology and online tools to deliver their lessons. The lockdown also disrupted the board examinations that were being conducted in the country. Students were marked on the basis of a devised algorithm for the subject papers that were cancelled. This not only tampered the results and university admissions but also demotivated the rank holders and top scorers.

The growth of the online pedagogy has intensified the prevailing inequality in the society. Covid19 has put the teaching-learning process to a standstill in many villages of the country. Inclusive and integrated methods of e-learning need to be devised to ensure that the marginalised are not deprived of knowledge.

The unprecedented lockdown left several students stranded in their hostels and dorms. They went through severe hardships to reach back safely to their families. The entire commotion and a persistent fear has made the resumption of regular classes a distant dream.

### **2.3.2 Impact on Hospitality Sector**

A broad segment of the service sector, the hospitality industry is mostly associated with leisure and recreation. In India, it plays a vital role in terms of employment generation and contribution to the nation's income. Covid-19 has pushed the Indian hospitality industry on the verge of a collapse thereby deeply impacting the economy.

The sealing of international borders and restricted movement between states brought about an unprecedented halt to tourism in the country. The impact has been more severe and direct on states like Rajasthan, Goa, Sikkim and Kerala as they depend extensively on tourists for their revenue. Suspension of domestic and

international flights initiated a series of cancellations and amendments of prior bookings. Anxious travellers demanded a full refund of their payments from the airlines and hotels. Several businesses adopted the strategy of downsizing to keep a check on their cost figures. The pandemic thus robbed many travel agents, tour operators, drivers, guides and other service providers of their means of livelihood.

The initial months of 2020 witnessed fewer hotel bookings than the usual as Covid19 had already started creating a havoc in many countries. Policies of 'work from home' and 'no travel' brought business tourism also to a standstill. Hotels struggling to survive with marginal occupancy rates started experimenting with alternate methods of earning revenue. Offering huge discounts for future bookings and delivering gourmet meals helped in financing the requirement of working capital. Moreover, a rise in the number of covid patients transformed several budget and luxury hotels into quarantine centres. However, the inability to withstand the grind and rising credit levels compelled some lodges and inns to permanently shutdown operations.

Restaurants and eateries too faced the wrath of the pandemic. Stringent social distancing norms, restriction on social gatherings and a constant trepidation has jeopardised the financial health of many restaurateurs. To manage liquidity constraints eateries are operating with a smaller workforce and have extended facilities of delivery and takeaways. The decline in restaurant revenue has also had a ripple effect on dairy producers, horticulture farmers, food processors and delivery partners. A persistent analysis of the market, changed strategies and controlled expenses shall help restaurants to remain afloat and operational.

The impact of Covid19 on the hospitality sector shall take several years

to fade away. Policy revisions, careful monitoring and prolonged attempts shall help this industry to bounce back with greater vigour.

### 2.3.3 Impact on Housing and Real Estate

The outbreak of Covid-19 is regarded as a black swan event for the Indian economy. It has created an unforeseen predicament in the real estate sector of the country. Multiple upstream and downstream linkages and umpteen employment opportunities make the real estate industry vital to a nation's success. However, the deadly virus has gripped the reigns of this sector in its clutches.

The lockdown has resulted in immense job insecurity and a cash constrained society. Struggling with liquidity, probable buyers have postponed the purchase of houses and property for an indefinite period. The demand base for incomplete housing projects have been severely eroded due to the high risk factor and uncertainty of completion. Low demand and panic selling by house owners in the resale market have led to a steep dip in property prices. Thereby the preference for rental housing has witnessed an increase as it minimises the level of risk of the customer.

The contagious virus has forced professionals and officials to work from their residence. The transition of office buildings to virtual workplaces has led to a decline in the requirement of commercial property. The pandemic has lowered customer footfall in entertainment venues such as malls and restaurants. Hence purchase of property for new eateries and outlets have also been deferred for an undefined period.

Easy availability and inexpensive labour determines the success of the real estate industry. The unprecedented lockdown compelled migrant workers to return to their villages thereby creating a dearth of labour. Moreover, government incentives to ensure ration and other necessities created an unwillingness to

return amongst the labourers. Hence, work could not resume at the construction sites even after the lockdown was lifted. A hike in wages, greater perks and an assurance of a safer work environment will be required to lure workers back to the city.

Real estate in India was highly reliant on China for several of its raw materials like iron and steel, plastic and fibre, heavy machinery and solar panels. The sealing of international borders and boycott of Chinese commodities have majorly disrupted the process of procurement of raw materials for construction purposes. It however serves as an opportunity to strengthen Indian industries that produce indigenous versions of imported goods. Locally produced substitutes of Chinese imports shall therefore aid in making the economy self sufficient.

The real estate is that important a sector that its revival can spur nationwide growth. Multiple measures and vigilantly crafted policies can help India overcome the effects of the pandemic. A balancing act is required whereby safety and economic activities are given due weightage. Plans to protect the population from the virus as well as starvation needs to be devised on an urgent basis.

### 2.3.4 Impact on Pharmaceutical Sector

An integral component of global healthcare infrastructure, the Indian pharmaceutical sector is the third largest in the world. Characterised by skilled scientists and low-cost manufacturing, Indian pharmacies are the largest providers of generic medicines. It also successfully caters to the global demand of vaccines by not only inventing new ones but also by undertaking bulk production. The outbreak of the pandemic compelled the Indian pharmaceutical sector to take the centre stage in the fight against the deadly virus.

Disruption of supply chain caused



a major setback in the pharma industry of the country. The lockdown and the resultant restriction on transportation and movement delayed the procurement of raw materials. It also led to a three fold increase in the price of several ingredients like vitamins and penicillin. Production processes were interrupted and delivery charges increased boundlessly. Pharmaceutical companies encountered severe hardships as the operating workforce became smaller but the nationwide demand for generic drugs witnessed a steep upsurge.

India's budding relations with China came to a sudden halt after the latter emerged as the epicentre of the pandemic. Pharmaceutical companies in India are highly reliant on Chinese imports to meet the requirement of their raw materials. However, the Chinese pharma companies lost their credibility due to insufficient disclosure of information regarding the virus. Moreover sealing of international borders by the government further interrupted the inflow of required chemicals to produce necessary drugs. This however also serves as an opportunity for India to reduce its dependence on one nation and identify alternate sources to meet their demand for inputs.

India's robust pharmaceutical sector has provided the world with several life saving drugs. It eagerly collaborated with professionals around the globe to fight against the spread of the deadly virus. Companies ramped up production of Hydroxychloroquine when it was identified as a key drug that could minimise the effect of Covid-19. Indian scientists are also vigilantly involved in developing probable vaccines for the disease in the shortest possible time frame.

The battle against Covid-19 has freshly highlighted the importance of the pharmaceutical sector. Its activities are closely monitored by the Indian

Government which ensures timely distribution of medicines required to treat Covid patients. Strict measures are adopted to prevent black marketing of life saving drugs and to check upon escalating prices of masks and sanitisers. The persistent effort, expertise and determination of Indian scientists and healthcare workers shall definitely help the country to steer out of the pandemic.

### **3. Social Impact**

The breakout of the pandemic has created a stir in the Indian society. The lockdown has led to an upsurge in instances of domestic violence, rape and child abuse. It has also tampered the mental well being of many individuals. In several places brotherhood and affection which were key attributes of the Indian society have been replaced by hostility and a grim competitive frame of mind. Vulnerable communities like the poor and the marginalised have faced the maximum wrath of the pandemic.

#### **3.1. Migrant Labourers**

Every year thousands of Indians leave the comforts of their homes in search of a livelihood. They migrate to urban areas where owing to industrialisation and modernisation there is immense demand for cheap labour. Poverty and limited information impel the village dwellers to accept low wages and poor working conditions of the informal sector. In India, Delhi and Mumbai are a hub for migrant labourers where they are mainly employed as daily wage earners in companies undertaking construction activities. Insufficient employment opportunities and support policies in Uttar Pradesh and Bihar makes them the biggest source states of migrant workers. The poor labourers endure a great deal of struggles and hardships which were further magnified after the outbreak of Covid-19.

The lockdown announced by the government in the third week of March to contain the spread of the virus created an atmosphere of panic amongst the migrant



labourers. Shutting down of factories and other workplaces created an acute shortage of food and other necessities for the workers who were miles away from their homes. In spite of food grains stocked up in public godowns several died of starvation. Limited transportation and mobility hindered the process of distribution of necessities. Moreover area-wise ration cards made the Public Distribution System inaccessible to the hungry labourers. Absence of particulars and poor implementation of 'One Nation One Ration Card' impeded the workers to avail the government facilities.

The sudden shutdown robbed the labourers of a roof over their head as they mostly resided in factory dormitories or on construction sites. Limited vehicles and non-operating rails further aggravated the it helplessness. Desperate to reach their villages, incapacitated labourers walked or cycled to reach their destinations. Social distancing norms and hygiene protocols were not followed as the migrant labourers moved in large groups. Their actions were justified for if not the virus, starvation would kill them.

The plight of the migrants forced the government to step in and introduce the Shramik Special trains which would ferry stranded workers to their native villages. The policy makers were highly criticised by the opposition for the imposition of additional charges over the normal fares. However, ministers claimed that the fares were sponsored by central and state governments. Workers continued to endure hurdles as the trains had poor sanitation facilities and minimum arrangements of food and water. Delayed schedules and cramped up coaches saturated the exhaustion and patience level of its travellers. Due to the poor arrangements many migrant labourers succumbed to death during their homebound journey but the Rail Authorities stated that they had prior ailments.

Covid19 lead to the death of many poor labourers for reasons ranging from starvation, suicide, road and rail accidents to police brutality. The workers were subjected to harsh treatment from not only officers on duty but also their neighbours who feared that the labourer returning from urban India would be a carrier of the virus. The state of the Indian migrant labourers during the pandemic is a matter of national shame and reinforces the fact that the poor suffer the most in situations of crisis.

### 3.2 Domestic Violence

Domestic violence refers to aggressive behaviour towards a particular member within a household. It encompasses verbal abuses, mental torture, physical attack and also sexual assault. Though most often directed on the female spouse it can also be against the children and the elderly of the family. Lockdown, an aftermath of Covid-19, has majorly worsened India's modest progress in combating domestic violence. The mandatory stay at home has lead to a sudden spurt in the count of victims of household abuse in the country.

India is infamous for its gender inequality. It has a patriarchal society wherein child bearing and rearing are considered to be the prime responsibilities of a woman. Despite notable progress in education, the labor force participation rate of Indian women is substandard. It has further worsened post the outbreak of the pandemic which has put many female employees at the risk of a permanent exit from the labour market. Hence lack of financial security and monetary resources compel the ladies of a family to withstand the torture directed towards them.

Covid-19 has created an economic upheaval in the country. Lack of employment, limited resources, financial stress and constant anxiety had led to a proportional increase in impulsive, violent and abusive behaviour towards the weaker cohabiting partner. Several of the oppressed approached local police

stations for help and rescue. The National Commission for Women also received many complaints via mails during the period of lockdown. However, it is strongly assumed that the recorded number of cases are not a true representation of the actual ones. Locked in with the abusers and negligible interaction with outsiders has complicated the process of filing a complaint.

Trapped in a space with violent oppressors adversely impacts the mental health of an individual. Unable to seek help, many identify suicide as an easy solution. Alongside the lockdown which was a necessity to prevent the spread of the novel coronavirus the Government should also have implemented policies to ensure the safety of women in their households. Social media, radio broadcasts and news channels should be used to sensitive citizens about domestic violence. Similar to how popularising the usage of masks and sanitisers have become a national campaign, ensuring the safety of women in their own houses should be taken up by every citizen. Neighbours should be urged to intervene, usage of code words should be popularised and ration shop owners and chemists should be made more cautious so that unusual behaviour can be identified and reported. In the post pandemic scenario India can scale greater heights only if its women are safe in their own houses.

### 3.3 Hostile Neighbourhoods

Social distancing was identified as the prime remedy to curb the spread of the novel corona virus. Disruption in cultural celebrations, restrictions on meeting friends and family, closure of places of entertainment and a constant interruption in the daily routine immensely pressurised the social fabric of the country. It created communal tension and jolted the basic essence of community relations. Several individuals were perceived as carriers of the virus and were

subjected to hostile treatment from their neighbours.

The lockdown initiated a process of panic buying. Families started hoarding groceries as they feared shops would run out of supplies. A competitive attitude developed amongst households dwelling in one community wherein each tried to procure more than the other. Hence a sharing and cooperative attitude was successfully replaced by a grimy contesting frame of mind.

