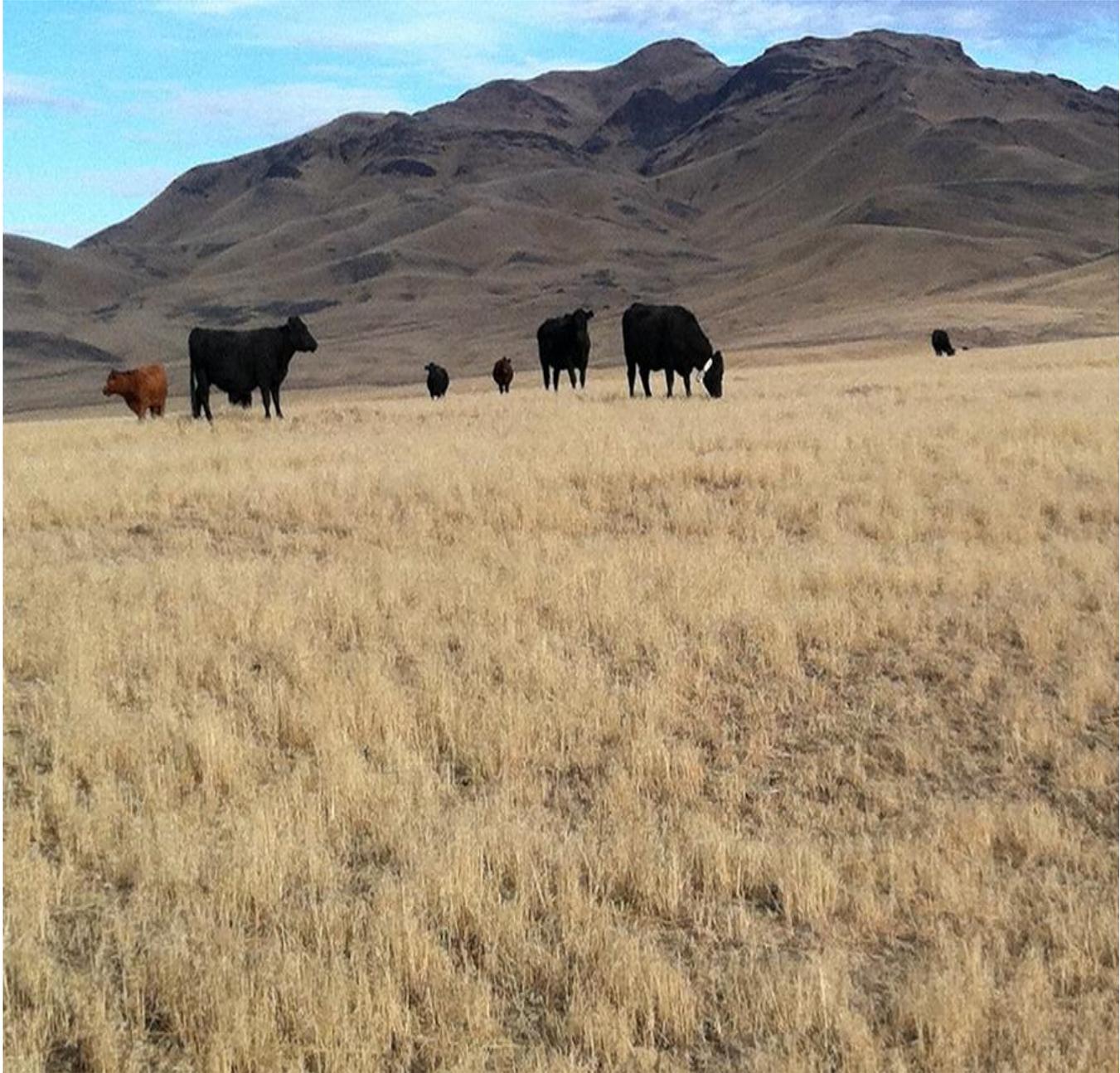


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## Research Article

# Impact of Covid-19 on Indian Monsoon During (2019-2022): Proposed work

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## ABSTRACT

In this paper here we summarize that the relation between Covid-19 against the Indian monsoon. We address current information about the Indian monsoon in this analysis. The goal of this work is to comparative analysis of covid-19 and Indian monsoon. We also proposed framework for covid-19 and monsoon thermal and dynamic system with their condition. Here we focus the sign convention and their impact of covid-19 & Indian monsoon system. Here we show covid-19 high in the summer season due to various factors. In this paper we have find the nature and comparative analysis of Covid-19 & Indian monsoon system.

**Keywords:** COVID-19 diseases, novel frame work for COVID-19 for Indian monsoon system

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## INTRODUCTION

COVID-19 (corona virus disease 2019) is a disease caused by a virus named SARS-CoV-2 and was discovered in December 2019 in Wuhan, China. It is very contagious and has quickly spread around the world [1]. COVID-19 most often causes respiratory symptoms that can feel much like a cold, a flu, or pneumonia. COVID-19 may attack more than your lungs and respiratory system. Other parts of your body may also be affected by the disease.

- Most people with COVID-19 have mild symptoms, but some people become severely ill.
- Some people including those with minor or no symptoms may suffer from post-COVID conditions — or “long COVID”.
- Older adults and people who have certain underlying medical conditions are at increased risk of severe illness from COVID-19.



- Hundreds of thousands of people have died from COVID-19 in the Indian States.
- Vaccines against COVID-19 are safe and effective. Vaccines teach our immune system to fight the virus that causes COVID-19.

Corona virus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age [2].

The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols [3].

**What is Monsoon:** A monsoon is a seasonal change in the direction of the prevailing, or strongest, winds of a region. Monsoon winds are caused when the air over land gets heated and rises, causing winds to blow from the ocean towards lands [4].

**Concepts of the origin of Monsoon:** The concept of the origin of monsoon is related to thermal and dynamic factors and thus there are two concepts of the origin of monsoon e.g.

- (1) Thermal concept and
- (2) Dynamic concept.

**Thermal Concept:** The thermal concept of the origin of monsoon was first propounded by halley in 1686 according to this concept the monsoons are the result of heterogeneous character of the globe (unequal

distribution of land and water) and differential seasonal heating and cooling of the continental and oceanic areas.

On the other hand, low pressure centers is developed in the southern Indian ocean due to summer season and related high temperature in the southern hemisphere.

**Dynamic concept:** A host of scientists have refuted the thermal origin of monsoon and have raised the following objections against the old concept or thermal concept

If the 'lows developed over the land areas are 'heat lows' (low pressure centres developed due two high temperature), then they should remain stationary at their places for some time but they are never stationary. There is sudden and widespread shifting in their positions.

**Indian Monsoon:** The seasonal reversal in the wind direction during a year is called monsoon. Indian climate is a monsoon type of climate. Monsoon climate is characterized by weather conditions that change from season to season. This type is mostly experienced in interior parts of the country rather than coastal areas. As over the plains of India, the climate of the Himalayas is largely seasonal in nature.

**Types of Monsoon Seasons are as:**

- (1) Pre- Monsoon / hot weather season (March- May)
- (2) Rainy season / south western monsoon (June- September)
- (3) Post monsoon season/ northeast monsoon (October- November)
- (4) Winter season (December- February)

**Proposed work:** This work shows the relation between Covid-19 and Indian monsoon by block diagram as:

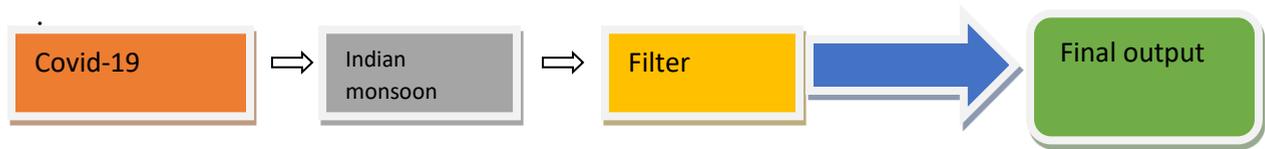


Fig 1: General Block diagram of Covid-19 & Indian monsoon

## OBJECTIVES

In this paper we are focusing the some theoretical and new work has been done with the point of view of Covid-19 & Indian monsoon as:

- To investigate the nature of the Covid-19 and Indian Monsoon
- To find the comparative analysis of Covid-19 and Indian Monsoon

## MATERIAL AND METHODS

1. **Protocol and registration:** This systematic reviews was not registered with the PROSPERO database (CRD42020176909) But performed according with the PRISMA (preferred reporting items for systematic reviews and meta- analysis)
2. **Eligibility criteria:** Manuscripts that evaluated the effects of different climatic conditions of temperature and/or humidity on the spread of covid-19 were included. The search strategy was defined based on the PECOS format as follows:

Population (P): Humans diagnosed with COVID-19, Exposition (E): Different weather conditions: Humidity, temperature,

Comparison(C): Without comparison:  
Outcome (O): Spread of SARS-CoV-2 (covid-19); Study design (S): Observational studies, prospective or retrospective, case reports, case series [5].

The exclusion criteria involved studies that evaluated other upper and lower respiratory syndrome coronavirus (MERS-CoV), and influenza. The assessment of other climatic conditions, except for temperature and humidity was also not considered. Opinion articles, animal or laboratory studies, and literature reviews were not included.

### Information sources:

The following electronic databases were searched: PubMed, Scopus, Web of science, Cochrane library, LILAC, OpenGrey and Google scholar. A hand search was also conducted by reading the references list of the included articles. The search was conducted up to March 24<sup>th</sup>, 2019 in all databases, and until 31<sup>st</sup> September, 2022 only in Google scholar.

## Comparative Analysis:

Parameters	Covid-19	Parameters	Indian Monsoon	Remarks
Symptoms	Fever, cough, fatigue, shortness of breath	Air temperature	decreases	Correlated
Topology	Network topology	Air pollution	decreases	Not correlated
Size	It has round or elliptic and often pleomorphic form, and a diameter of approximately 60-40 nm	Air quality	Clean and safe	Correlated
Incubation period	Average 5-6 days, but can be as long as 14 days	Water quality	Clean and pure	Correlated
Nature	Spiky/crowns	Humidity	The doubling time correlates positively with temperature and inversely with humidity	Correlated
Range	Large	Precipitation	Precipitation is significantly associated with a decreases risk of covid -19	Correlated
RT-PCR Test	Delete accurate result	Soil pollution	Soil is highly polluted	Correlated
Origin of the Virus	Bats	Environmental issue	Environment are also polluted	Correlated

Table 1: Comparative analysis of Covid-19 &amp; Indian monsoon with different parameters

**Background:** Faced with the global pandemic of covid-19, declared by world health organization (who) on march 11<sup>th</sup> 2020, and the need to better understand the seasonal behavior of the virus, our team conducted this systematic review to describe current knowledge about the emergency and replicability of the virus and its connection with different weather factors such as temperature and relative humidity etc.

## RESULTS

The initial screening identified various articles. Great homogeneity was observed in the findings regarding

the effect of temperature and humidity on the seasonal viability and transmissibility of covid -19. Cold and dry conditions were potentiating factors on the spread of the virus.

After quality assessment of the water and air quality is clean and pure and air temperature and air pollution

decreases continuously in Covid-19 time. According to our comparative analysis and we have used here GrADS software for the analysis of Covid-19 and Indian Monsoon according to various parameters and

sign convention rule of table 2. We can say that the covid-19 was high in the summer season due to various factors like different parameters used in this analysis

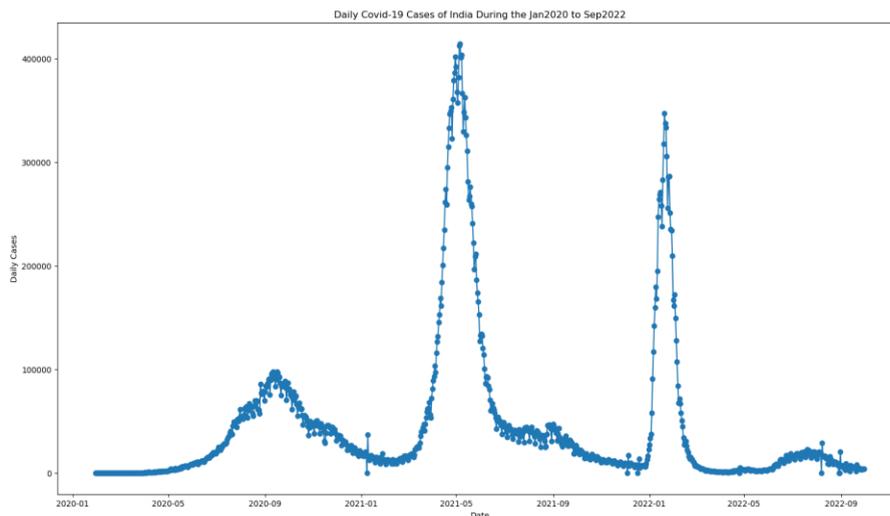


Fig. 2: Daily Covid-19 case of India during the Jan 2020 to Sept 2022

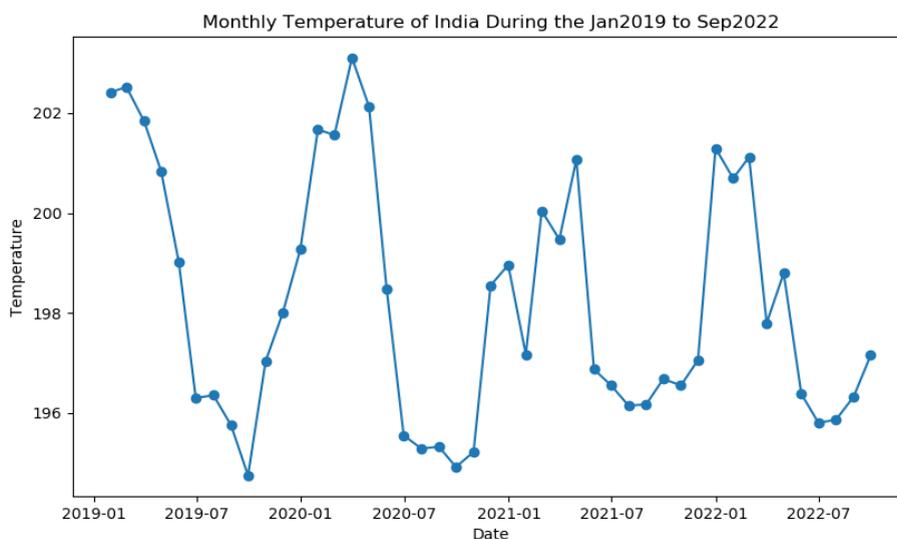


Fig. 3: Monthly temperature of India during the Jan 2019 to Sept 2022

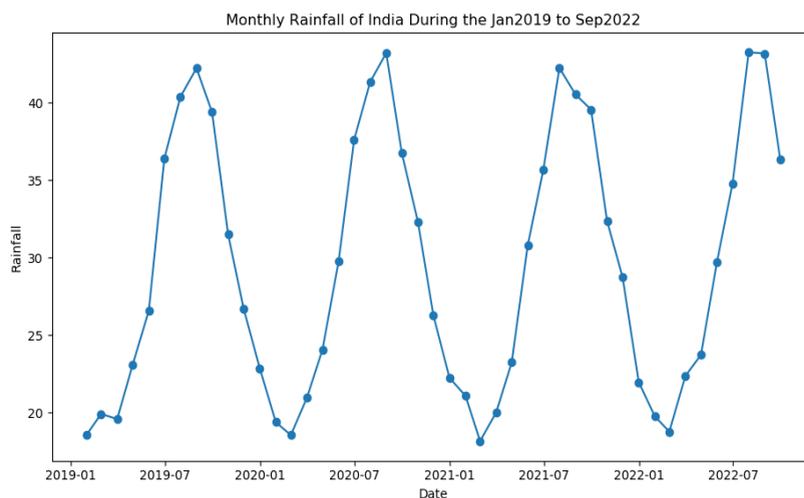


Fig. 4: Monthly Rainfall of India during the Jan 2019 to Sept 2022

## DISCUSSION

The results of the articles included in this systematic review indicate that the spread of COVID-19 may be influenced by Indian monsoon variables such as temperature and humidity. Furthermore, the spread of types of diseases caused by betacoronavirus, such as SARS-CoV-1 [6] and MERS-CoV [7], have already been shown to suffer the impact of climate condition both those the analyses of COVID-19 outbreaks in relation to meteorology aspects reveal significant connection between the incidence of positive cases and climate conditions. Social factors play a role in

coronavirous outbreaks, since this public health problem is too complex to be explained solely in relation of climatic conditions. Isolation programs, social distancinh, number of inhabitants per household, immigration control program, personal, hygiene conditions are some of the confounding variable that must interfere in the spread of the new coronavirus, as it occurs with another coronaviruses in the past [8,9].

**Impact of Covid-19 & Indian monsoon through Parameters with sign convention:**

Parameters	Covid-19	Parameters	Indian monsoon
Symptoms	+	Air temperature	-
Topology	nill	Air pollution	+
Size	+	Air quality	+
Incubation period	+	Water quality	+
Nature	+	Humidity	+
Range	nill	Precipitation	+
RT-PCR Test	+	Soil pollution	+
Origin of the Virus	+	Environmental issue	+

Table 2: Impact of Covid-19 &amp; Indian monsoon with their parameters &amp; sign convention

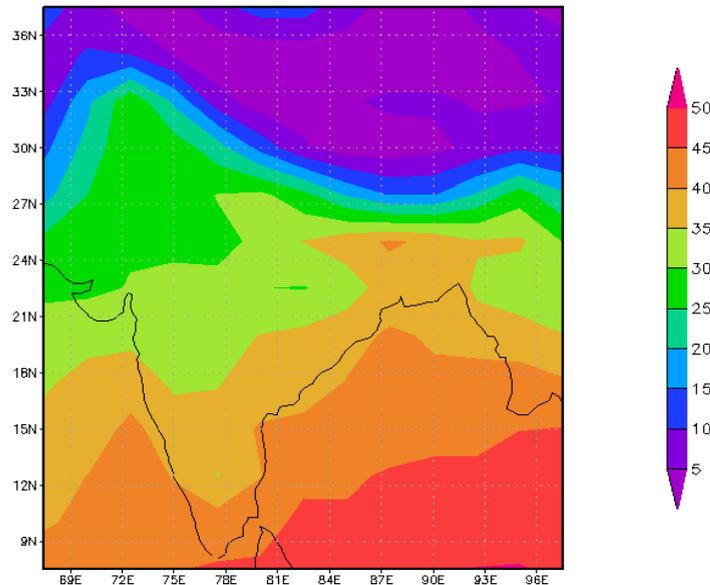
**LIMITATIONS**

Lack of studies to use their different models to estimate the expected number of infected cases and mortalities by using different policies. In the current study, reputable databases were searched; however, eventually some of the articles found in the three main databases were removed from the study, and the included studies selected were more from Google Scholar. Furthermore, given that a short time has passed since the outbreak of corona virus, it is required to conduct a systematic review with more studies in future.