A perpetual distrust regarding disclosure of travel history prevailed in neighbourhoods. Families which were compelled to travel during the pandemic were seen as potential carriers of the virus. Many individuals refrained from quarantining themselves after the completion of their journey. Violators of social distancing protocols got offended when asked to behave in the greater interest of the society. Thereby the pandemic created an atmosphere of constant fear and anger in communities.

In many states of the country, the front line COVID warriors were not spared of the hostile treatment. Doctors and nurses were subjected to abuses and threats by their neighbours. They were restricted from going to health centres as their localities dreaded contamination. The society's treatment towards certain life saviours was a matter of national disgrace.

Poor migrant labourers had encountered hardships not only in their homebound journey but also upon reaching their villages. They were greeted with stone pelting by the native villagers who feared getting infected with the virus. Hence brotherhood and affection that were key components of the Indian culture and society were put at stake by the frightening virus.

### 4. Conclusion

The brunt of COVID-19 has been borne by the entire global population. India too is constantly struggling to contain the spread of the virus and reduce

its mortality rate. The impact is visible across all sectors but its effect on the poor and marginalised is unscalable. Unemployment, starvation, massive insecurity, depression and a perpetual fear has enveloped the entire society. During situations of crisis, vulnerable communities are exposed to the maximum risk. They neither have the health or nutrition to fight the infection nor the monetary resources to afford health care services. In developing countries like India which have a significant share of population below the poverty line the magnitude of damage is immense. The effects can be minimised by creating national awareness and trust. Social rumours and myths tend to surface at times of crisis. Hence citizens should be assured that the government is working in their interest. These campaigns should be supplemented with relief policies and support programs. Additional aid should be provided to small communities in order to ensure that they succeed in sailing through the grim phase. Covid-19 reiterates the fact that there are several components of nature which are beyond the control of the human race. Strong determination and an optimistic approach shall be required to sustain the fight against the virus and emerge victorious.

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## **SOCIO ECONOMIC CONDITIONS OF WOMEN VEGETABLE VENDORS IN TIRUCHIRAPLLAI TOWN DURING COVID 19 PERIOD (MARCH - JUNE)**

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### **Abstract**

*Selling the vegetable is the common unorganized sector which does not need any skill and education and it is easy for the women to do it. In Tiruchirapalli town there are more than 300 vegetable vendors selling vegetables in and around the Rock fort town. Out of which majority of them are women selling vegetables. In this paper the researcher made an attempt to know the problems which are all faced by the women vegetable vendors during the lockdown period. Both primary data and secondary data have been collected for the study. Primary data have been collected from the 50 women vegetable vendors using questionnaires' method. In and around Rock fort town is the heart of the city and majority of the shopping has been carried out here. So, that the place has been taken and convenient random sampling technique has been used for collecting the data. Due to lockdown they suffer a lot and only few of them having pulling cart and use it for their sales. The municipal authority shifted the market place. Due to this they suffer a lot. This is the main reason for this study. The in depth analysis of the socio economic facets of the women vegetable vendors in Tiruchirappalli town has led to the unambiguous conclusion that their economic condition is really deplorable during this situation and there is a action plan required to improve their condition.*

**Keywords:** women vegetable vendors, lockdown period, Tiruchirappalli town

### **Introduction**

Women vegetable vendors are render a valuable service to Tiruchirapalli town and this is the major income to their family also. This business requires a very low capital and skills. Apart from this the entry and exit barrier in this trade is also very low. Due to the main reasons most of the vegetable vendors chooses this occupation for their livelihoods. This business gives a marginal income to their

family and they run their family with great difficulties. Due to covid 19 lockdown the business was affected in a large extend and they face a lot of difficulties. The municipal authority allotted a place to sell their vegetables. Some of them are having cart and they sell their vegetables in and around the Rock fort town. Due to this situation government helps them by way of providing loan with low rate of interest.



There are some initiatives made by the government for their upliftment, even though they are facing several challenges in order to run their business. The findings of the study reveal that the women street vendors need adequacy of space, threat of eviction and the problem of security. They also expecting government to take action and provide them hygienic, well organized and secure market place.

### Review of Literature

Chen, Martha Alter; Joann Vanek and Marilyn Carr (2004). In this sector women are having more oppurtunities than the men. Nearly 60 percent of them engaging in the business.

Sekar, (2008). Street vendors are having more problems like insecurity harassment in public place. etc

Channamma K C (2010). Mahileya Dudime: Ekaroopateya Prashne, Working Paper No.249, Women are mainly found a lot in the street vegetable vending activity. They sell perishable goods like vegetables, fruits and flowers with addition to the other disadvantages associated with the informal sector, the easily perishable nature of items sold also makes women vendors more vulnerable in the street vending activity.

Puja Mishra, "Challenges Faced By Women Street Vendors: A Case Study of Ranchi District (2018) This paper aims to study the involvement of women *in* unstructured market of street vending. It also aims to understand the socio- economic characteristics of the women street vendors and the level of challenges faced by them on a day to day basis which affects their efforts to sustain the livelihood through street vending.

Trivedi S.M.\*, Khunt K.A., Bharodia C.R. And Bhatt J.D "Performance And Problems Of Women Vegetable Vendors In Saurashtra Region", (2019) The present study was confined to four districts *viz.* Junagadh, Gir Somnath, Porbandar and Amreli. The sample size was of 80 women vegetables

vendors comprised of 20 from each district. The primary data were collected through the well prepared questionnaires. The collected data was analysed using performance index based on minimum wage rate and mean income earned. The study reveals that, women vegetable vendors are able to earn more than prevailing minimum wages in Gujarat for unskilled labours. Majority of respondents performed moderately and no women shown poor performance. Majority of the respondents were facing the problems of starting of purchase early in the morning, no social support and time consuming in their order.

Unnamalai.T "Women Vegetable Vendors' Socio Economic Conditions and Working Environment in Tiruchirapalli Town"(2017) The term unorganized sector which means the vast numbers of people those who are engaged in different forms of employment without any registration. These forms normally include home-based work (preparing eatables and domestic workers), self-employment (e.g., selling vegetables), employment in household enterprises, small units, on land as agricultural workers, labour on construction works and many other forms of casual or temporary employment. In Trichirapalli district majority of them are selling vegetables, preparing eatables, agricultural labours and domestic workers. Tiruchirappalli lies at the heart of Tamil Nadu. It is administered by Municipal Corporation established as per the Tiruchirappalli City Municipal corporation act 1994. The total population of Tiruchirappalli as per 2011 census is 2,713,858. The population of street vegetable women vendors is expected to be around 3,500 operate within the 65 ward corporation limits. Most of the street vegetable women vendors are selling goods like fruits, vegetables etc. They have pattern of selling the goods in sitting position, bicycle, and trolley walking and door to door. They sell their goods and



spend 12 to 14 hours daily. With this background street vegetable women vendors from Rock fort town has been selected as a sample unit and 100 women have been selected as sample size for this study.

### Research Gap

Previous studies analyzed about the problems of women vegetable vendors in Tiruchirappalli and other states. This study is made an attempt to know the problems faced by the women vegetable vendors during the lockdown period.

### Importance of the study

India is an agrarian in nature. Now there is a deep fall in the income from agricultural industries and the economic development of our nation mainly depends upon the agricultural sector. Women workers are take part in the agricultural and allied activities. Like this women play a vital role in marketing of agricultural produce. They generate additional income to their family by way of selling vegetables. Usually women vegetable vendors are facing a lot of problems; In addition to that they face problems during the lockdown period. They are having poor income at the same time the products they are selling are perishable in nature. Tiruchirappalli lies at the heart of Tamil Nadu. It is administered by Municipal Corporation established as per the Tiruchirappalli City Municipal corporation act 1994. The total population of Tiruchirappalli as per 2011 census is 2,713,858. The population of street vegetable women vendors is expected to be around 3,500 operate within the 65 ward corporation limits. Most of the street vegetable women vendors are selling goods like fruits, vegetables etc. They have pattern of selling the goods in sitting position, bicycle, and trolley walking and door to door. In and around Rock fort town there are more than 500 street vendors. Out of which more than 300 are selling vegetables, greens, potato, tomato, onion and ginger. More than 60 percent of

them are women. The present focuses only the problems which are all faced by them during the lockdown period.

### Objectives of the study

The main aim of the study is to find out the problems faced by the women vegetable vendors. Along with the following objectives are framed.

1. To know the demographical profile of the women vegetable vendors.
2. To know the socio economic status of the women vegetable vendors
3. To know the problems faced by the women vegetable vendors
4. To know the specific problems of women vegetable vendors during the lockdown period.
5. To offer some suggestions

### Methodology of the study

Both primary data and secondary data have been collected for the study. Secondary data have been collected from the websites, journals and books. Primary data have been collected from the respondent those who are selling vegetables in and around the Rock fort town. Percentage analysis, chi square test and ranking technology have been used for the study.

### Hypothesis of the study

1. **Ho:** There in no relationship between their personal profile and their overall status of their life.
2. **Ho:** There is no relationship between the Age and the problem faced by them.
3. **Ho:** There is no relationship between the Age and the problem faced by them.

### Limitations of the study

The study has some limitation and the limitations are listed below.

1. Only 50 respondents have been selected for the study.
2. The study has been done only in the Rock fort Town. Vendors from no other area are not taken.
3. The data have been collected for 10 days only.(10 June – 20 June 2020)

### Results and discussions

The finding from the primary data of the study has been consolidated and given below. In and around Rockfort town there are more than 3500 vendors are functioning. Out of which nearly 300 vegetable vendors are having permanent place to sell their vegetables. Out of which nearly 150 women vegetable vendors are selling vegetables and they are having regular customers for their produce.

1. 14 percent of them are the age group of 30 -40, 68 percent of them are from the age group of 40 -50, 11 percent of them are the age group of 50 -60 and 7 percent of them are the above the age of 60. (34) Majority of them are from the age group of 40 -50. Due to their family situation and need of money they opt the profession.
2. Only 7 of them are studied up to higher secondary level. 42 Of them are school dropout and 1 of them completed their graduation. Majority of them are the school dropout. So, that they forced to choose the business.
3. 92% of them are married, 6% of them widows and 2 of them are unmarried.
4. 97% of them living in nuclear family system.
5. 93% of them are living in rental houses and remaining of them are

own house with thatched roof and they are not having sanitation facility.

6. 78 percent of them sitting and selling their products 4 percent of them are selling their goods by walk, remaining of them using cart to sell their products.
7. They wok minimum of 10 hours in a day.
8. 76 percent of the street vegetable women vendors are getting a monthly income of upto Rs.5000, 22 percent of them getting an income of Rs. 5000 to 10000,only 2 percent of them are getting more than 10000.
9. With regard to the monthly expenditure of the street vegetable women vendors it is observed that they spend low on various requirements. Since expenditure is a crucial factor of economic welfare the lower expenditure leads to low consumption, lower welfare and low standard of living.

In the study area almost all the street vegetable women vendors borrow from others according to their capabilities. They lead their life only with borrowing. This shows their inability to come out of the clutches of money lenders and indigenous bankers.

#### Problems faced by the respondents during the covid lockdown period

Table 1  
Problems faced by the women vegetable vendors

Sl.No	Particulars	Strongly Agree	Agree	Neutral	Dis Agree	Stongly Dis Agree		Total	Rank
1	Price fluctuation	22	15	3	3	7	50	198	VII
2	Warehousing problems	26	14	5	4	1	50	218	III
3	Sudden fall in demand	39	8	1	1	1	50	235	I
4	Credit facilities	12	13	7	9	8	49	177	VIII
5	Financial	32	5	2	6	5	50	215	V

	problem								
6	Difficult to access their regular customer	22	14	5	6	3	50	208	VI
7	Low income	32	9	5	2	2	50	221	II
8	Place of selling	26	15	1	5	3	50	216	IV

Sources: Primary dat

The problems which are all faced by the respondents are carried out and the rank has been given according to their weightage. There is a sudden fall in

demand and they are not able to store their products. Due to this reason they got very low income.

**1. Ho: There in no relationship between their personal profile and their overall status of their life.**

	Age	Monthly Income	Monthly expenses	Monthly savings	Health Condition	Social Relationship	Overall Status
Age	1						
Monthly Income	0.58	1					
Monthly expenses	0.52	0.24	1				
Monthly savings	0.21	0.34	0.65	1			
Health Condition	0.12	0.67	0.15	0.43	1		
Social Relationship	0.07	0.66	0.54	0.56	0.34	1	
Overall Status	0.39	0.80	0.42	0.77	0.65	0.82	1

With the above table, it is observed that the overall status of their life is positively correlated with their income, savings, expenses, health conditions and their social relationship. They are having good repo with their consumers and majority of them are having regular customers

2. **Ho:** There is no relationship between the Age and the problem faced by them.