**CONCLUSION**

Here we concluded that vaccinations can drastically reduce our risk of becoming ill with some infectious diseases. If we can avoid a particular disease, then we can also prevent the spread of the disease. Covid-19 is sufficient indication for testing for what appears to be a milder case not requiring hospitalization. They will base this on the local outbreak situations, and evaluations of those with sever respiratory illness of unclear origin. At present there is no specific antiviral treatment of covid-19.

Indian Rainfall Monthly Mean(Jan2019–Sep2022)

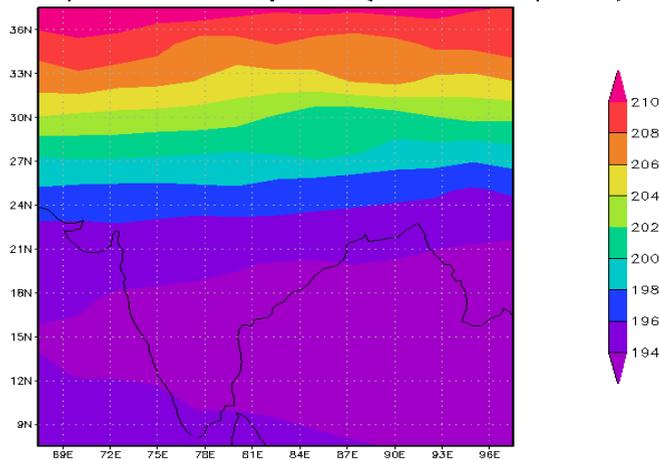


GrADS: COLA/IGES

2022-11-04-19:38

Fig. 5: Indian Rainfall monthly means (Jan 2019 – Sep 2022)

Indian Temperature Monthly Mean(Jan2019–Sep2022)



GrADS: COLA/IGES

2022-11-04-21:29

Fig.6: Indian temperature monthly mean (Jan 2019- Sep 2022)

Considering the existing scientific evidence, warm and wet climates seem to reduce the spread of covid-19 however these, variables alone could not explain most of the variability in diseases transmission.

Therefore, the countries most affected by the disease should focus on health policies, even with climates less favourable to the virus. Although the certainty of the evidence generated was classified as low, there

was homogeneity between the result reported by the include studies. Based on a low level of evidence, the spread of covid-19 seems to be lower in warm and wet climates. Furthermore, temperature and humidity alone do not explain most of the variability of the COVID-19 outbreak. Public isolation policies, herd immunity, migration patterns, population density, and cultural aspects might directly influence how the spread of this disease occurs. Thus weather condition associated with the health policies is knowledge of great value for the benefit of the humanity in this critical period. The present study sought to determine the relationship between climatic variables with the survival and spread of the new corona virus. Therefore, the published and related articles were systematically reviewed, and after reviewing the articles resulting from searching the scientific databases, a few articles were obtained. These articles aimed to find a precise link between the virus and climatic variables, but failed to report a specific temperature or humidity to stop the virus from spreading and transmitting the virus. Given the short time that has passed since the outbreak of the corona virus worldwide, it is required to conduct more studies in this regard to introduce the exact pattern of transmission by examining the conditions of virus transmission in different climatic conditions. Here we have also find the nature of Covid-19 that is spiky (see Fig. 2) nature and overall analysis was too complex and system is also static & dynamic with the deep behavior of Indian monsoon system.

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**Contributors:** All authors contributed to the data collection, data analysis, and manuscript writing, critically reviewed the draft, and approved it for publication.

**Data sharing:** It will be made available to others as required upon requesting the corresponding author.

**Conflicts of interest:** We declare that we have no conflicts of interest.

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## Research Article

# Socio-Economic Conditions of Silk Handloom Weavers in Azamgarh and Varanasi Districts of Uttar Pradesh

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### ABSTRACT

The handloom weaving industry in India employs 14% of the poor (second only to agriculture) and provides around 11% of total textile exports annually. The availability of various fabric patterns and the production of garments and outfits, which are the occupations of millions of weavers employed by the handloom sector in India, have contributed to the rise in popularity of India's handloom industry. The Indian state of Uttar Pradesh has around 130778 handloom weavers. This study discusses the socio-economic conditions of silk handloom weavers in the Azamgarh and Varanasi districts of Uttar Pradesh. The study is based on primary data through a structures interview schedule. The total sample respondents for the survey from Azamgarh and Varanasi were 405, comprising 205 samples from the Azamgarh district and 200 samples from the Varanasi district. In Azamgarh district, 35 representatives were from Akbarpur, 40 samples were from Atraulia, 32 samples were from Jahanagaj, 28 were from Jeeyanpur, and 70 were from Mubarakpur. In the same way, 200 samples were selected from Varanasi, in which 60 samples were from Bajardiha, 50 samples from Jaitpura, 30 samples were from Jallalipura, 30 were from Lohta, and 30 were from Madanpura. The data were evaluated using a simple percentage, annual growth, and compound annual growth rate and presented by pie and bar diagrams. This study is based on location, age, gender, religion, social group, educational qualification, type and size of the family, employment status, type and ownership of dwelling units, ration card, source of loan and purpose of the loan, monthly household income from handloom related activities, and possession of looms. The study results indicated that the position of handloom weavers was miserable. The youth participation in this profession is meagre 3.5 per cent. They are not interested in choosing this as a profession. The majority of workers are men, 91 per cent, and the women worker's participation is not in a good ratio. The Muslim religion dominates the silk handloom weaving industry at 65 per cent. The weaving activity is shared mainly by OBCs 63.1 per cent (Other Backward Class) social group. Most households (63 per cent) have a monthly household income range of less than Rs. 5001-7500, and 56.8 per cent of the respondents have a monthly consumption expenditure of Rs. 5001-7500.

**Keywords:** Socio-economic condition; Silk handloom weavers; Varanasi district; Uttar Pradesh

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## INTRODUCTION

Weaving on handloom is one of the main economic activities in the country, second to agriculture. This weaving industry accounts for around 15 per cent of the total fabric output in the nation and is also responsible for producing over 95 per cent of the world's hand-woven cloth. According to the 4<sup>th</sup> All India Handloom Census 2019-20, it is estimated that the handloom industry employs 35.23 lakhs workforce directly, and about 28.20 lakhs looms spread all over India. The handloom workers include both handloom weavers and allied workers. The total number of handloom workers is more than 35 lakhs, with which the number of weavers is more than 26 lakhs, and allied workers related to handloom are more than eight lakhs. The export of Indian Handloom products was valued at 370 million USD in 2013 and 223 million USD in 2020-21. The United States ranked as the leading importer of Indian handloom products in 2020-21, followed by the UK, Spain, Italy, Germany and UAE.

The government support for the Indian handloom sector is broadly categorised into two major groups. The National Handloom Development Programme includes the Revival, Reform and Restructuring (RRR) and Comprehensive Handloom Development Scheme. The CHDS has various other sub-components to develop the handloom weaving industry, such as the Cluster Development Programme, Marketing Incentive, Handloom Marketing Assistance, and Development and strengthening of Handloom Institutions.

The significant problems related to handloom weaving are raw materials shortages, lack of credit availability, increased competition from the power loom and mill sector, marketing issues, decentralised unorganised nature of the handloom industry, lack of technological up gradation, poor working conditions, lack of research and training.

In Uttar Pradesh, 1.31 lakh handloom households are engaged in weaving and allied activities, of which 66.7 per cent are located in rural areas and the remaining 33.3 per cent in urban areas. It concluded that the majority of households, i.e. 66.7 per cent, prefer to live in rural areas (4<sup>th</sup> All India Handloom Census 2019-20). Currently, the handloom weavers in Uttar Pradesh are facing many challenges and striving for their survival due to globalisation, severe competition with power looms, two-faced approaches of government and changing socio-economic conditions. The handloom weaving industry constitutes an everlasting aspect of the rich cultural heritage of India. As an economic activity, the handloom sector occupies a place second only to agriculture in providing livelihood to the people.

Handlooms weaving plays a vital role in uplifting the rural economy in Uttar Pradesh. Traditional items like sarees are produced in the state; the Banarasi saree is the state's most famous product. Varanasi is the largest handloom district, with around 86,438 looms (as per Weavers Service centre, Varanasi). Apart from Varanasi, other districts wherein handloom weaving is practised actively are Azamgarh, Mau, Moradabad, Lucknow, Meerut etc.

## LITERATURE REVIEW

Amit Chatterjee and Nehal Jain's (2020) study shows that weaver households in the areas looked at had low living standards and quality of life. It was found that the handloom weavers of Kota Doria live in deplorable social and economic conditions and that different government programmes have been unable to help them make more money.

Ishfaq Majeed et al. (2020), this paper tries to deeply study the social and economic conditions, problems, and challenges of carpet weavers in the Pulwama district of Jammu and Kashmir. The study showed that the situation of carpet weavers is not good because they don't get enough education, have health problems, make low wages, don't get enough help

from the government, and are taken advantage of by the middleman or master weavers.

Gundeti Ramesh (2018) found that the khadi weavers are not getting minimum wages. This paper also found that the Khadi weavers face problems like poor living conditions, high working hours, low wage rates and a lack of social security measures. However, finally, the paper concludes the appropriate policies to uplift the Khadi handloom weavers.

Avoid Roy and Dr Pradeep Chauhan (2017) found that most of the jobs in the industry are done by men with very little education. Weavers face several problems, such as not having enough money to buy new machines, terrible working conditions, a drop in wages, an increase in the price of yarn, a lack of government support, a lack of domestic demand and market, and so on. Plans aren't carried out well, and not all the money and facilities get to the people who need them. So it's essential to plan and implement those plans so that people in the area can use those facilities well.

Dr B Sadanandam's (2016) study looks at the weavers' social and economic situation and comes up with ways to help them. This study is based on primary data that was gathered through interviews with 57 active societies in the Telangana State district of Warangal. The study showed that weavers face several problems: lack of money, inability to buy modern machines, terrible working conditions, low pay, and lack of government support.

Gulati S (2016) study was about the Geographical Indication (GI) certificate for Banarasi silk products, which fall into four categories: silk embroidery, textile goods, silk brocades, silk saris, and dress material. Geographical Indication (GI) certification is different because nothing is made outside of six districts in Uttar Pradesh: Varanasi, Azamgarh, Chandauli, Jaunpur, Mirzapur, and Sant Ravi Das Nagar (Bhadohi).

Ansari M. Shoaib's (2016) study was about the different kinds of information that weavers need, such as information about raw materials, capital, trends, and intellectual property rights (IPR).

Shaw Tanusree (2015) found that India's industrialisation has hurt the handloom weavers of Varanasi. Some reasons for the decline of the handloom industry in Varanasi are the rise of capitalist production, the invention of power looms, the rising cost of yarn, low wages, and problems with finding workers. Weavers are also in bad conditions because they can't get credit and are too far into debt to keep their businesses going. She also suggested that policymakers give the money needed to help handloom weavers.

Dr G. Prathap and Prof. M. Chinnaswamy Naidu (2015) found that there are 54 men, 90%, and only six women, 10%. Also, 48 people are married, which is 80%, and 12 people are not married, which is 20%. Most people who weave by hand are happy to live in a joint family. The handloom weavers don't make enough money to live well. Most of the people who answered know about the health insurance scheme.

S. Tasneem and M. Abdul (2014), the study shows the main things that made women work in handlooms were economic need, unemployment, poverty, low income, inability to read or write, and having a big family. Due to economic and political factors, the handloom weaving industry in Mubarakpur town has been slowly decreasing for the last few decades. These factors have hurt the situation of female weavers. So, the government should deal with problems related to women working and come up with a plan to help poor female weavers. He also suggested things that could be done to fix these dire situations. He said that the government take steps to improve the education system, give the weavers cheaper raw materials, make sure they always have enough electricity, and open more government hospitals in the district.

G. Naga Raju and K. Viyyanna Rao (2014) explained that the handloom industry is crucial to preserving the country's heritage and culture. It is also an essential part of the country's economy. In 2011-12, the handloom sector produced 6900 million square metres, which was about 25% more than the 5493 million square metres made in 2003-04. Regarding jobs, the handloom sector is only second to agriculture in economic activity. With 23.77 million handlooms, the industry employs 43.31 million people, of which 77.9% are women and 28% are from Scheduled Castes and Scheduled Tribes. The handloom sector makes up about 15% of all the cloth made in the country. It also helps the country earn money from exports since 95% of all hand-woven fabric in the world comes from India. But this sector has problems like old technology, a disorganised production system, low productivity, insufficient working capital, a limited range of products, and weak marketing links. Also, the handloom sector has never been able to compete well with the power loom sector or the mill sector.

Tawheed Yousuf et al (2013) this study, we looked at the socio-economic background and problems of silk weavers in Srinagar city and tried to come up with suggestions for how to deal with the grey areas. The study's results showed that the weavers were in a bad situation. They were weak because they couldn't read or write, didn't have enough money, had health problems, were paid very little, and didn't get much help from the government.

Beddig C. (2008) focused on the Varanasi cluster, where men mostly do weaving, and the number of weavers is thought to have grown by three times in the last 34 years. The government says that 59 per cent of the weavers can read and write. Most people who weave in the Varanasi district live in cities and work in certain parts of the cities. 90% of weavers in cities are Muslims, but only 30% of weavers in villages are Muslims. The other 70% are primarily low-caste Hindus. Sattiwalas act as middlemen between weavers and traders. They usually get a 3 per cent

commission and don't do the craft themselves. Grihastha buys from weavers or master weavers and sells to Gaddedars, who take on the risk of the transaction. Gaddedars are large merchants who may hire weavers on a wage or piece-rate basis. They only do wholesale business and also sell yarn. It is thought that there are between 100 and 300 designers and between 300 and 500.

## THE OBJECTIVE OF THE STUDY

To study the socio-economic conditions of handloom weavers in Azamgarh and Varanasi districts of Uttar Pradesh.

## METHODOLOGY

A descriptive research design was adopted to conduct the study. The researcher attempted to identify the existing socio-economic conditions of handloom weavers in the Azamgarh and Varanasi districts of Uttar Pradesh. The study is based on primary data through a structured interview schedule. The total sample respondents for the survey from Azamgarh and Varanasi were 405, comprising 205 samples from the Azamgarh district and 200 samples from the Varanasi district. In Azamgarh district, 35 representatives were from Akbarpur, 40 samples were from Atraulia, 32 samples were from Jahanagaj, 28 were from Jeeyanpur, and 70 were from Mubarakpur. In the same way, 200 samples were selected from Varanasi, in which 60 samples were from Bajardiha, 50 samples from Jaitpura, 30 samples were from Jallalipura, 30 were from Lohta, and 30 were from Madanpura. Total samples of 405 of which 90 respondents working as independent were selected randomly, 272 respondents working under master weaver were selected randomly, 20 master weavers were purposively selected for the study and 23 respondents working under cooperative society were purposively selected for the study. The data was evaluated using a simple percentage, annual growth, compound annual growth rate and presented by pie and bar diagram.

## RESULTS AND DISCUSSION

This paper seeks to analyse and present the socio-economic conditions of the handloom weavers living in the Varanasi and Azamgarh districts of Uttar Pradesh in, India.

This study examines the following key areas: Age, gender, social grouping and religion, level of

education, marital status, type of houses, ownership of houses, types of family and nature of family, types of ration cards, earlier occupation, type of employment status, health condition, monthly household income from weaving activities, monthly household income from all sources, monthly household consumption expenditure, sources of loan and purpose of loan and type of employment status.

Table: 1 Distribution of respondents by Age Group

Districts/Age Group	Up to 25 Years	26-35 Years	36-45 Years	46-55 Years	56-65 Years	Above 60 Years	Total
<b>Azamgarh</b>	<b>7</b>	<b>45</b>	<b>67</b>	<b>65</b>	<b>17</b>	<b>4</b>	<b>205</b>
	(3.4)	(22.0)	(32.7)	(31.7)	(8.3)	(2.0)	(100)
Akbarpur	1	7	14	9	2	2	35
	(2.9)	(20.0)	(40.0)	(25.7)	(5.7)	(5.7)	(100)
Atraulia	1	10	12	13	3	1	40
	(2.5)	(25.0)	(30.0)	(32.5)	(7.5)	(2.5)	(100)
Jahanaganj		7	9	12	4		32
	(0.0)	(21.9)	(28.1)	(37.5)	(12.5)	(0.0)	(100)
Jeeyanpur		7	7	12	2		28
	(0.0)	(25.0)	(25.0)	(42.9)	(7.1)	(0.0)	(100)
Mubarakpur	5	14	25	19	6	1	70
	(7.1)	(20.0)	(35.7)	(27.1)	(8.6)	(1.4)	(100)
<b>Varanasi</b>	<b>7</b>	<b>42</b>	<b>82</b>	<b>54</b>	<b>11</b>	<b>4</b>	<b>200</b>
	(3.5)	(21.0)	(41.0)	(27.0)	(5.5)	(2.0)	(100)
Bajardiha	1	13	26	15	4	1	60
	(1.7)	(21.7)	(43.3)	(25.0)	(6.7)	(1.7)	(100)
Jaitpura	2	13	17	14	2	2	50
	(4.0)	(26.0)	(34.0)	(28.0)	(4.0)	(4.0)	(100)
Jalalipura	1	4	15	7	3		30
	(3.3)	(13.3)	(50.0)	(23.3)	(10.0)	(0.0)	(100)
Lohta		8	12	8	1	1	30
	(0.0)	(26.7)	(40.0)	(26.7)	(3.3)	(3.3)	(100)
Madanpura	3	4	12	10	1		30
	(10.0)	(13.3)	(40.0)	(33.3)	(3.3)	(0.0)	(100)
<b>Grand Total</b>	<b>14</b>	<b>87</b>	<b>149</b>	<b>119</b>	<b>28</b>	<b>8</b>	<b>405</b>
	(3.5)	(21.5)	(36.8)	(29.4)	(6.9)	(2.0)	(100)

Source: compiled from collected data. Note: Figures in parentheses are the percentage of the responden

The age of the respondents and their respective percentages are presented in the table: 1. In Azamgarh district, out of 205 respondents, 67 respondents (33 per cent) are in the age group of 36-45 years, 65 respondents (32 per cent) are in the age group of 46-55 years, 45 respondents (22 per cent) are in the age group of 26-35 years, 17 respondents (8.3 per cent) are in the age group of 56-65 years, 7 respondents (3.4 per cent) are in the age group of up to 25 years, and the rest four respondents (2 per cent) are in the age group of above 65 years.