3. **Ho:** There is no relationship between the Age and the problem faced by them.

Sl.No	Variable 1	Variable 2	Table value	Table value	Calculated Value	Result	Inferences
1	Age	Problems Faced By the respondent	$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$	1.265	32.34	Null hypothesis Rejected	No relationship between the variables
2	Income			1.265	24.22	Null hypothesis Rejected	No relationship between the variables

The null hypotheses have been rejected. There is no relationship between the age and income of the respondent and the problems faced by them. Irrespective of the age and income all the respondents are faced the problems occurred due to covid.

### Suggestions

1. Street vegetable women vendors can be trained to prevent their produce because of its nature. If the government make necessary steps to train them to prevent their vegetables it may be useful for future also.
2. The government provides Rs.1000 those who are having ration card. But it is not enough to lead their life. The government can assist them financially by providing loan or at the subsidies the rate of interest.
3. Even though a separate market place is located in the town, the place cannot be easily accessible. They can permit them to continue their business in their usual area.

### Conclusion

The in-depth analysis of the socio economic conditions of the street vegetable women vendors in Tiruchirappalli town has been made with the sample of 50 respondents. This situation is affected them in a large extent. Government made some measures to upgrade their life. But they are not sufficient to them to lead their usual life. Already there are in a pathetic situation and the pandemic situation affected

hugely. They are also facing the financial problems and in the clutches of the money lenders. If the government allows them to do their business in their usual place and support financially they will slowly recovered from this situation.

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## SOCIO-ENVIRONMENTAL ISSUES AND CHALLENGES DUE TO COVID-19 WITH SPECIAL REFERENCE TO INDIA

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### *Abstract*

*The emergence of infectious and fatal disease COVID -19 has created an utter topsy-turvy in the whole world. The entire gamut of human activities from social to political, from economical to environmental has been facing great challenges since its identification in the last December 2019 in Wuhan, China (Ma,2020). In order to mitigate and control the infection worldwide lockdown has been enforced. Social distancing, quarantining, restricting large gathering etc were being made compulsory time to time according to the seriousness of this disease in different areas. Since no clinically approved medicine or vaccine are invented or found till now the number of death report has been increasing rapidly day by day, though some countries are able to control it to some extent, only by maintaining basic hygienic guidelines suggested by WHO. Needless to say, the socio-economic state of the world are badly affected by. however, this lockdown proves a boon for natural environment so far as the pollution is concerned. A survey report given by NASA clearly shows sudden reduction of pollution in big countries like USA, Spain, China, India etc due to lockdown. This paper throws light on socio-environmental challenges and issues being emerged out in the entire world especially in India due to this pandemic and possible solutions accordingly..*

**Keywords:** Socio-environmental issues, challenges, COVID 19

### **Introduction**

History repeats itself. A century earlier in 1918-1920 the world witnessed the outbreak Spanish Flue in 1918-20 taking toll of 500 million people from the South Seas to the North Pole (Jarus, O,2020). Apart from this the major

pandemics in 20<sup>th</sup> century are Asian-Flue (1957-1958), Hong Kong Flue (1968-70), HIV (1981-), Swine-Flue (2009-10), Ebola (2013-16), and the last and the worst being COVID 19.

The first confirmed case has been traced back to 17<sup>th</sup> November 2019 in



Wuhan, Hubei, China, leading the Chinese health authorities to take prompt decision regarding public health measure and closure of market as well. Severe pneumonia, acute respiratory distress, septic shock, kidney failure are the complication that an infected patient experiences (WHO, 2020). Older people, and those suffering from above mentioned health issues are vulnerable to develop serious illness. The virus is spread primarily between people via droplets of saliva (produced while coughing and sneezing) or discharge from nose. So the best way to prevent this contagious disease is to protect oneself by wearing mask, frequent hand washing, maintaining distance from others. These are the primary guidelines prescribed by WHO. The number of confirmed cases is 16523815 in which 655112 are confirmed death cases in 216 countries till now.

Most of the countries are trying their level best to slow down the growth of the virus either by adopting various health policies and measures or imposing lockdown sensing the reality of this health emergency. The scientists of all countries are also trying to invent vaccine. The most successful (not yet approved by WHO) vaccine so far being the Oxford University one.

This critical health emergency triggers the fear of impending economic crisis since most of the offices, industries, economic sectors are forced to shut-down leaving the people jobless. Same is the case with India. More pathetic and grave situation is in social condition. Doctors, nurses, health workers who are frontline fighters are facing misconduct and harassment. The issue of migrant workers is the most highlighted throughout the country.

The environment and climate has greatly been affected due to halting of transportation and restriction of driving vehicles. Lockdown results in reduction of CO and NO<sub>2</sub> emissions which ultimately bring positive impact on

environment.

### **SOCIAL ISSUES**

Unlike environment the impact of COVID 19 disease and lockdown on people is negative. Poor people, daily-wagers, migrant workers are mostly affected by. All segments of population specially the older and the persons with disabilities, children are the most vulnerable groups. All the people are more or less, facing difficulty in having general health services and same is the case with non COVID patients. It is due to poor infrastructure and quality of care. This causes of fear or anxiety among the general public. Temporary unemployment, closure of institutions, lack of social gathering with family members and friends all are aggravating their mental health and thereby leading to social stress (Sing, 2020 National Herald). The sections of society who are mostly affected by this disease and lockdown, discussed here categorically-

**Poor people:** Poor people, laborers, daily wagers, farmers, who live below poverty line are facing endless suffering mentally and physically due to the COVID 19. Hossain et al. made a study on a poor farmer from U.P who was in debt committed suicide. Though the suicide of farmers is not altogether new in India, but here the very farmer is a victim of lockdown. He was not able to find laborers for harvesting.

**Migrant workers:** They are the most affected people. Sudden and unexpected lockdown forced them to a crisis. They were rendered without money, food and shelter and thereby leading them to encounter either with accident or death.

**Doctors:** In this global health crisis doctors along with nurses, health workers are the frontline fighters. But to their utter surprise and despair, they were being attacked by the mob and are being misbehaved by miscreant neighbors (Trivedi, Ahmedabad Mirror, 2020). However, the picture is same all over India.

**Old person:** Since old people are the most susceptible to attack by any kind of diseases. Since risk of death for them is high (WHO, 2020) lockdown proves a challenge to them both physically and mentally.

### ENVIRONMENTAL ISSUES

Economy is collapsed. Education system is disrupted. Society is entangled. But environment is benefited. Lockdown seems to usher in blessings for nature and climate. The major cities with heavy traffics, high population, big industries and less forestation are always responsible for increasing pollution at a high speed. But during lockdown when sudden restriction of traffic, closure of industries there occurs a positive impact on environmental condition- quality of water in the Ganges as well as all big rivers where garbage are thrown from industries improved and the air gets purified. The wild life aquatic life feel free to roam about every -where during the period of strict lockdown. Lokhandwala et.al.(2020), in a study on environment shows the improvement of quality of air and quality of water during, pre and post lockdown of pandemic situation.

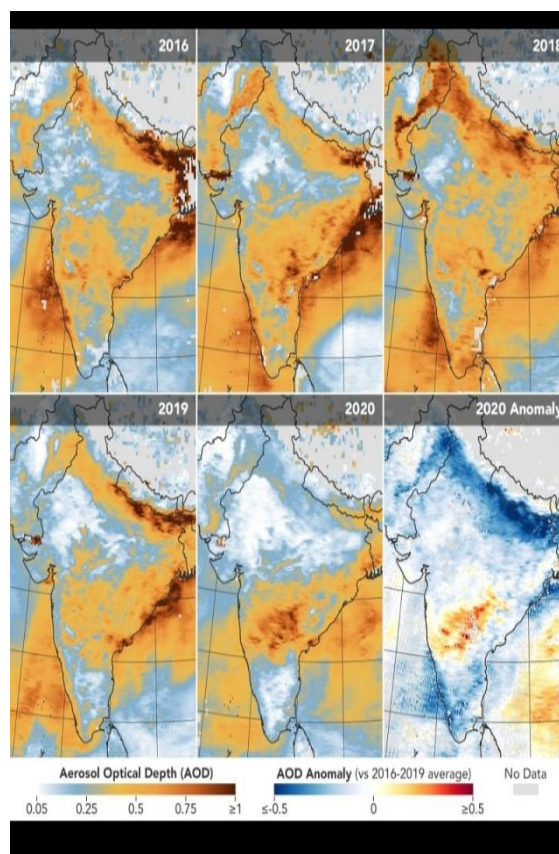
### Condition of air quality:

During the total lockdown a significant and drastic change in the quality of air in the big cities full with industries is seen. From 24<sup>th</sup> march all the domestic and international flight trains vehicles were stopped and restricted (B.B.C.News,2020) . In this regard NASA provided a clear picture showing the difference in air pollution level in India before and after lockdown situation.

NO<sub>2</sub>, CO, emitted from combustion of fuel, traffic fuels are highly detrimental to health are also been reduced to an unexpected lower level. According to SK Satheesh, professor at Center for Atmospheric and Oceanic Sciences, Bangalore this step resulted in the reduction in particular matter concentrations over Southern part of India

is around 50-60% and Delhi, U.P, W.B etc. up to 75% (The, Hindu, 2020).

Fig. sequence of aerosol optical thickness concentration (month-Terra/Modis) in India from the period of March 31 to April 5 in 2016, 2017, 2018, 2019, 2020 (NASA 2020). First 5 maps above show aerosol optical depth (AOD) measurement over India during the same March 31 to April 5 period for each year from 2016 through 2020. The 6<sup>th</sup> map (anomaly) shows that how AOD in 2020 compared to the average for 2016-2019. An optical depth, or thickness, of less than 0.1 over the entire atmospheric vertical column is considered “clean”. (data retrieved by Moderate Resolution Imaging Spectro radio meter [MODIS] ).



### Condition of water (With special reference to the Ganga):

A large amount of industrial waste from a huge number of industrial cities like Kanpur, Varanasi, Patna is being dumped the Ganges daily, thereby polluting it. But after total stoppage of

human activities, closure of industries the water quality in rivers is improving, especially with regard to Dissolved Oxygen (DO) and reduced nitrate concentration. Concentration (The New Indian Express). What is more, a recent research by IIT Roorkee shows that the water of river Ganga has been found fit for drinking (The New Indian Express). rare South Asian River Dolphins are back across the ghats of Kolkata. It is only for low water pollution level. (Kumari, 2020,India.com).

### SUGGESTIONS

Though various steps are being taken by the central Government and State Government here are some suggestions:

#### Social issues:

1. Realizing the crisis and urgency cash should be transferred to the poor people's account as early as possible.
2. Allowance or pension for the widow, old persons, disabled persons should be given well in advance.
3. Free ration should be provided for up to one year.
4. Allowance should be given to these to migrant workers who become jobless.
5. Police should take strict actions against the neighbors who try to misbehave with doctors, nurses, health workers.
6. Along with financial support insurance to the health workers, job should be given to one of their family members.
7. Tele- health facilities, if possible, should be conducted for the old.

#### Environmental issues:

1.B.B.C. News,Coronavirus(2020):India enters total lockdown after spike in cases, retrieved from <https://www.bbc.com/news/world-asia-india-52024239>

Since the quality of air and water is improving day by day during this lockdown steps should be taken for long term effect:

1. In future that is in pos- COVID era strict measures should be taken for the right implementation of existing the Ganga Rejuvenation plan which includes different missions for water reservation.
2. Rigorous and regular monitoring of water resources can prevent water pollution.
3. The government should think for an alternative whether in future short-term (2-3days) lockdown (after observing, researching and balancing minutely with economy or other serious issues) can be implement state wise.
4. Besides, forestation is of utmost important.
5. Pollution control devices which can absorb, filter, disperse the harmful pollution should be need on regular basis.
6. Not only strict lows but also it is the responsibility on the part of all law-abiding citizens can make the world worthy of living.

### CONCLUSION

The world is in a phase of utter confusion, restlessness, imbalance, imbalance and disharmony due to this pandemic. Scientists, doctors all are trying their level best to find out any solution in order to control this health emergency. In new future, it is hoped, we will control it one day. Economic stability will be restored one day. But the social crises and environmental issues which become open to all due to this pandemic should be thought with due importance and seriousness in order to make this only planet worthy of living for our future generation.