In the same way in the table 5.1, the Varanasi district has 200 respondents, 82 respondents (41 per cent) are in the age group of 36-45 years, 54 respondents (27 per cent) are in the age group of 46-55 years, 42

respondents (21 per cent) are in the age group of 26-35 years, 11 respondents (5.5 per cent) are in the age group of 56-65 years, 7 (3.5 per cent) respondents are in the age group of up to 25 years and the rest 4 respondents (2 per cent) are in the age group of above 65 years.

It is found that majority of the respondents (36.8 %) were between 36-45 years of age group. Nearly (29.4 %) of weavers in the survey belonged to 46-55 years of age group. The age group of the handloom weavers in Varanasi and Azamgarh districts shows that the number of respondents up to 25 years of age is low. It is observed that the younger generation is not opting weaving as their preferred profession

Table: 2 Distribution of Respondents by Gender

Districts/Gender	Male	Female	Total
Azamgarh	186 (91)	19 (9)	205 (100)
Akbarpur	31 (89)	4 (11)	35 (100)
Jahanaganj	29 (91)	3 (9)	32 (100)
Jeeyanpur	26 (93)	2 (7)	28 (100)
Mubarakpur	62 (89)	8 (11)	70 (100)
Varanasi	182 (91)	18 (9)	200 (100)
Bajardiha	55 (92)	5 (8)	60 (100)
Jaitpura	46 (92)	4 (8)	50 (100)
Jalalipura	27 (90)	3 (10)	30 (100)
Lohta	27 (90)	3 (10)	30 (100)
Madanpura	27 (90)	3 (10)	30 (100)
<b>Total</b>	<b>368 (91)</b>	<b>37 (9)</b>	<b>405 (100)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

The Table: 2 explains the gender of the respondents in Azamgarh district and out of 205 respondents 186 (91 percent) of respondents are men and 9 (19 percent) of the respondents are women. On the other hand in Varanasi district, out of 200 respondents 182 (91 percent) of the respondents are men and the rest 18 (9 percent) of the respondents are women.

It is found that nearly 91 percent of weavers were male while only 9 percent were female. It is observed that male handloom weavers are assisted by the female

members of their family. Therefore, in the study area there is a direct employment of male handloom weavers towards handloom weaving rather than female members.

Table: 3 Social Group of Respondents

District/Social Group	SCs	STs	OBCs	Others	Total
<b>Azamgarh</b>	<b>34</b>	<b>4</b>	<b>162</b>	<b>5</b>	<b>205</b>
	(16.6)	(2.0)	(79.0)	(2.4)	(100)
Akbarpur	7	1	27		35
	(20.0)	(2.9)	(77.1)	(0.0)	(100)
Atraulia	10		26	4	40
	(25.0)	(0.0)	(65.0)	(10.0)	(100)
Jahanaganj	5		27		32
	(15.6)	(0.0)	(84.4)	(0.0)	(100)
Jeeyanpur	2	1	25		28
	(7.1)	(3.6)	(89.3)	(0.0)	(100)
Mubarakpur	10	2	57	1	70
	(14.3)	(2.9)	(81.4)	(1.4)	(100)
<b>Varanasi</b>	<b>46</b>	<b>4</b>	<b>134</b>	<b>16</b>	<b>200</b>
	(23.0)	(2.0)	(67.0)	(8.0)	(100)
Bajardiha	14	1	43	2	60
	(23.3)	(1.7)	(71.7)	(3.3)	(100)
Jaitpura	11	2	33	4	50
	(22.0)	(4.0)	(66.0)	(8.0)	(100)
Jalalipura	4	1	22	3	30
	(13.3)	(3.3)	(73.3)	(10.0)	(100)
Lohta	5		20	5	30
	(16.7)	(0.0)	(66.7)	(16.7)	(100)
Madanpura	12		16	2	30
	(40.0)	(0.0)	(53.3)	(6.7)	(100)
<b>Grand Total</b>	<b>80</b>	<b>8</b>	<b>296</b>	<b>21</b>	<b>405</b>
	(19.8)	(2.0)	(73.1)	(5.2)	(100)

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

The given table: 3 explains the social group and out of 205 respondents in Azamgarh district four social groups are engaging in handloom weaving activity. Among the four social groups 79 percent (162) of respondents belong to OBCs ( Other Backward Class) 16.6 percent (34) respondents are SCs (Scheduled Castes) 2.4 percent (5) respondents are Others and 2 percent (4) respondents are found from STs

(Scheduled Tribes). Majority of respondents are from OBCs who is engaged in the weaving activity.

On the other hand in Varanasi district out of 200 respondents 67percent (162) respondents are from the OBCs (Other Backward Class) social group, 23 percent (46) respondents belong to SCs (Scheduled Castes) social group and 8 percent (16) respondents are from the Others social group and lowest from STs

(Scheduled Tribes) who recorded 2 percent (4) in numbers.

whereas 19.8 per cent of respondents were from SCs social group.

It is found that most of the respondents i.e. 73.1 per cent of respondents belonged to OBCs social group

**Table: 4 Religion of the Respondents**

District/Cluster	Hindu	Muslim	Total
Azamgarh	61 (30)	144 (70)	205 (100)
Akbarpur	13 (37)	22 (63)	35 (100)
Atraulia	17 (43)	23 (58)	40 (100)
Jahanaganj	6 (19)	26 (81)	32 (100)
Jeeyanpur	5 (18)	23 (82)	28 (100)
Mubarakpur	20 (29)	50 (71)	70 (100)
Varanasi	82 (41)	118 (59)	200 (100)
Bajardiha	23 (38)	37 (62)	60 (100)
Jaitpura	24 (48)	26 (52)	50 (100)
Jalalipura	8 (27)	22 (73)	30 (100)
Lohta	9 (30)	21 (70)	30 (100)
Madanpura	18 (60)	12 (40)	30 (100)
<b>Grand Total</b>	<b>143 (35)</b>	<b>262 (65)</b>	<b>405 (100)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

The table 5.4 presents religion wise distribution of respondents. In Azamgarh district out of 205

respondents 144 (70 percent) respondents are Muslim, 61 (30 percent) respondents are Hindu.

In Varanasi district, out of 200 respondents 118 (59 percent) respondents belong to Muslim religion and 82 (41 percent) respondents are Hindu.

In the study area it is found that majority (65 percent) of the weavers belonged to Muslim religion and (35 percent) of the weavers were from Hindu religion.

**Table: 5 Marital Status of Respondents**

District/Marital Status	Married	Un-Married	Widowed/Widower	Divorced/Separated	Total
Azamgarh	172 (83.9)	24 (11.7)	8 (3.9)	1 (0.5)	205 (100)
Akbarpur	33 (94.3)	1 (2.9)	1 (2.9)	0 (0.0)	35 (100)
Atraulia	29 (72.5)	10 (25.0)	1 (2.5)	0 (0.0)	40 (100)
Jahanaganj	29 (90.6)	1 (3.1)	2 (6.3)	0 (0.0)	32 (100)
Jeeyanpur	25 (89.3)	2 (7.1)	1 (3.6)	0 (0.0)	28 (100)
Mubarakpur	56 (80.0)	10 (14.3)	3 (4.3)	1 (1.4)	70 (100)
Varanasi	170 (85.0)	20 (10.0)	9 (4.5)	1 (0.5)	200 (100)
Bajardiha	52 (86.7)	5 (8.3)	3 (5.0)	0 (0.0)	60 (100)
Jaitpura	39 (78.0)	9 (18.0)	2 (4.0)	0 (0.0)	50 (100)
Jalalipura	25 (83.3)	2 (6.7)	2 (6.7)	1 (3.3)	30 (100)
Lohta	27 (90.0)	1 (3.3)	2 (6.7)	0 (0.0)	30 (100)
Madanpura	27 (90.0)	3 (10.0)	0 (0.0)	0 (0.0)	30 (100)
<b>Grand Total</b>	<b>342 (84.4)</b>	<b>44 (10.9)</b>	<b>17 (4.2)</b>	<b>2 (0.5)</b>	<b>405 (100)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

The table: 5 explains the marital status of respondents in Azamgarh and Varanasi districts. In Azamgarh district out of 205 respondents, 172 (83.9 percent) respondents are married and 24 (11.7 percent) respondents are un-married and very few which is insignificant proportion 13.9 percent and 0.5 percent

are widowed/widower and divorced/separated respectively.