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## STUDENTS' PERCEPTION OF ONLINE LEARNING DURING COVID - 19

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### *Abstract*

*The corona virus disease 2019 (COVID-19) pandemic may be stressful for people. Fear and anxiety about the new disease and what would happen can be overwhelming and cause strong emotions in adults and children. Public health actions, such as social distancing, can make people feel isolated and lonely and can increase stress and anxiety. During this situation, the outbreak of COVID 19, has affected the education sector also. Virtual platforms are using for teaching and learning. It also creates a lot of problems for both students and teachers. The main objective of this study is to analyze the perception of online learning mechanisms among students' during this COVID 19 pandemic. This paper includes both primary and secondary data. Statistical tools are used for analyzing data. The study revealed that online classes are effective in some points of view, at the same time it will create issues like lack of teacher-student interactions, network problems, health issues, and data consumption.*

**Keywords:** COVID-19, Online teaching and learning, student's perception

### **Introduction**

The corona virus pandemic has become a norm and to adapt schools and colleges across the country have switched to remote learning. Children have been asked to stay on track with their syllabus through an online learning model at home. This transaction from classroom-based learning to online learning can be quite stressful for children as it changes from their normal structure and they are not accustomed to the new way of learning. More than 300 million students worldwide are having their education disrupted by the spread of Corona virus. Schools and universities haven't faced this level of disruption in generations, but

unlike any time in the past, we can continue education even when schools close.

Learners, teachers, and families are at the heart of everything Pearson does and we are committed to helping everyone have positive learning experiences, whether online or in school.

In this uncertain environment, it's important that learning continues, even if it can't happen in person. That's why we're providing access to expert faculty, best practices, and other online learning resources for people who are studying, teaching, or working remotely. We'll be updating this site regularly with even more helpful resources. Students'



participation in the home-learning program, online school was confusing to adjust to as we had not been prepared through simulations or practices beforehand. Students reported the home-learning program to be even more stressful than regular classrooms. Some of the common reasons for this went along the lines of: "Normal classes may have been difficult, but having friends makes it so much more manageable and less stressful. Online classes take out the benefits of having friends to socialize with and being stuck alone with nothing but assignments." Many students participating in home-learning programs also say that the workload of online classes is larger than that of regular classes. The consensus is that home-learning programs — although highly beneficial and a good alternative to school as schools are closed — still require some getting used to by students, as it is a novel concept and not many are experienced with them. This is because those students lack the devices and internet access to be able to participate in online classes, and the schools and colleges cannot teach online.

#### REVIEW LITERATURE

**Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., & Woźakowska-Kapłon, B. (2020).** Students' perception of online learning during the COVID -19 pandemic on medical students. The COVID-19 pandemic has disrupted teaching in a variety of institutions, especially in medical schools. Electronic learning (e-learning) became the core method of teaching the curriculum during the pandemic. After eight weeks of only online learning, a survey was conducted to investigate the perception of this type of learning amongst medical students. A survey was conducted by distributing an online questionnaire to Polish medical students. Data gathered from the survey was analyzed with routine statistical software. 804 students answered the

questionnaire. According to respondents' answers, the main advantages of online learning were the ability to stay at home (69%), continuous access to online materials (69%), learning at your own pace (64%), and comfortable surroundings (54%). The majority of respondents chose a lack of interactions with patients (70%) and technical problems with IT equipment (54%) as the main disadvantages. There was no statistical difference between face-to-face and online learning in terms of opinions on the ability of the learning method to increase knowledge ( $p=.46$ ). E-learning was considered less effective than face-to-face learning in terms of increasing skills. E-learning is a powerful tool for teaching medical students. However, the successful implementation of online learning into the curriculum requires a well-thought-out strategy and a more active approach.

**Agarwal, S., & Kaushik, J. S. (2020).** Student's perception of online learning during the COVID pandemic. Indian Journal of Pediatrics, Coronavirus pandemic has not only impacted human life but also impacted medical education and residency training all over. With principles of social distancing, all face to face classes were suspended due to the ongoing COVID 19 pandemics. Considering its implications on our students, and online teaching session was conducted every day for 12 d. We used a free version of Zoom which allows a maximum of 100 participants and for some time of 40 min. Students' perceptions were collected at the end of this lecture series. Feedback responses were obtained from 77 participants. Of these, 87% (67) were post-graduate students. Participants found the sessions to be relevant to their learning needs and clinical practice [ $n = 75$  (97%)]. The majority of the participants perceived that the sessions were tailored to their level of learning [ $n = 76$  (99%)] and found the sessions to be interesting and enjoyable [ $n = 72$  (95%)]. All of the participants ( $n =$

77) felt that each pediatric sub-specialty should start their classes for postgraduates and that online classes should be made a part of the medical postgraduate curriculum. The study concluded that the COVID pandemic made us realize the importance of online training for our pediatric postgraduate students. Students' satisfaction levels with online learning were comparable to previous studies. Apart from the gain in knowledge, the present study revealed the impact of online learning on the morale of our students by creating a diversion from the ongoing pandemic situation. We conclude that online teaching is feasible, cheap, and must be made a part of the postgraduate training in India beyond the prevailing lockdown.

**Smart, K. L., & Cappel, J. J. (2006).** Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education: Research*, 5(1), 201-219. In search of better, more cost-effective ways to deliver instruction and training, universities and corporations have expanded their use of e-learning. Although several studies suggest that online education and blended instruction (a "blend" of online and traditional approaches) can be as effective as traditional classroom models, few studies have focused on learner satisfaction with online instruction, particularly in the transition to online learning from traditional approaches. This study examines students' perceptions of integrating online components in two undergraduate business courses where students completed online learning modules before class discussion. The results indicate that participants in an elective course rated the online modules significantly better than those in a required course. Overall, participants in the elective course rated the online modules marginally positive while those in the required course rated them marginally negative. These outcomes suggest that instructors should be

selective in the way they integrate online units into traditional, classroom-delivered courses. This integration should be carefully planned based on learner characteristics, course content, and the learning context. For most participants of the study (83 percent), this was their first experience completing an online learning activity or module. Also, the largest dissatisfaction factor reported among the participants was the time required to complete the online modules. Future research is encouraged to explore: (1) how previous experience with technology and online learning affects students' attitudes towards and success with e-learning; and (2) the effects of interspersing online units that are considerably shorter in length into the traditional classroom model. This additional research can provide greater insight into which factors promote e-learning success.

#### **STATEMENT OF PROBLEM**

Since the COVID-19 pandemic has disrupted the normal lifestyle of people across the globe, the virtual world has come to the rescue. Amongst many institutions' schools and colleges have shifted their base to virtual platforms to conduct classes online consequently, catering to the needs of all stages of education from pre-primary to university level, online classes as an alternative to ordinary face to face classes. The present study aims to identify the perception of students towards online learning mechanism.

#### **OBJECTIVES OF THE STUDY**

1. To analyze students' perception of online learning during the COVID 19 pandemic.
2. To study the pros and cons of online learning mechanism.

#### **RESEARCH METHODOLOGY**

The study aimed to analyze students' perceptions of online learning during the COVID 19 pandemic situation. The data were collected from 280 respondents through questionnaires,

articles, journals, and websites. A convenience sampling method was used for collecting data. Percentile analysis was used for analyzing data.

#### DATA ANALYSIS AND INTERPRETATION Perception of Online Learning

**Table 1**

##### Gender wise Distribution of Sample

Gender	Frequency	Percentage
Male	228	81.4
Female	52	18.6
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** The study reveals Gender wise classification. Out of 280 respondents, 81.4% are female and 18.6 are male.

**Table 2**

##### Age wise distribution of sample

Age	Frequency	Percentage
16-20	190	67.9
21-25	84	30.0
26-30	1	0.4
Above 30	5	1.8
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** The age of the respondents is categorized into four categories. Table 2 shows out of 280 respondents, 67.9% are in the age group of 16-20, 30% are in the age group of 21-25, 0.4% are in the age group of 26-30, and 1.8% are in the age group of above 30.

**Table 3**

##### Studying Class wise Distribution of Sample

Class	Frequency	Percentage
S.S.L.C	4	1.4
Plus two	23	8.2
Degree	197	70.3
Masters	50	18
PhD	2	0.7
Others	4	1.4
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 3 shows the perception of the respondents based on their qualifications. It is classified into 6 categories. It is classified into 6 categories. 70% of respondents are doing their degree, 18% of respondents are doing post-graduation, 8.2% is a plus - two, 1.4% are S.S.L.C, 0.7% are doing PhD and 1.4% are others.

**Table 4**

##### Overall Satisfaction of Online Learning

Option	Frequency	Percentage
Agree	148	52.9
Disagree	15	5.4
Neutral	87	31.1
Strongly Agree	20	7.1
Strongly Disagree	10	3.6
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** From table 4, reveals the overall satisfaction of online learning .52.9% of respondents are agreed that online classes are satisfactory, 31.1% are neutral, 7.1% are strongly agreeing, 5.4% are disagreeing,3.6% are strongly agreeing with the statements.

**Table 5**

##### Overall Efficiency of Online Learning

Option	Frequency	Percentage
Agree	114	40.7
Disagree	28	10.0
Neutral	102	36.4
Strongly Agree	29	10.4
Strongly Disagree	7	2.5
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 5 shows the perception towards the overall efficiency of online learning.40.70% are agreed that

online learning is very effective, 10.4% are strongly agreed, 36.4% are neutral, 10% are disagreeing and 2.5% are strongly disagreeing.

**Table 6**  
**Fun in Online Learning**

Option	Frequency	Percentage
Agree	80	28.6
Disagree	51	18.2
Neutral	107	38.2
Strongly Agree	27	9.6
Strongly Disagree	15	5.4
<b>Total</b>	<b>280</b>	<b>100</b>

**Source: Primary Data**

**Interpretation:** Table 6 reveals the fun element in online learning. 28.6% agreed that online learning is quite funny, 38.2% are neutral, 9.6% are strongly agreeing, 18.2% are disagreeing and 5.4% are disagreeing.

**Table 7**  
**Assignment Works In Online Learning**

Option	Frequency	Percentage
Agree	128	45.7
Disagree	23	8.2
Neutral	85	30.4
Strongly Agree	38	13.6
Strongly Disagree	6	2.1
<b>Total</b>	<b>280</b>	<b>100</b>

**Source: Primary Data**

**Interpretation:** Table 7 shows the perception of students to work assigned by teachers. 45.7% of respondents agreed that there is a lot of assignments in online learning, 30.4% are neutral, 13.6% strongly agree with this, 8.2% disagree and 2.1% are strongly disagreeing.

**Table 8**  
**Contents of Online Learning**

Option	Frequency	Percentage
Agree	162	57.9
Disagree	7	2.5
Neutral	60	21.4
Strongly Agree	46	16.4
Strongly Disagree	5	1.8
<b>Total</b>	<b>280</b>	<b>100</b>

**Source: Primary Data**

**Interpretation:** From table 8, it is understood that 57.6% of respondents are agreed with the quality contents of online learning, 21.4% are neutral, 16.4% are strongly agreeing, 2.5% are not satisfied with the content quality and 1.8% are strongly disagreeing.

**Table 9**  
**Ease of Use and Clarity of Online Learning**

Option	Frequency	Percentage
Agree	109	38.9
Disagree	22	7.9
Neutral	110	39.3
Strongly Agree	34	12.1
Strongly Disagree	5	1.8
<b>Total</b>	<b>280</b>	<b>100</b>

**Source: Primary Data**

**Interpretation:** Table 9 indicates the perception of easy usage and clarity of information. 38.9% agreed with the statement, 39.3% are neutral, 12.1% strongly agreeing, 7.9% are disagreeing and 1.8% are strongly disagreeing.

**Table 10**  
**Teacher – Student Interaction in Online Learning**

Option	Frequency	Percentage
Agree	117	41.8
Disagree	27	9.6
Neutral	68	24.3
Strongly Agree	50	17.9
Strongly Disagree	18	6.4
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 10 reveals students’ perception of teacher-student interaction.41.8% said that there is very good interaction with teachers in online learning, while 24.3% are neutral, and 17.6% strongly agreeing on that. 9.6% said that there is very low interaction and 6.4% fully disagreeing on this statement.

**Table 11**  
**Students’ interest in online learning**

Option	Frequency	Percentage
Agree	113	40.4
Disagree	32	11.4
Neutral	88	31.4
Strongly Agree	33	11.8
Strongly Disagree	14	5.0
<i>Total</i>	<i>280</i>	<i>100</i>

Source: Primary Data

**Interpretation:** Table 11 shows the result of overall interest in online classes.40.4% are agreeing that online classes are interesting, 31.4% are neutral,11.8% are strongly agreeing on that. 11.4% said that online classes are not interesting and 5% are strongly disagreeing.

**Table 12**  
**Usefulness of Online Learning**

OPTION	FREQUENCY	PERCENTAGE
Agree	123	43.9
Disagree	18	6.4
Neutral	77	27.5
Strongly Agree	54	19.3
Strongly Disagree	8	2.9
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 12 represents the usefulness of online classes.43.9% agreed that online classes are very useful, 27.5% are neutral, and 19.3% strongly agreed with this. 6.4% are disagreeing and 2.9% are strongly disagreeing with the fact.

**Table 13**  
**Time Consumption of Online Learning**

Option	Frequency	Percentage
Agree	122	43.6
Disagree	22	7.9
Neutral	84	30.0
Strongly Agree	45	16.1
Strongly Disagree	7	2.5
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** From table 13, it is understood that43.6% of respondents opined that online classes are time-consuming one, 30% are neutral and 16.1% are strongly agreeing.7.6% disagreed with this and 2.5% strongly disagreed with the opinion.



**Table 14**  
**User Friendliness of Online Learning**

Option	Frequency	Percentage
Agree	130	46.4
Disagree	14	5.0
Neutral	92	32.9
Strongly Agree	40	14.3
Strongly Disagree	14	1.4
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 14 shows the perception of the user-friendliness of online classes. 46.4% are said that online learning mechanism is user friendly, 32.9% are neutral and 14.3% are strongly agreeing with this. 5% are opined online classes are not user friendly and 1.4% disagreed with the statement.

**Table 15**  
**Accessibility of Online Learning**

Option	Frequency	Percentage
Agree	138	49.3
Disagree	8	2.9
Neutral	95	33.9
Strongly Agree	32	11.4
Strongly Disagree	7	2.5
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 15 represents the perception regarding the accessibility of online learning. 49.3% are agreeing on this fact, 33.9% are neutral and 11.4% are strongly agreeing. 2.9% are disagreeing that online classes are not easily accessible and 2.5% are strongly disagreeing.

**Table 16**  
**Connectivity Issues of Online Learning**

Option	Frequency	Percentage
Agree	102	36.4
Disagree	15	5.4
Neutral	90	32.1
Strongly Agree	65	23.2
Strongly Disagree	8	2.9
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 16 shows the connectivity issues of online learning. 36.4% are agreeing that there arises a lot of network issues while accessing online classes, 32.1% are neutral and 23.2% are strongly agreeing with the statement. 5.4% are disagreeing and 2.9% are strongly disagreeing.

**Table 17**  
**Stress and Health Issues in Online Learning**

Option	Frequency	Percentage
Agree	81	28.9
Disagree	22	7.9
Neutral	109	38.9
Strongly Agree	58	20.7
Strongly Disagree	10	3.6
<b>Total</b>	<b>280</b>	<b>100</b>

Source: Primary Data

**Interpretation:** Table 17 shows the stress and health issues in online classes. 28.9% is said that online classes create a lot of health issues and stress among students. Respondents are suffering a headache, eye problems and strain by continuously using electronic gadgets. 38.9% are neutral, 20.7% are strongly agreeing, 7.6% are disagreeing and 3.6% are strongly disagreeing on the fact.

**Table 18**  
**Pros and cons of online learning (ranking)**

OPTION	1		2		3		4		5	
	F	%	F	%	F	%	F	%	F	%
Content Quality	28	10	40	14.3	122	43.6	68	24.3	22	7.9
Way of Presentation	22	7.9	46	16.4	100	35.7	83	29.6	29	10.4
Teacher-Student Interaction	40	14.3	52	18.6	80	28.6	74	26.4	34	12.1
Interaction with peer teams	46	14.3	60	21.4	88	31.4	65	23.2	21	7.5
Mode of Online learning	33	11.8	55	19.6	96	34.3	77	27.5	19	6.8
HomeWorks & Assignments	31	11.1	48	17.1	74	26.4	87	31.1	40	14.3

**Source: Primary Data**

**Interpretation:** The above table reveals the pros and cons of online learning mechanism. The Data collected and analyzed in 6 elements.

- **Content Quality:** Out of 280 respondents, 43.6% said that the contents provided in online learning are moderately useful, 24.3% are opined very informative and useful, 14.3% are telling, slightly useful, 7.9% are extremely satisfied and 10% opined not at all useful.
- **Way of Presentation:** 35.7% opined the way of presentation is good, 29.6% are telling it's very useful, 16.4% are slightly using, 10.4% are very satisfied with the fact and 7.4% not satisfied.
- **Teacher- Student Interaction:** 28.6% of respondents reveals average opinion about teacher-student interaction, 26.4% said good interaction is possible in online learning, 18.6% opined slightly useful, 12.3% are not at all satisfies and only 12.1% opined it's very useful.
- **Interaction with peer teams:** 31.4% are moderately satisfied with the interaction with friends, 23.2% are opined very good communication is possible, 21.4% not much satisfied, 14.3% are very not in able to communicate and 7.5% are

maintaining relationships in a good manner.

- **Mode of Online learning:** 34.3% opined that mode of online teaching is useful, 27.5% said it is very good, 19.6% are moderately expressed, 11.8% are not at all satisfied only 6.8% are very satisfied.
- **Home Works and Assignments:** 31.1% said that assignments are very informative and useful, 26.4% are satisfied, 17.1% are not satisfied, 14.3% are very satisfied.

#### **FINDINGS OF THE STUDY**

- ▶ 81.4% of respondents are female and 18.6% are male.
- ▶ 67.9% of the respondents are belonging to the 16-20 age group
- ▶ The majority of the students are doing Plus two, UG & PG.
- ▶ Out of 280 respondents, 53% are opined that online classes are satisfactory.
- ▶ 41% are expressed that online classes are very effective.
- ▶ 46% viewed that the assignments and materials providing through online classes are very good.
- ▶ 58% opined that the contents are very useful.
- ▶ The majority of the respondents are agreed with the clarity of information, interest, usefulness,

user-friendliness, accessibility of online classes.

- ▶ Online classes are time-consuming.
- ▶ Connectivity problems are there while using online platforms.
- ▶ Time management problems.
- ▶ The online class creates stress and health issues like headaches, eye problems, and strain among students.
- ▶ The majority of the respondents are satisfied with the clarity of information and content.
- ▶ Effective teacher-student interaction should not be possible in online classes.

### CONCLUSION

During this pandemic situation students and teachers also have their struggle while accessing these online platforms. Due to financial constraints, students are not able to access internet facilities and electronic gadgets like a smart phone, laptop, and computer. Students are emotionally and mentally drained. They don't feel like learning, nothing is sticking to their mind. Students are still comfortable towards the face to face learning rather than online learning. Administrative authorities and faculty members should take necessary steps for improving online teaching quality with funnier and more interactive for better results to students, during this COVID-19 pandemic.

### RECOMMENDATIONS

- ▶ Schools and colleges have to take efforts to make online classes more user friendly.
- ▶ Ensure proper teacher-student interaction in between classes.
- ▶ Provide live classes to students, it should be more effective.
- ▶ Provide inclusive education like personality development and stress management.
- ▶ Reduce the syllabus for the time being.

- ▶ Every home is not conducive to learning.
- ▶ Students are emotionally and mentally drained.
- ▶ The plenitude of Homework and assignments lead to overburden to students.
- ▶ Social distancing creates a lot of mental changes among children during this pandemic situation.
- ▶ Provide counseling or mentoring to needy students.

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## STUDY ON CHARACTERISTICS OF KOLKATA SOIL ON THE BASIS OF LIQUEFACTION SUSCEPTIBILITY

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### *Abstract*

*The present study describes liquefaction of soil due to loss of strength of cohesion less soils in saturated condition due to sudden increase of pore water pressure during earthquake in untrained condition. Many failures of various structures such as seismic dams, retaining structures, and harbours have been attributed to liquefaction of saturated soils. There have been very limited studies regarding the behaviour of soil liquefaction at large depths, yet this situation commonly occurs at foundations of some structures such as large earth dams. This paper describes effects, mechanism, susceptibility, evaluation and prevention of liquefaction and it concludes by proposing that dynamic consolidation is the best suitable method of soil improvement which can be adopted before constructing any structures in Kolkata in those places are highly prone to liquefaction.*

**Keywords:** *Liquefaction, Kolkata soil character, Anti-liquefaction Measures, Dynamic Compaction, Pile Driving Method*

### **1. INTRODUCTION**

Liquefaction of sand can be defined as the loss of shear strength of sand due to oscillatory motion. It may lead to the failures such as bearing capacity failures, sinking, landslides, and flotation of underground structure. For liquefaction cohesionless, loose and saturated soil must be present. There is shaking of ground of required intensity and undrained condition develops in the soil during liquefaction. Liquefaction

occurs normally when SPT number  $N$  is less than 15 (Whitman, 1971). The loose sand is more compressible thus better for the observation of this phenomenon. If the soil is below the ground water table the voids of the soil get filled by water. In response of sudden soil compression water increases pressure and flows out. In low pressure zone if the loading is rapidly applied the flow out of water is not possible and pressure builds up to a large extent exceeding the contact stresses

between the grains of soil in contact in that case liquefaction will occur. Soil liquefaction occurs due to large earthquakes and it is also termed as ground failure (for flow liquefaction) and sometime it is termed as lateral spreading (cyclic mobility) (Seed, 1979). Generally soil liquefaction occurs due to less strength of soil. In saturated cohesionless soil due to build-up of pore water pressure and due to application of sudden earthquake load, the strength of soil gets decreased and soil liquefaction is occurred (Seed and Lee, 1966) [18]. Several case histories, field and laboratory studies revealed that silty sands (also present in Kolkata sub soil strata) are also prone to liquefaction (Seed et al., 1983; Yamamuro and Lade, 1998) [17, 26]. So on the basis of seismological and geotechnical characteristics; it is necessary to assess liquefaction susceptibility at Kolkata city and also the most suitable ground improvement technique has been proposed to mitigate soil liquefaction.

## 2. LIQUEFACTION PHENOMENON

The main cause of destruction during earthquake is the failure of ground structure. Under earthquake loading some soils may compact, increasing the pore water pressure and causing a loss of shear strength, and behave like liquid mud. This phenomenon is generally referred to as liquefaction. Liquefaction can occur at some depth causing an upward flow of water. Although the flow may not cause liquefaction of the upper layers, it is possible that hydrodynamic pressure may reduce the allowable bearing pressure at the surface.

**2.1. Effects of liquefaction:** Soil liquefaction causes enormously damage to the environment condition. Due to liquefaction the building foundation may face loss of support which result in virulent and irregular settlement of building causes structural damage and cracking of the building structure. The uplift force due to movement of earth

plates and shaking of earth can crack weak foundation, slab, beam and columns. The entire building may fall down and electrical services may also be hampered and there can be possibility of human death. Bridges, dams and buildings constructed on pile foundation may lose support and it may buckle. It is very danger for the society that because of earthquake and soil liquefaction there may be an increase of human death and also destruction of the native peace of the environment.

**2.2. Causes behind Liquefaction:** Soil is basically concentration of many soil particles which stay in contact with due to its cohesion and friction property ( $c$  and  $\nu$ ). The force exerted by the weight of the particles holds individual soil particle in its place and provides shear strength. When an unexpected movement occurs in the earth, liquefaction occurs. The pore water pressure of the soil prevents the soil particles from moving close together. So due to increase of pore water pressure the contact forces between soil particles may get reduced. At last when the particles lose contact with each other due to increase of water pressure the strength of the soil gets reduced and it will behave like a liquid rather than a solid (Sitharam, 2012).

## 3. MECHANISM OF LIQUEFACTION

Fig 1 represents a section of ground having sand layer of depth  $z$  from ground level (GL) where ground water table (GWT) lies at a depth  $h_w$  from ground level where unit weight of sand is  $\gamma$  and  $\gamma_{sub}$  is saturated unit weight of sand. The shear strength of sand is primarily due to internal friction (cohesion,  $c = 0$ ). In saturated state it may be expressed as: (Fig 1).

$$\tau = (\sigma_n - u) \tan \phi$$

Where  $\tau$  is the shear strength,  $\sigma_n$  is the normal stress acting on any plane at depth  $z$ ,  $u$  is the pore pressure and  $u = \gamma_w z$ , where  $\gamma_w$  is the unit weight of water, and  $\phi$  is the angle of internal friction. The equation can be expressed as



$$\tau = \sigma_n' \cdot \tan \phi \quad \text{Or } \tau = \gamma_b \cdot z \cdot \tan \phi$$

Where  $\sigma_n'$  is the effective normal stress,  $\gamma_{sat}$  is the unit weight of saturated soil and  $\gamma_b$  is the submerged unit weight of soil. If there is an increase in the pore pressure  $+\Delta u = \gamma_w h_w'$  due to vibration of the ground, the strength may be expressed as

$$\tau = (\gamma_b z - \Delta u) \tan \phi = (\gamma_b z - \gamma_w h_w') \tan \phi = \sigma_{dyn}' \cdot \tan \phi$$

Where  $\sigma_{dyn}'$  is the effective dynamic stress and  $h_w'$  is the height of water rise in stand pipe.