In Varanasi district large proportion 170 (85 percent) respondents reported from married, 20 (10 percent) respondents are un-married, while 9 (4.5 percent)

respondents are widowed/widower and very few 1 (0.5 percent) respondents are reported from divorced/separated category.

followed by un-married (10.9 percent), widowed or widower (4.2 percent) and divorced or separated (0.5 percent).

It is concluded that in both districts higher percentage of weavers are married (84.4 percent)

**Table: 6 Distribution of Respondents by Type of Family**

District/Type of Family	Joint	Nuclear	Total
<b>Azamgarh</b>	<b>90</b>	<b>115</b>	<b>205</b>
	(43.9)	(56.1)	(100.0)
Akbarpur	14	21	35
	(40.0)	(60.0)	(100.0)
Atraulia	16	24	40
	(40.0)	(60.0)	(100.0)
Jahanaganj	14	18	32
	(43.8)	(56.3)	(100.0)
Jeeyanpur	13	15	28
	(46.4)	(53.6)	(100.0)
Mubarakpur	33	37	70
	(47.1)	(52.9)	(100.0)
<b>Varanasi</b>	<b>86</b>	<b>114</b>	<b>200</b>
	(43.0)	(57.0)	(100.0)
Bajardiha	27	33	60
	(45.0)	(55.0)	(100.0)
Jaitpura	20	30	50
	(40.0)	(60.0)	(100.0)
Jalalipura	15	15	30
	(50.0)	(50.0)	(100.0)
Lohta	11	19	30
	(36.7)	(63.3)	(100.0)
Madanpura	13	17	30
	(43.3)	(56.7)	(100.0)
<b>Grand Total</b>	<b>176</b>	<b>229</b>	<b>405</b>
	(43.5)	(56.5)	(100.0)

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

In Azamgarh district, out of 205 respondents 115 (56.1 percent) respondents are living in nuclear families and 90 (43.9 percent) respondents are living in joint families.

In Varanasi district the same trend is also been observed. Out of 200 respondents 114 (57 percent)

respondents are living in nuclear families and 86 (43 percent) respondents are living in joint families. It is concluded that majority of the respondents (56.5%) have joint family and 43.5% of respondents have nuclear family.

**Table: 7 Distribution of Respondents by Type of House**

Districts/Type of House	Kutcha	Semi-Pucca	Pucca	Total
<b>Azamgarh</b>	<b>47</b>	<b>71</b>	<b>87</b>	<b>205</b>
	(22.9)	(34.6)	(42.4)	(100.0)
Akbarpur	14	8	13	35
	(40.0)	(22.9)	(37.1)	(100.0)
Atraulia	4	18	18	40
	(10.0)	(45.0)	(45.0)	(100.0)
Jahanaganj	7	19	6	32
	(21.9)	(59.4)	(18.8)	(100.0)
Jeeyanpur	11	5	12	28
	(39.3)	(17.9)	(42.9)	(100.0)
Mubarakpur	11	21	38	70
	(15.7)	(30.0)	(54.3)	(100.0)
<b>Varanasi</b>	<b>3</b>	<b>39</b>	<b>158</b>	<b>200</b>
	(1.5)	(19.5)	(79.0)	(100.0)
Bajardiha	0	10	50	60
	(0.0)	(16.7)	(83.3)	(100.0)
Jaitpura	0	12	38	50
	(0.0)	(24.0)	(76.0)	(100.0)
Jalalipura	0	7	23	30
	(0.0)	(23.3)	(76.7)	(100.0)
Lohta	3	6	21	30
	(10.0)	(20.0)	(70.0)	(100.0)
Madanpura	0	4	26	30
	(0.0)	(13.3)	(86.7)	(100.0)
<b>Grand Total</b>	<b>50</b>	<b>110</b>	<b>245</b>	<b>405</b>
	(12.3)	(27.2)	(60.5)	(100.0)

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

Table: 7 explains the types of houses they are living. In Azamgarh district, out of 205 respondents 87 (42.4

percent) respondents are living in pucca houses, 71 (34.6 percent) respondent are living in semi-pucca

houses and 47 (22.9 percent) respondents are living in kutcha houses. In Varanasi district, out of 200 respondents 158 (79 percent) respondents are living in pucca houses, 39 (19.5 percent) respondents are living in semi-pucca houses and lowest 3 (1.5 percent) respondents are living in kutcha houses.

It is found that majority of respondents 245 (60.5 percent) are living in pucca houses, rest 27.2 percent and 12.3 percent are living in semi-pucca and kutcha houses respectively.

**Table: 8 Distribution of Respondents by Ownership of House**

District/Ownership of Dwelling	Own	Rented	Total
Azamgarh	192 (94)	13 (6)	205 (100)
Akbarpur	33 (94)	2 (6)	35 (100)
Atraulia	36 (90)	4 (10)	40 (100)
Jahanaganj	31 (97)	1 (3)	32 (100)
Jeeyanpur	28 (100)	0 (0)	28 (100)
Mubarakpur	64 (91)	6 (9)	70 (100)
Varanasi	172 (86)	28 (14)	200 (100)
Bajardiha	49 (82)	11 (18)	60 (100)
Jaitpura	47 (94)	3 (6)	50 (100)
Jalalipura	26 (87)	4 (13)	30 (100)
Lohta	26 (87)	4 (13)	30 (100)
Madanpura	24 (80)	6 (20)	30 (100)
<b>Grand Total</b>	<b>364 (90)</b>	<b>41 (10)</b>	<b>405 (100)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

Table: 8 reveals in Azamgarh district, out of 205 respondents, 192 (94 percent) respondents are living in owned houses and 13 (6 percent) of respondents are living in rented houses. The respondents who continue their work under their own is quite better in terms of socio economic status as well they possess own houses. In Varanasi district, 172 (86 percent) of

respondents living in owned houses and 28 (14 percent) of respondents are living in rented houses. It is found that majority of respondents 364 (90 %) were the owner of their house and rest of them (10 %) were living in rented house.

**Table: 9 Distribution of Respondents by Educational Qualification**

Districts/Education	Never Attended School	Below Primary	Primary	Middle	High School	Higher Secondary	Graduate and Above	Total
<b>Azamgarh</b>	56 (27.3)	65 (31.7)	60 (29.3)	19 (9.3)	4 (2.0)	1 (0.5)	0 (0.0)	205 (100.0)
Akbarpur	9 (25.7)	10 (28.6)	13 (37.1)	2 (5.7)	1 (2.9)	0 (0.0)	0 (0.0)	35 (100.0)
Atraulia	4 (10.0)	10 (25.0)	18 (45.0)	7 (17.5)	1 (2.5)	0 (0.0)	0 (0.0)	40 (100.0)
Jahanaganj	16 (50.0)	9 (28.1)	7 (21.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	32 (100.0)
Jeeyanpur	12 (42.9)	13 (46.4)	3 (10.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	28 (100.0)
Mubarakpur	15 (21.4)	23 (32.9)	19 (27.1)	10 (14.3)	2 (2.9)	1 (1.4)	0 (0.0)	70 (100.0)
<b>Varanasi</b>	44 (22.0)	49 (24.5)	56 (28.0)	28 (14.0)	16 (8.0)	5 (2.5)	2 (1.0)	200 (100.0)
Bajardiha	12 (20.0)	20 (33.3)	16 (26.7)	8 (13.3)	2 (3.3)	2 (3.3)	0 (0.0)	60 (100.0)
Jaitpura	16 (32.0)	13 (26.0)	14 (28.0)	6 (12.0)	1 (2.0)	0 (0.0)	0 (0.0)	50 (100.0)
Jalalipura	10 (33.3)	6 (20.0)	7 (23.3)	3 (10.0)	2 (6.7)	1 (3.3)	1 (3.3)	30 (100.0)
Lohta	3 (10.0)	8 (26.7)	9 (30.0)	5 (16.7)	5 (16.7)	0 (0.0)	0 (0.0)	30 (100.0)
Madanpura	3 (10.0)	2 (6.7)	10 (33.3)	6 (20.0)	6 (20.0)	2 (6.7)	1 (3.3)	30 (100.0)
<b>Grand Total</b>	100 (24.7)	114 (28.1)	116 (28.6)	47 (11.6)	20 (4.9)	6 (1.5)	2 (0.5)	405 (100.0)

*Source: Compiled from collected data Note: Figures in parentheses is percentage of the respondents*

In the table: 9, in Azamgarh district, out of 205 respondents, 65 (31.7 percent) of respondents have below primary level education, 60 (29.3 percent) of respondents are primary level education, 56 (27.3 percent) of respondents have never attended, 19 (9.3 percent) of respondents have middle level of education and 4 (2 percent) of respondents have high school, and very few in higher secondary, graduation and above levels of education.

In Varanasi district, out of 200 respondents (22 percent) 44 respondents are never attended school, 49 (24.5 percent) respondents have below primary level education, 56 (28 percent) respondents have primary level of education, 28 (14 percent) respondents have

middle level education, 16 (8 percent) of the respondents in the category of high school, 5 (2.5 percent) respondents in higher secondary and lowest 2 (1 percent) respondents have in the category of graduate and above level of education.

It is found that majority of respondents (28.6 %) were primary level of education and about 28.1% respondents have below primary level of education and 24.7 % respondents have never attended school. It is observed that less educated respondents are opting for handloom weaving in larger number because handloom weavers prefer their traditional occupation immediately rather than qualifying further.