Therefore with the development of additional positive pore pressure, the strength of the sand reduces. For a complete loss of soil strength:

$$\gamma_b z = \gamma_w h_w' \quad \text{Or } h_w'/z = \gamma_b/\gamma_w = (G_s - 1) / (1 + e) = i_{cr}$$

Where  $G_s$  is specific gravity of soil solids,  $e$  is the void ratio, and  $i_{cr}$  is the critical hydraulic gradient.

Fig:1 Section of ground showing the Position of Water Table

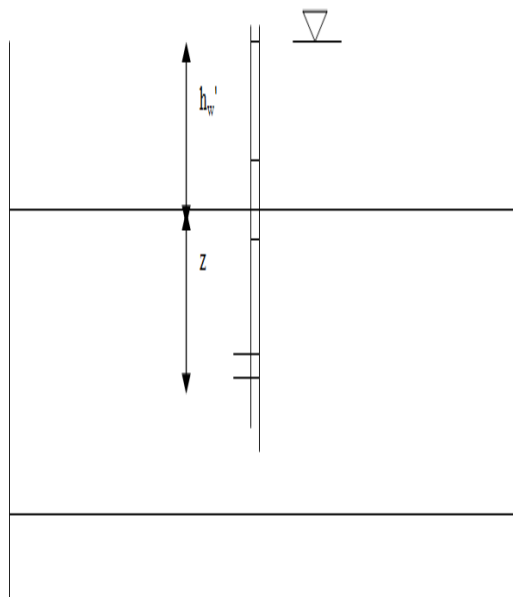


Fig:1 Section of ground showing the Position of Water Table

#### 4. PREVIOUS HISTORY OF LIQUEFACTION DURING EARTHQUAKE

Niigata earthquake (1964): The Niigata earthquake struck at 13:01 local

time on 16 June with a magnitude of 7.5. The epicentre was on the continental shelf off the northwest coast of Honshu, Japan in Niigata prefecture, about 50 kilometres north of the city of Niigata. Date: 16<sup>th</sup> June 1964, Magnitude: 7.6M<sub>w</sub>, Depth: 34km, Epicentre: 38.37°N 139.22°E, Tsunami: yes, Casualties: 36 dead or missing, 385 injured) Alaska earthquake(1964): The 1964 Alaskan earthquake also known as Great Alaskan earthquake and Good Friday earthquake occurred at 5.36 pm lasting for 4 minutes and thirty eight seconds, it was the most powerful recorded North American history and world history. Date: 27<sup>th</sup> March 1964, Magnitude: 9.2M<sub>w</sub>, Depth: 14 miles, Epicentre: 61°30'N 147°28'48"W, Type: Mega thrust, Areas affected: United States, Canada, Total damage: 11 million, Casualties: 139 killed Nepal earthquake (2015): The Nepal earthquake is known as Gorkha earthquake killed over 8000 people and injured more than 21000. Its epicentre was east of Lamjung district, and its hypocentre was at a depth of 8.2 km. The earthquake triggered an avalanche on Mount Everest. Date: 25<sup>th</sup> April 2015, Origin time: 11:56:26 NST, Magnitude: 7.8M<sub>w</sub>, Epicentre: 28.147°N 84.708°E, Type: Thrust, Total damage: 10 billion, Casualties: 8857 dead in Nepal and 21,952 injured. Loma Prieta earthquake (1989): The Loma Prieta earthquake occurred in northern California on October 17. Loma Prieta is a 3790 feet northern California mountain in the Santa Cruz Mountains range. The peak is on about 11 miles west of Morgan Hill in Santa Clara county. Date: October 17, 1989, Origin time: 5:04:15 PDT, Duration: 8-15 seconds, Magnitude: 6.9M<sub>w</sub>, Epicentre: 37.04°N 121.88°W, Type: Oblique-slip, Tsunami: yes, Casualties: 63 killed, 3757 injured. Christchurch earthquake (2011): The earthquake located in New Zealand. A 4.4 magnitude quake rattled southerners near Christchurch late on Saturday. Date: 22

February 2011, Magnitude: 6.3 ML, Depth: 5km, Epicentre: 43.584°S 172.701°E, Areas affected: New Zealand, Tsunami: 3.5m tsunami waves in Tasman Lake, following triggered glacier calving from Tasman Glacier, Casualties: 185 deaths, 1500-2000 injuries. Valdivia earthquake (1960): Valdivia earthquake or Great Chilean earthquake occurred on Sunday, 22<sup>nd</sup> May 1960 was the most powerful earthquake ever recorded, rating a 9.5 on the moment magnitude scale. Kangra earthquake (1905): Kangra earthquake occurred in the kangra valley and the kangra region of the Punjab province in India on 4 April. The earthquake measured 7.8 on Richter scale. San Fernando earthquake (1971): It occurred in the early morning of February 9. The magnitude of earthquake was 6.5 or 6.9

## 5. DETERMINATION OF LIQUIFACTION SUSCEPTIBILITY OF SOIL

Evaluation of liquefaction resistance of soils is an important step in many geotechnical investigations in earthquake-liable region. The most common procedure around the world for evaluating liquefaction resistance is "simplified procedure" which was developed by Seed and Idriss (1971) using blow count from standard penetration. It is important to identify whether the soil at the site is susceptible to liquefaction or not, so that suitable measures may be adopted, if required. Recent research has been directed in this direction. Various methods have been proposed by different investigators. The cyclic stress approach is generally used in most of the methods. A detailed understanding of site conditions, the soil stratification, dynamic soil properties, their variability, and the areal extension of potential critical layers should be developed. Simplified field tests like CPT, shear wave velocity test, SPT etc. are widely used in practice to characterize the soil stratum to obtain cyclic resistance

ratio (CRR). Corrections of the data should be applied as necessary, e.g. the normalized SPT blow count  $[(N1)_{60}]$  or the normalized CPT value.

Designed earthquake should be calculated by multiplying CRR value with earthquake magnitude scaling factor (MSF). Calculation of the stress for the liquefaction of critical zones is necessary, depending on the characteristics of the critical zone(s) (e.g., normalized standardized blow count, fine content, overburden stresses, level of saturation). Mainly to cyclic stress ratio (CSR) or  $\tau_{av} / \sigma_v'0'$  where  $\tau_{av}$  means developed shear stress during earthquake and  $\tau_h$ , shear stress required to cause liquefaction.

The average cyclic shear stress imparted by the earthquake in the top 12 m of a soil deposit can be estimated as (Seed et al., 1983).

$$CSR = 0.65 (\alpha_{max} / g) (\sigma_v / \sigma_v')$$

Where,  $\alpha_{max}$  = maximum horizontal acceleration (MHA) at the ground surface  
 $g$  = acceleration due to gravity (= 9.81 m/s<sup>2</sup>)

$\sigma_v$  = total vertical stress at the point of interest

$\sigma_v'$  = effective vertical stress at the same point

CSR = cyclic stress ratio produced by the design earthquake.

$r_d$  = stress reduction factor

The stress reduction factor ( $r_d$ ) depends upon the depth of the point of interest below the ground surface. The average curve is generally used in practice (Seed and Idriss, 1971).

The relationship can be approximate as  $r_d = 1 - 0.008 * \text{depth in metres}$  For each liquefaction susceptible critical layer, computation of the factor of safety against liquefaction is to be done. Factor of safety (FOS) = CRR / CSR  
 If FOS is < 1 then the soil is highly susceptible to liquefaction.

According to IS: 1893-2002 (part I): the basic zone factors are responsible to estimate the effective peak ground

acceleration in different seismic zones in India.

## 6. FACTORS AFFECTING LIQUEFACTION

**Soil type:** Liquefaction usually occurs in cohesionless soil; on the other hand liquefaction does not occur in fine grained, cohesive soil. However, highly sensitive clays may liquefy. **Particle size and gradation:** Fine, uniform sands are more prone to liquefaction than coarse well graded sands. Since the permeability of coarse sands is greater than the fine sand, the pore water pressure is dissipated in such sands and liquefaction normally does not occur. Liquefaction potential of sands depends on percentage of fines (size < 0.075mm) present in it. For a sand of a relative density, as the percentage of fine increases, liquefaction potential is decreased.

**Initial relative density:** Liquefaction of sand depends to a large extent on the relative density. In dense sands, both pore water pressure and settlements are considerably less than that in loose sands. Hence the proneness of sand to liquefaction is reduced with an increase in relative density. **Length of drainage path:** If length of drainage path is large, a sand deposit behave as undrained when the pore water pressure is suddenly increased due to earthquake and the liquefaction may occur. **Characteristics of vibration:** The main characteristics of vibration are its acceleration, frequency, amplitude and velocity. For liquefaction of soils, acceleration, and frequency are more dominant. Acceleration during vibration is the most important characteristics affecting liquefaction of soils, in general the greater the acceleration, the greater the chances of liquefaction. Liquefaction usually occurs only after a few number of vibration cycles are repeated.

**Age of soil deposit:** If the soil deposit is very old, its proneness to liquefaction is relatively low as compared to that of a recent soil deposit. In old

deposit some form of cementation occurs at the contact points of sand particles and the transfer of interparticle stresses to pore water is delayed. **Loss of bearing capacity:** Large deformation can occur due to liquefaction which may lead to large settlements or tilting of structures. Liquefaction initially develops in sand layer at a few meters below a footing. It propagates upward through overlying sand layers and subsequently weakens the soil supporting the structure. **Degree of saturation:** In dry soils liquefaction does not occur. There is very little susceptibility of liquefaction in partial saturated sands. Liquefaction resistance for soil increases with decreasing degree of saturation.

## 7. CHARACTERISTICS OF KOLKATASA SOIL

Kolkata is situated in the eastern part of India. It has located linearly along the banks of the Hooghly River. The Kolkata municipal corporation has an area of 185 sq km. The city is lying near the sea level with average elevation 17 feet. The whole area is Ganga Delta and it is flat enough. The Bay of Bengal land fall is about 60 miles to the south. The Sundarbans National park starts within 100 km south to the city. Most of the city was marshy wetlands and remaining wetland parts which are towards the eastern parts of the city have been converted to fish farming centre. As most of the indogangetic plain which is also known as Indus Ganga and the north Indian River plain which is 255 million hectare consists of highly alluvial soil. Kolkata is situated over a basin that is formed at the boundary of continental crust and oceanic crust with large thickness of alluvial sediments. The basin can be divided into 3 parts: western most part, central hinge and deep basin part (Roy and Chattopadhyay, 1997). **Subsoil condition of Kolkata municipal area:** Since KMC area has been developed geologically by deposition of sediments carried by big river system, the soil below the ground is basically erratic in nature.

The area can be divided into fluvial plain, tidal flat, natural levee and aggravated channels (Nandi, 2007). It has been observed that the characteristics of the soils in different layers up to a depth of 30m are very important in modifying the earthquake shaking and liquefaction potential (Das and Chattopadhyay, 2009). Some of the sub-soil information has been published to reveal the soil profile along a particular vertical section through the KMC area in North-South direction. For construction of Kolkata Metro soil exploration were made along the metro alignment 16.6 Km from Dumdum to Tollygaunge indicated very erratic deposition in terms of materials, thickness of layer and bedding planes. Standard Penetration Test conducted in exploratory boreholes at different locations in KMC area reveals that top soil up to a depth of 12–13 m is very much unconsolidated, where N-value varies from 0–3 (Som, 1999).

#### 8. EFFECT OF EARTHQUAKE IN KOLKATA SOIL

- Liquefaction is not new in Kolkata. Kolkata had experienced in the Contai earthquake in 1961. Several buildings and bridges of Kolkata were damaged very badly when the earthquake was of magnitude 5.5 on the Richter scale with epi centre in Contai, East Midnapore (Nandi, 2007).
- It just struck the city. Park street flyover had faced a crack. The balcony of an old house of Kolkata has been collapsed. In Great Assam earthquake in 1897 the tower of Kolkata high court had been damaged. The spire of St Paul's cathedral had toppled twice in earthquake first in 1897 and again in 1934. In 1906 the city had also been shaken by an earthquake.
- BBD Bag Salt lake and Newtown area are floating on a bed of slurry and it could sink in case of major earthquake strikes Kolkata (Chkroborty et al., 2004)
- Kolkata was also shaken several times when the earthquake measuring 8.1 on the Richter scale with its epicentre somewhere near Bihar-Nepal border (Nath, 2006)
- Earlier the entire country was categorized into four earthquake zones-II, III, IV, and V where Kolkata has been categorized as a zone III according to GSI (Geological survey of India) [IS: 1893- 2002 (part 1)].