Table: 10 Distribution of Respondents by Earlier Occupation

District/Earlier Occupation	Weaving	Agriculture	Government Employee	Private Employee	Total
Azamgarh	167 (81.5)	30 (14.6)	1 (0.5)	7 (3.4)	205 (100)
Akbarpur	28 (80.0)	6 (17.1)	1 (2.9)	0 (0.0)	35 (100)
Atraulia	35 (87.5)	3 (7.5)	0 (0.0)	2 (5.0)	40 (100)
Jahanaganj	25 (78.1)	7 (21.9)	0 (0.0)	0 (0.0)	32 (100)
Jeeyanpur	22 (78.6)	4 (14.3)	0 (0.0)	2 (7.1)	28 (100)
Mubarakpur	57 (81.4)	10 (14.3)	0 (0.0)	3 (4.3)	70 (100)
Varanasi	164 (82.0)	27 (13.5)	3 (1.5)	6 (3.0)	200 (100)
Bajardiha	51 (85.0)	6 (10.0)	1 (1.7)	2 (3.3)	60 (100)
Jaitpura	41 (82.0)	7 (14.0)	1 (2.0)	1 (2.0)	50 (100)
Jalalipura	24 (80.0)	6 (20.0)	0 (0.0)	0 (0.0)	30 (100)
Lohta	23 (76.7)	5 (16.7)	1 (3.3)	1 (3.3)	30 (100)
Madanpura	25 (83.3)	3 (10.0)	0 (0.0)	2 (6.7)	30 (100)
<b>Grand Total</b>	<b>331 (81.7)</b>	<b>57 (14.1)</b>	<b>4 (1.0)</b>	<b>13 (3.2)</b>	<b>405 (100)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

The table: 10 explains the earlier occupation of respondents before entering to the weaving occupation. In Azamgarh district large proportion of the sample respondents were continuing with the weaving prior to turning main occupation. Out of (205) respondents 167 (81.5 percent) respondents have earlier occupation as weaving, 30 (14.6 percent) respondents have come to this occupation from

agriculture, 7 (3.4 percent) respondents have entered this occupation from private employee, 1 (0.5 percent) respondents have chosen this occupation from government employee.

In Varanasi district similar results were found from this district also. The respondents do not want to be side-lined from their traditional bread earning

occupation hence adhered to the profession. Out of 200 respondents 167 (81.5 percent) respondents have weaving as an earlier occupation. It says that their career has started with weaving occupation. They have adopted it as a tradition or heredity, 30 (14.6 percent) respondents have earlier occupation is agriculture, 7 (3.4 percent) respondents have from private employee, 1 (0.5 percent) respondents have from government employee.

It is concluded from the study that majority of the respondents i.e. 81.7 percent from the weaving background. It is also noteworthy to mention that very small proportion of the people entered this occupation outside the weaving line i.e. 14.1 percent from agriculture background, 3.2 percent from private employee and 1 percent respondents from government employee.

Table: II Health Condition of Respondents

District/Health Condition	Hearing	Back Pain	Joint Pain	Eye Sight	Blood Pressure	Total
Azamgarh	21 (10.2)	40 (19.5)	36 (17.6)	105 (51.2)	3 (1.5)	205 (100)
Akbarpur	6 (17.1)	7 (20.0)	5 (14.3)	17 (48.6)	(0.0)	35 (100)
Atraulia	7 (17.5)	8 (20.0)	7 (17.5)	16 (40.0)	2 (5.0)	40 (100)
Jahanaganj	1 (3.1)	5 (15.6)	7 (21.9)	19 (59.4)	(0.0)	32 (100)
Jeeyanpur	0 (0.0)	4 (14.3)	5 (17.9)	19 (67.9)	(0.0)	28 (100)
Mubarakpur	7 (10.0)	16 (22.9)	12 (17.1)	34 (48.6)	1 (1.4)	70 (100)
Varanasi	49 (24.5)	47 (23.5)	44 (22.0)	58 (29.0)	2 (1.0)	200 (100)
Bajardiha	13 (21.7)	17 (28.3)	14 (23.3)	16 (26.7)	(0.0)	60 (100)
Jaitpura	12 (24.0)	9 (18.0)	8 (16.0)	19 (38.0)	2 (4.0)	50 (100)
Jalalipura	9 (30.0)	6 (20.0)	7 (23.3)	8 (26.7)	(0.0)	30 (100)
Lohta	10 (33.3)	7 (23.3)	7 (23.3)	6 (20.0)	(0.0)	30 (100)
Madanpura	5 (16.7)	8 (26.7)	8 (26.7)	9 (30.0)	(0.0)	30 (100)
Grand Total	70 (17.3)	87 (21.5)	80 (19.8)	163 (40.2)	5 (1.2)	405 (100)

Source: Compiled from collected data.

Note: Figures in parentheses is percentage of the respondent

In the table: 11, in Azamgarh district, out of 205 respondents, 105 (51.2 percent) of respondents have eye sight problem, 40 (19.5 percent) of respondents are suffer from back pain, 36 (17.6 percent) of respondents have problem of joint pain, 21 (10.2 percent) of respondents have problem of hearing and 3 (1.5 percent) of respondents have problem of high blood pressure.

In Varanasi district, out of 200 respondents, 58 (29 percent) of respondents have eye sight problem, 47 (23.5 percent) of respondents are suffer from back pain, 44 (22 percent) of respondents have problem of

joint pain, 49 (24.5 percent) of respondents have problem of hearing and 2 (1 percent) of respondents have problem of high blood pressure.

It is found that majority of respondents 163 (40.2 %) have eye sight problem, 87 (21.5 percent) of respondents are suffer from back pain, 80 (19.8 percent) of respondents have problem of joint pain, 70 (17.3 percent) of respondents have problem of hearing and 5 (1.2 percent) of respondents have problem of high blood pressure.

Table: 12 Monthly Household Income of the Respondents from handloom weaving activities:

Districts/ Household Income	Monthly					Total
	2500-5000	5001-7500	7501-10000	10001-15000	15001-20000	
Azamgarh	18	152	35	0	0	205
	(8.8)	(74.1)	(17.1)	(0.0)	(0.0)	(100)
Akbarpur	5	24	6	0	0	35
	(14.3)	(68.6)	(17.1)	(0.0)	(0.0)	(100)
Atraulia	3	30	7	0	0	40
	(7.5)	(75.0)	(17.5)	(0.0)	(0.0)	(100)
Jahanaganj	4	28	0	0	0	32
	(12.5)	(87.5)	(0.0)	(0.0)	(0.0)	(100)
Jeeyanpur	6	21	1	0	0	28
	(21.4)	(75.0)	(3.6)	(0.0)	(0.0)	(100)
Mubarakpur	0	49	21	0	0	70
	(0.0)	(70.0)	(30.0)	(0.0)	(0.0)	(100)
Varanasi	6	104	60	28	2	200
	(3.0)	(52.0)	(30.0)	(14.0)	(1.0)	(100)
Bajardiha	2	31	19	8	0	60
	(3.3)	(51.7)	(31.7)	(13.3)	(0.0)	(100)
Jaitpura	1	26	14	7	2	50
	(2.0)	(52.0)	(28.0)	(14.0)	(4.0)	(100)
Jalalipura	0	16	9	5	0	30
	(0.0)	(53.3)	(30.0)	(16.7)	(0.0)	(100)
Lohta	3	14	9	4	0	30
	(10.0)	(46.7)	(30.0)	(13.3)	(0.0)	(100)
Madanpura	0	17	9	4	0	30
	(0.0)	(56.7)	(30.0)	(13.3)	(0.0)	(100)
<b>Grand Total</b>	<b>24</b>	<b>256</b>	<b>95</b>	<b>28</b>	<b>2</b>	<b>405</b>
	(5.9)	(63.2)	(23.5)	(6.9)	(0.5)	(100)

Source: Compiled from collected data.

Note: Figures in parentheses is percentage of the respondents

The table: 12 reveals the range of monthly household income of the respondents in Azamgarh district in which (74.1) percent i.e. 152 respondents fall in the income group of Rs. 5001-7500, (17.1) percent i.e. 35 respondents have income group of Rs. 7500-10000, (8.8) percent i.e. 18 respondents have income group of Rs. 2500-5000, and no respondent have found in

monthly income groups of Rs. 15001 – 20000 and Rs. 20001- 25000.

On the other hand, in Varanasi district, out of 200 respondents (52) percent i.e. 104 respondents fall in the income group of Rs. 5001-7500, (30) percent i.e. 60 respondents have income group of Rs. 7501-10000, (14) percent i.e. 28 respondents have income group of Rs. 10001-15000, (3) percent i.e. 6 respondents have

monthly income group of Rs. 2500-5000 and last (1) percent 2 respondents has monthly income group of Rs. 15001-20000.

It is found that the majority of the respondents (63.2 percent) in both the districts have the monthly household income which is between Rs. 5001 to 7500. Finally the respondents in Varanasi district has monthly household income is better than the

respondents in the Azamgarh district, because the designs made by the Varanasi weavers are relatively innovative (particularly jacquard) and with modern technology. It is also observed that at present handloom weaving is struggling with financial conditions and not even enable the handloom weavers to satisfy their essential needs for life. So the weavers in the study area depends on other sources to fulfil the basic requirements.