#### 9. ANTI-LIQUEFACTION MEASURES

**9.1. Compaction of soils:** The liquefaction of a soil can be prevented by compaction and by increasing its relative density. Compaction is usually done by means of vibratory rollers, compaction piles, Vibro floatation, blasting, etc.

**9.2. Grouting the soil:** In this method the soil is stabilised by injecting chemicals or cement grout into the soil so that the voids are replaced by fine particles and shear strength of soil is increased.

**9.3. Ground water pumping:** The effective stress at a point increases as the water level is lowered. By restoring to extensive ground water pumping, the liquefaction can be prevented to some extent. However this method is cost effective only when the water that is pumped can be used for municipal and industrial purposes.

**9.4. Drainage of soils:** The liquefaction hazard can be reduced to some extent by providing course and blankets and drains in the soil deposit. The dynamic pore pressure is thus dissipated and there will be lesser chance of liquefaction.

**9.5. Providing stone columns:** In this method a certain number holes are bored in the soil deposit and later they are filled with gravel and stones either by inserting them into a casing or compacting them by application of external load without casing provided. The stone columns have high permeability and are quite effective for rapid drainage of pore water.

**9.6. Application of surcharge:** when surcharge load is applied to a soil deposit, the effective stress is increased. Thus the



possibility of liquefaction is reduced as there will be higher number of cycles will be required to increase excess pore water pressure up to total overburden pressure.

## **10. BEST GROUND IMPROVEMENT METHOD SUITABLE FOR KOLKATA SOIL AGAINST LIQUEFACTION**

**10.1. Dynamic compaction:** Dynamic compaction can be used as best suitable and economic applicable for constructing those structures having shallow foundation (depth of foundation less than or equal to width of foundation). Generally a huge number of constructions are going on in Kolkata mainly those places which are highly prone to liquefaction (especially Rajarhat, Newtown and Saltlake region). Except construction of high rise structures and bridges before construction of light weight structures like buildings, water tanks (except elevated service reservoir) etc. dynamic compaction must be applied. This method can be used to increase the density of soil. In this process a heavy weight dropped on the ground at regularly spaced intervals. The weight is between 8 tonne to 36 tonne depends on the degree of compaction. Degree of compaction depends on the weight of hammer and height of fall. Dynamic compaction provides an economical way of improving soil for mitigation of liquefaction hazards. From the above study it can be concluded that by the dynamic compaction method the sandy soils containing silts with hydraulic conductivities as low as  $10^{-8}$  m/s can be improved. However, densification of soil requires specially controlled sequence of impact to inhibit pore pressure build-up at any section.

**10.2. Pile driving method:** For construction of heavy weight structures like high rise buildings this method is most suitable. A huge number of high rise buildings which require large length of piles, are being constructed in and around Kolkata. As a result there will be an increase in the horizontal soil stress and

consequently a change of the at rest pressure coefficient. Densification of loose sand by compaction of piles can be done. Loose sand strata often need densification by artificial means to improve their relative density since they are liable to liquefaction during earthquake. The process essentially involves driving a casing that has an expandable shoe into the soil – as in the case of cast – in- situ driven piles – by repeated blows of a hammer.

## **11. CONCLUSION**

From the above study of liquefaction phenomenon it is clear that liquefaction is a dynamic source of great economic losses. It is very important that the phenomenon and its effect should be brought to the attention of engineers, geologists and professionals involved to the planning and construction of structure. Further research is needed to make Microzonation, site investigations and precautions to prevent the impact of liquefaction. After analyzing it has been suggested that „driving of piles“ is the best method suitable for an anti-liquefaction measure applicable to Kolkata city. Since, pile driving believed to result in an increased in the horizontal soil stress and consequently a change of soil pressure coefficient at rest. Though driven piles are most cost effective, environmentally friendly, easily available that’s why it is best for Kolkata soil. By driving the piles into the soil strata not only increases its bearing capacity but also densify the soil by vibrating and compacting while driving onto the soil. As a result void ratio within the soil reduces substantially there will be no chance of sudden rise of excess pore water pressure. But in case of structures which will require shallow foundation in that case „dynamic compaction“ (for cohesionless soil) would be the most suitable method applicable to Kolkata soil.



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## **THE IMPACT OF COVID-19 IN HIGHER EDUCATION: AN EMPIRICAL STUDY FROM WEST BENGAL**

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### *Abstract*

*The COVID-19 pandemic affected nearly all kind of industries like Auto and auto components, Apparel and Textiles, Aviation and Tourism, Building and Construction, Chemicals and Petrochemicals, Banking Insurance and NBFCs, Food and Agriculture, Metals and Mining, MSMEs, Oil and Gas, Pharmaceuticals, Power, Telecom, Transport and Logistics. Education is also extremely affected by the pandemic. Rather higher education is worst affected by the consequences of COVID. Most of the higher education institute in West Bengal are not in a position to provide or implement online teaching-learning platform because of lack of proper infrastructure in one side on the another side most of students in rural and semi-urban Bengal don't have any kind of android mobile, laptop or desktop. In private colleges' administration are facing confrontations with the guardians of students regarding tuition fees, which becomes a part of daily news in newspapers and television. Outgoing students are very much worried about their future in terms of internship, placement etc. Companies those who have already given appointment letter to the final year students, now are delaying in the process of ultimate recruitment. The outbreak has also far reaching affect like diminution in global mobility of students.*

**Keywords:** *Diminution, Infrastructure, Internship, Mobility, Pandemic, Recruitment*

### **Introduction**

According to a survey report of the MHRD, Government of India observed that there are 993 universities, 39931 Colleges and 10725 stand alone Institutions which contribute education in India. The survey also reported nearly 37.4 million students are enrolled every year in India. The current pandemic is not only affected the health of the citizens but also uprooted higher education system. We are accustomed to watch the advertisement of different online teaching-learning app like Urbanpro,

Unacademy, Byju's etc. But have we ever thought that overnight or one fine morning online education will become an essence of our life. I do particularly feel that though primary and school level education may be somehow manageable through online platform, higher education i.e., college and university level course may not be manageable at all, if manageable, then may be to a few extent. As a teacher of commerce, I am giving you simplest of example that when you are doing a solution of "Final Accounts" in the class with old chalk-duster-board

method, it will give you immense pleasure or satisfaction. Can we expect same level of satisfaction when we will explain it in online, to me it cannot be equal in terms of level of satisfaction. It may be true also for other subjects. The need of the situation is now allowing educational institutions to adopt online learning and infuse a virtual study culture. A paradigm shift to online education has been ensuring that students should not suffer any kind of loss in their academic activities and simultaneously academic progress is being evaluated by timely online exams.

### Review of Literature

*Arora, A and Srinivasa, R.* in their paper “Impact of Pandemic COVID-19 on the Teaching – Learning Process: A Study of Higher Education Teachers” studied responses from 341 teachers of higher education institutions from different regions. The teachers were divided into two parts - One who adopted virtual classrooms and another who did not adopt virtual classrooms. Network issues, less attendance, lack of personal touch and lack of interaction were found to be the significant drawbacks of virtual classes. Lack of awareness in terms of how to use the modern technology and economical condition on the part of the students were found to be the significant factors to adopt non-virtual classes.

*McReynolds*, Assistant Professor of Clinical Epidemiology, Columbia University Mailman School of Public Health in his paper entitled “COVID-19 Higher Education Student Impact Study” he has conducted a series of online surveys with students enrolled in US colleges and universities. His study not only gave an insight into behavioural, mental and physical health of students, but also academic and economic situation and apprehensions related to the COVID-19 pandemic that are shaping students’ lives for present and future.

A group of researchers (Study.eu Team) in their paper entitled “Impact of

COVID-19 on studying abroad in Europe: Overview” surveyed about- How does the Corona pandemic affect studying abroad? They found some of the factors which really influence higher education system such as Restrictions on immigration, Eligibility for admission and Admission procedures and application deadlines.

### Research Objectives

There are very few studies so far have been made how COVID affected higher education system. This has prompted me to throw some light on this particular area.

The objective of the study is to find out

- i) Different kind of variables which currently influence higher education system.
- ii) How those factors are really influence both teacher and student

### Research Methodology

For the purpose of the study a structured questionnaire (with 23 questions) has been prepared with 7 point Likert scale and **ultimately 10 questions/variables** are selected because to satisfy internal consistency. The questionnaire has been sent to different teachers and students of colleges and universities situated in West Bengal through mail and ultimately 200 responses have been considered for study. Later on Factor analysis has been done for analysis and findings.

### Analysis and Findings

#### Reliability Statistics

Cronbach's Alpha	N of Items
.387	10

Generally, Cronbach alpha is used to verify internal consistency or reliability of data for the purpose of study. Here it is found that; I have started my journey with 23 questions/variables and ultimately 10 variables are found suitable for the purpose of research. Last column of the following table suggest that no more variable can be rejected as it will lead to reduction in the value of Cronbach alpha.

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Online teaching will allow reaching out to a large number of students across geographies	32.50	8.241	.261	.317
Online teaching encourages distance learning	30.69	8.448	.152	.360
Students can be evaluated in a fair manner in case of online assessment	28.57	8.729	.130	.369
Both teachers and students do face technological difficulties related to weak devices or access to the internet	32.43	8.829	.123	.371
Attending online classes at home sometimes distract the attention of both the teacher and students	29.44	8.197	.203	.337
Continuous dependency on technology may affect seriously health issues for the future	32.52	9.085	.083	.385
Limited or restricted number of students in one online meet can increase the quality of online classes	30.56	8.690	.144	.363
Our society will adopt online education as a part and parcel of our life in near future	28.89	8.615	.097	.385
Online teaching may not be fruitful for weak students, as they are not well accustomed with free flow conversation and discussion	32.54	8.722	.152	.360
Online platform really provides educational institute can have a global access on reputed teachers	32.48	8.874	.131	.368

The following table shows the one to one relationship with one variable to another. Here it is observed that nearly all the variables are positively correlated with

each other except a very few case; which are really marginal one where variables are negatively correlated.

Correlation Matrix <sup>a</sup>											
	V2	V3	V5	V8	V9	V10	V11	V17	V21	V22	
Correlation	V2	1.000	.129	.042	.066	.132	.045	.133	.034	.197	.159
	V3	.129	1.000	.001	-.031	.180	-.142	.126	.074	.075	.117
	V5	.042	.001	1.000	.072	.120	.213	.115	.060	-.101	-.048
	V8	.066	-.031	.072	1.000	.102	.072	-.035	.106	.038	.058
	V9	.132	.180	.120	.102	1.000	.086	.171	-.009	.026	-.089
	V10	.045	-.142	.213	.072	.086	1.000	-.009	.049	-.054	.056
	V11	.133	.126	.115	-.035	.171	-.009	1.000	-.058	.023	.054
	V17	.034	.074	.060	.106	-.009	.049	-.058	1.000	.127	-.020
	V21	.197	.075	-.101	.038	.026	-.054	.023	.127	1.000	.225
	V22	.159	.117	-.048	.058	-.089	.056	.054	-.020	.225	1.000
Sig. (1-tailed)	V2		.034	.280	.176	.031	.265	.031	.318	.003	.012
	V3	.034		.497	.331	.005	.022	.037	.149	.146	.049
	V5	.280	.497		.156	.046	.001	.053	.198	.077	.249
	V8	.176	.331	.156		.075	.157	.310	.068	.296	.209
	V9	.031	.005	.046	.075		.112	.008	.452	.358	.105
	V10	.265	.022	.001	.157	.112		.449	.244	.223	.215
	V11	.031	.037	.053	.310	.008	.449		.208	.375	.223
	V17	.318	.149	.198	.068	.452	.244	.208		.037	.387
	V21	.003	.146	.077	.296	.358	.223	.375	.037		.001
	V22	.012	.049	.249	.209	.105	.215	.223	.387	.001	

a. Determinant = .632

Bartlett's test of sphericity and Kaiser-Meyer Olkin (KMO) measure of sampling adequacy were used to examine the appropriateness of factor analysis. The approximate chi-square statistic is 89.502 with 45 degrees of freedom, which is significant at 0.000 levels. The KMO statistic (0.529) is also large (> 0.5) Hence factor analysis is considered an appropriate technique for further analysis of data.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.529
Bartlett's Test of Sphericity	Approx. Chi-Square	89.502
	df	45
	Sig.	.000

Higher communalities value after extraction suggests that the variables considered for research purpose are worthy. But if the values are in between 0.0-0.4, then that variables may not be worthy for decision making. In my study all the variables have a value greater than 0.4, which suggests that all the variables are praiseworthy for the purpose of study.



In other words all the factors are considered for our study are important for decision making.

Communalities		
	Initial	Extraction
Online teaching will allow reaching out to a large number of students across geographies	1.000	.437
Online teaching encourages distance learning	1.000	.547
Students can be evaluated in a fair manner in case of online assessment	1.000	.498
Both teachers and students do face technological difficulties related to weak devices or access to the internet	1.000	.377
Attending online classes at home sometimes distract the attention of both the teacher and students	1.000	.538
Continuous dependency on technology may affect seriously health issues for the future	1.000	.629
Limited or restricted number of students in one online meet can increase the quality of online classes	1.000	.502
Our society will adopt online education as a part and parcel of our life in near future	1.000	.631
Online teaching may not be fruitful for weak students, as they are not well accustomed with free flow conversation and discussion	1.000	.526
Online platform really provides educational institute can have a global access on reputed teachers	1.000	.629

**Extraction Method: Principal Component Analysis.**

Retaining only the variables with Eigen values greater than one (Kaiser's criterion), we can infer that 16.009% of variance is explained by factor V2; 13.978% of variance is explained by

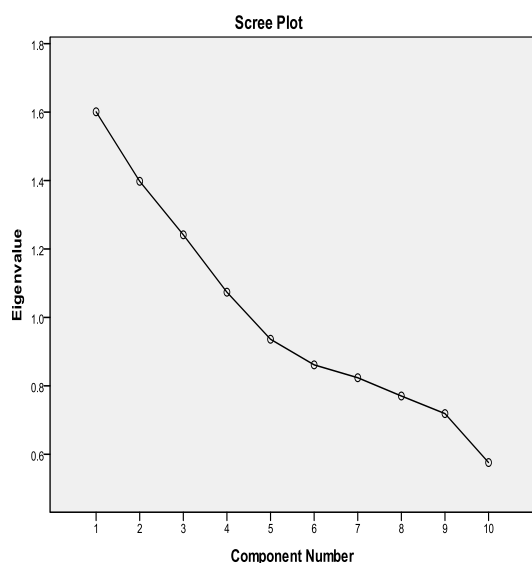
factor V3; 12.414% of variance is explained by Factor V5 and 10.737% of variance is explained by factor V8 and together, all the factors contributed to 53.138% of variance.

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
V2	1.601	16.009	16.009	1.601	16.009	16.009
V3	1.398	13.978	29.987	1.398	13.978	29.987
V5	1.241	12.414	42.401	1.241	12.414	42.401
V8	1.074	10.737	53.138	1.074	10.737	53.138
V9	.936	9.362	62.500			
V10	.861	8.613	71.113			

V11	.824	8.237	79.350		
V17	.770	7.703	87.053		
V21	.719	7.189	94.242		
V22	.576	5.758	100.000		

**Extraction Method: Principal Component Analysis.**

In Scree Plot variables are measured in the x-axis. Steeper the curve between the two variables, it suggests that each successive factor is accounting for higher amounts of the total variance or we consider them as strong factors and if the line is almost flat, suggest that the each successive factor is accounting for smaller and smaller amounts of the total variance or they are not considerable variables for decision-making, but here curve is almost steeper, so we may consider that all the variables are important for decision making.



**Conclusion:**

So here I conclude that the 10 variables are truly influencing the higher education system in West Bengal during COVID pandemic. Due to paucity of time I have started my journey with 22 variables and ultimately reduced to 10 variables and two hundred responses are considered for the purpose of meaningful study. More variables may be considered for the betterment of study and more samples can be included in the study. If

more variables and more responses are considered for study, then there may be a change in the observations of result.

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**Questionnaire**

Each question is evaluated on the basis of Likert scale:

- 1 = Strongly Agree
- 2 = Agree
- 3 = Somewhat Agree
- 4 = Neither Agree nor Disagree
- 5 = Somewhat Disagree
- 6 = Disagree
- 7 = Strongly Disagree

1. Online methods of teaching will allow innovation with the help of technology and online tools

2. Online teaching will allow reaching out to a large number of students across geographies
3. Online teaching encourages distance learning
4. Online mode takes more time compare to formal class-room teaching when clarifying a subject
5. Students can be evaluated in a fair manner in case of online assessment
6. Inability to have a face-to-face connect with students hinder free conversations, discussions, and mentoring
7. Listening or learning from recorded knowledge (such as from Youtube) is one of the major advantage of online teaching-learning
8. Both teachers and students do face technological difficulties related to weak devices or access to the internet
9. Attending online classes at home sometimes distract the attention of both the teacher and students
10. Continuous dependency on technology may affect seriously health issues for the future
11. Limited or restricted number of students in one online meet can increase the quality of online classes
12. Students enrolment in universities in West Bengal from abroad is worst affected by the pandemic
13. Webinar is becoming more popular than seminar
14. Transformation of class room teaching into a digital one will reduce the rate of recruitment of teachers and teaching staffs in near future
15. Most of the aged teachers are inexperienced and ill-equipped to cope with a fast transition to online learning
16. Teachers' gravity is missing in online teaching
17. Our society will adopt online education as a part and parcel of our life in near future
18. Private educational institute are facing financial burden in terms of both receipts and payments

19. Students are seriously doing homework on the basis of E-notes and online assignments provided by the teachers

20. It is impossible to conduct a frequent parent-teacher webinar

21. Online teaching may not be fruitful for weak students, as they are not well accustomed with free flow conversation and discussion

22. Online platform really provides educational institute can have a global access on reputed teachers

Note: This is the full set of questions, but after reliability test it has been reduced to 10 questions or variables and selected questions are marked bold.

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## COVID 19 IMPACT: PROMOTING AGRICULTURE AND RURAL ECONOMY

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### *Abstract*

Agriculture is the backbone of our country, and 70% of the population of India is living in rural areas. Agriculture is the main driving force for ensuring food and nutrition security, increasing employment in rural areas and sustainable socio-economic development of farmers. Farming and allied activities major contributing to the rural economy, it contributed about 15 percent of the national GDP and the capital is agricultural products for the production of certain sectors. The pandemic situation in the country COVID-19's socio and economic implications has catapulted agriculture into the mainstream discourse, pandemic impacts directly affecting our farming and food supply and increase unemployment for rural areas. In this situation, our people need food and nutritional security and also employment. Ensuring food and nutrition security and creating employment is a challenge for India, given its huge population. Considering the above facts the researcher has chosen this topic, the main aim of this paper promoting agriculture and rural economy. The information collected from the primary and secondary sources, primary information collected previously year and secondary information collected currently through internet source. Conclusion of these papers, the solution to the current economic downturn and sustainable economic growth should be to increase agricultural production, prioritize agriculture, and convert small-marginal farmers to agro-entrepreneurs, increase agricultural industries in rural areas, trained in the technical aspects of value-added products from agricultural production and give priority to a rural industry. Further, Integrating Indigenous Farming Systems, it is a potential way to food and nutritional security and will create employment opportunities for rural people. The current need to upgrade the export of agricultural products abroad is essential to restructure existing agriculture. Adopting traditional farming methods and integrating livestock farming and fish culture with incorporate modern technologies to increase agricultural production and produce high-quality value-added products to export. Hence, policymakers, scientists, and researchers need to developing farming strategies and policy recommendations in the pandemic period for farming development.

**Keywords:** Agriculture, COVID 19 impacts, Promoting agriculture and rural economy

## Introduction

Agriculture is very important for Indian economy and society both. It is the means of livelihood for half of the population, if we also count in the ancillary activities. According to the Socio- Economic and Caste, SECC in 2011, out of 24.39 crore households in the country, 17.9 million households live in villages and are mostly dependent on agriculture. Looking at the current scenario of agriculture in India, 69 % of the farmer families have less land than one hectare land. 17 % of the families have land between one to two hectares. Economic Survey of 2015-16 states that 48.9 percent of the total workforce population is contributing only 17 percent to GDP (Gross Domestic Product) and in the current financial year, the growth rate of agriculture and allied sectors is expected at 2.1 percent (Naresh Sirohi, 2018).

Paramasivan C, Pasupathi R (2016) has suggested that Agro-based industries can play an important role to a large extent in solving the problem of poverty, unemployment and inequality in India and can significantly contribute to the overall development of the economy by efficiently utilizing the local raw materials which consequently may result in increase of gainful employment opportunities to poor people mainly landless, marginal and small farmers. This paper discuss in the performance of agro based industries in India.

The Indian economy is predominantly rural and agricultural and agriculture has responsibility of providing national as well as household food and nutritional security to its spilling over millions. The current situation in the country COVID-19's economic implications has catapulted agriculture into the mainstream discourse, corona virus impact directly affecting our farming and food supply. Further, COVID 19 impacts increase unemployment for rural areas because already migrated

village people return to the village from the city. This situation in India calls for an integrated effort to address the emerging issues. The best way to address this urgent need is to use social safety then extensively to stabilize their lives with food and nutrition and employment. In this situation this paper outcome may be contributing for rural people livelihood and ensuring food and nutritional security.

## Agriculture sector for Rural Economy

India's economic growth in financial year 2019 is estimated at 6.8 percent. Agriculture accounts for nearly 18 percent of GDP and employs almost half of country's total workforce. Agriculture and allied sector play a vital role in Indian economy. The importance of agriculture and allied sector is brought out by the fact that as per census 2011, of the 313 million main workers in the country, 166 million were engaged in these activities (H.L.Sharma, 2018).

## Revamp in Agriculture

High economic growth in India has certainly reduced the number of rural poor from 50 percent of the total rural population in 1993-94 to 28 percent in 2011-12, yet it has not been able to reduce the gap between the rural and urban areas. The policy approach to agriculture since the 1990s has been to secure increased production through subsidies on inputs by increasing the minimum support price and improving credit for small land holders. We need to build efficient irrigation systems and water conservation strategies in rain-fed region, through conjunctive use of surface and groundwater (Naresh Chandra Saxena, 2016).

## Rural agro-industries to increase rural economy

Agro based industries role very important for rural development. Agro processing industries should be viewed as industrialization of agriculture and a joint process leading to a new industrial sector. The Economic survey (2014-15) recommended bringing a new paradigm in



the approach towards agriculture for getting more from less. One of the critical areas that can enhance the income of the rural households is to provide higher opportunity in agro based food and non- food activities. Agro food processing industries have the potential to generate directly significant employment in production activities and also indirect employment through its forward and backward linkages. This employment will be in rural areas where these industries have to be located near the source of raw materials, especially perishable agricultural products. Agro based industries would help in reducing post harvest losses and wastes as well as in using by products more efficiently (J.P. Mishra, 2019).

#### **Integrated Indigenous Farming system**

Indigenous farming is not just farming practiced by indigenous people. It is the product of indigenous cultures that are deeply connected to particular places (Katie Pace, 2015). Indigenous farming also called traditional farming, organic farming and natural farming. Indigenous farming doesn't need pesticides or chemicals and because of this, the farmers save a lot of money, these methods of farming through five main practices such as Agro forestry, Crop rotation, Mixed-/Inter-cropping, Polyculture and Water harvesting. Indigenous farming system provides an opportunity to increase the yield and economics / unit time by virtue of intensification of crop and allied enterprises. Many research reports from India have shown significant improvement in livelihood of small and marginal farmers through indigenous farming system. IFS helps to reduce the risk involved in farming especially due to market price crash as well as natural calamities (N. Ravisankar and A.S. Panwar, 2018).

#### **Conclusion**

Agriculture and allied sector play vital role in a developing rural economy

like India by reducing poverty, unemployment and inequality, ensuring food security and achieving rural economy development. Rural areas are undergoing a considerable change. Rural India is becoming less and less agricultural and allied activities are now a very important part of the livelihood strategies. The allied agricultural sector like livestock and horticultural crafts contributes significantly to economic growth, income diversification, rural employment and poverty reduction. Adopting indigenous farming methods and integrating livestock farming and fish culture with incorporate modern technologies to increase agricultural production and produce high-quality value-added products to export. The solution to the current economic downturn and sustainable economic growth should be to increase agricultural production, prioritize agriculture, convert small-marginal farmers to agro-entrepreneurs, increase agricultural industries in rural areas, train rural women to produce value-added products from agricultural products and give priority to a cottage industry. There is no doubt that India's agricultural economy will be a major part of the world in the future.

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