**Table: 13 Monthly Consumption Expenditure of Household**

Districts/Monthly Consumption of Household	2500-5000	5001-7500	7501-10000	10000-15000	15000-20000	Total
<b>Azamgarh</b>	<b>34</b>	<b>136</b>	<b>27</b>	<b>5</b>	<b>3</b>	<b>205</b>
	(16.6)	(66.3)	(13.2)	(2.4)	(1.5)	(100.0)
Akbarpur	6	24	5	0	0	35
	(17.1)	(68.6)	(14.3)	(0.0)	(0.0)	(100.0)
Atraulia	3	28	7	0	2	40
	(7.5)	(70.0)	(17.5)	(0.0)	(5.0)	(100.0)
Jahanaganj	4	28	0	0	0	32
	(12.5)	(87.5)	(0.0)	(0.0)	(0.0)	(100.0)
Jeeyanpur	6	20	2	0	0	28
	(21.4)	(71.4)	(7.1)	(0.0)	(0.0)	(100.0)
Mubarakpur	15	36	13	5	1	70
	(21.4)	(51.4)	(18.6)	(7.1)	(1.4)	(100.0)
<b>Varanasi</b>	<b>7</b>	<b>94</b>	<b>72</b>	<b>23</b>	<b>4</b>	<b>200</b>
	(3.5)	(47.0)	(36.0)	(11.5)	(2.0)	(100.0)
Bajardiha	4	27	22	6	1	60
	(6.7)	(45.0)	(36.7)	(10.0)	(1.7)	(100.0)
Jaitpura	0	22	19	9	0	50
	(0.0)	(44.0)	(38.0)	(18.0)	(0.0)	(100.0)
Jalalipura	0	17	12	1	0	30
	(0.0)	(56.7)	(40.0)	(3.3)	(0.0)	(100.0)
Lohta	3	13	9	5	0	30
	(10.0)	(43.3)	(30.0)	(16.7)	(0.0)	(100.0)
Madanpura	0	15	10	2	3	30
	(0.0)	(50.0)	(33.3)	(6.7)	(10.0)	(100.0)
<b>Grand Total</b>	<b>41</b>	<b>230</b>	<b>99</b>	<b>28</b>	<b>7</b>	<b>405</b>
	(10.1)	(56.8)	(24.4)	(6.9)	(1.7)	(100.0)

Source: Compiled from collected data. Note: Figures in parentheses is percentage of the respondent

Table: 13 explains the monthly household expenditure on food and non-food items. In Azamgarh district out of 205 respondents, 136 (66.3 percent) of respondents have the monthly household consumption expenditure of Rs. 5001-7500, 34 (16.6 percent) of respondents have the monthly household consumption expenditure of Rs. 2500-5000, 27 (13.2 percent) of respondents have the monthly household consumption expenditure of Rs. 7501-10,000, 5 (2.4 percent) of respondents have the monthly household consumption expenditure of Rs. 10001-15000, 3 (1.5 percent) of respondents have the monthly household consumption expenditure of Rs. 15001-20,000.

In Varanasi district out of 200 respondents, 94 (47 percent) of respondents have the monthly household consumption expenditure of Rs. 5001-7500, 72 (36 percent) of respondents have the monthly household

consumption expenditure of Rs. 7501-10000, 23 (11.5 percent) of respondents have the monthly household consumption expenditure of Rs. 10001-15,000, 7 (3.5 percent) of respondents have the monthly household consumption expenditure of Rs. 2500-5000, 4 (2 percent) of respondents have the monthly household consumption expenditure of Rs. 15001-20,000.

It concluded that majority of respondents in both districts, 56.8 % have monthly household consumption expenditure on food and non-food items of Rs. 5000-7500, followed by 24.4 % respondents have expenditures between the range of 7501- 10000 and 10.1 % of respondents have expenditure in the range of Rs. 2500-5000.

Table: 14 Distribution of Respondents by Type of Ration Card

Districts/Type of Ration Card	BPL Card	APL Card	AAY Card	No Card	Total
Azamgarh	85 (41.5)	110 (53.7)	7 (3.4)	3 (1.5)	205 (100.0)
Akbarpur	13 (37.1)	20 (57.1)	2 (5.7)	0 (0.0)	35 (100.0)
Atraulia	8 (20.0)	32 (80.0)	0 (0.0)	0 (0.0)	40 (100.0)
Jahanaganj	13 (40.6)	16 (50.0)	3 (9.4)	0 (0.0)	32 (100.0)
Jeeyanpur	12 (42.9)	14 (50.0)	2 (7.1)	0 (0.0)	28 (100.0)
Mubarakpur	39 (55.7)	28 (40.0)	0 (0.0)	3 (4.3)	70 (100.0)
Varanasi	53 (26.5)	125 (62.5)	0 (0.0)	22 (11.0)	200 (100.0)
Bajardiha	20 (33.3)	32 (53.3)	0 (0.0)	8 (13.3)	60 (100.0)
Jaitpura	17 (34.0)	24 (48.0)	0 (0.0)	9 (18.0)	50 (100.0)
Jalalipura	4 (13.3)	26 (86.7)	0 (0.0)	0 (0.0)	30 (100.0)
Lohta	7 (23.3)	21 (70.0)	0 (0.0)	2 (6.7)	30 (100.0)
Madanpura	5 (16.7)	22 (73.3)	0 (0.0)	3 (10.0)	30 (100.0)
<b>Grand Total</b>	<b>138 (34.1)</b>	<b>235 (58.0)</b>	<b>7 (1.7)</b>	<b>25 (6.2)</b>	<b>405 (100.0)</b>

*Source: Compiled from collected data*

*Note: Figures in parentheses is percentage of the respondents*

In Azamgarh district, more than half of the respondents own APL (Above Poverty Line) cards and it shows the social status of the respondents. Out of 205 respondents 110 (53.7 percent) of respondents have APL cards, 85 (41.5 percent) respondents have BPL Card, 7 (3.4 percent) respondents have AAY cards and 3 (1.5 percent) respondents are living without ration cards.

The same inclination was reported in Varanasi district, out of 200 respondents 125 (62.5 percent) respondents have APL cards, 22 (11 percent) respondents are living without ration cards and 53 (26.5 percent) respondents have BPL cards.

It is found that majority of respondents (58 percent) have APL card while 34.1 percent and 1.7 percent

respondents have BPL card and AAY card respectively. It is also observed that most of the BPL and AAY cards belong to SCs/STs social groups.

Table: 15 Purpose of Loan:

Districts/Purpose of Loan	Weaving	Other purposes	Both	Total
<b>Azamgarh</b>	<b>54</b>	<b>144</b>	<b>7</b>	<b>205</b>
	(26.3)	(70.2)	(3.4)	(100)
Akbarpur	8	27	0	35
	(22.9)	(77.1)	(0.0)	(100)
Atraulia	18	18	4	40
	(45.0)	(45.0)	(10.0)	(100)
Jahanaganj	6	26	0	32
	(18.8)	(81.3)	(0.0)	(100)
Jeeyanpur	9	19	0	28
	(32.1)	(67.9)	(0.0)	(100)
Mubarakpur	13	54	3	70
	(18.6)	(77.1)	(4.3)	(100)
<b>Varanasi</b>	<b>81</b>	<b>101</b>	<b>18</b>	<b>200</b>
	(40.5)	(50.5)	(9.0)	(100)
Bajardiha	16	41	3	60
	(26.7)	(68.3)	(5.0)	(100)
Jaitpura	23	23	4	50
	(46.0)	(46.0)	(8.0)	(100)
Jalalipura	14	11	5	30
	(46.7)	(36.7)	(16.7)	(100)
Lohta	13	15	2	30
	(43.3)	(50.0)	(6.7)	(100)
Madanpura	15	11	4	30
	(50.0)	(36.7)	(13.3)	(100)
<b>Grand Total</b>	<b>135</b>	<b>245</b>	<b>25</b>	<b>405</b>
	(33.3)	(60.5)	(6.2)	(100)

Source: Compiled from collected data.

Note: Figures in parentheses is percentage of the respondents

The table: 15 shows purpose of loan/debt taken by the sample respondents. In Azamgarh district it can be observed that 70.2 percent of total respondents were borrowed money for other purposes and 26.3 percent of respondents were borrowed for weaving purposes.

In Varanasi district, 50.5 percent of the respondent were borrowed money for other purposes and 40.5 percent of respondents were borrowed for weaving purposes.

It can be found that majority (60.5 percent) of respondents were borrowed money for other purposes and 33.3 percent of respondents were borrowing for weaving purposes. The other purposes are home needs, children education and marriages and to fulfil these purposes they were pushed off in to the indebtedness.

It can be found that majority (60.5 percent) of respondents were borrowed money for other purposes and 33.3 percent of respondents were borrowing for weaving purposes. The other purposes are home needs, children education and marriages and to fulfil these purposes they were pushed off in to the indebtedness.

Table: 16 Source of Loan

Districts/Source of Loan	Money Lender	Master Weaver/Gaddidar	Friends/Relatives	Cooperative-Society	Commercial Banks	SHGs	Total
Azamgarh	40 (19.5)	64 (31.2)	30 (14.6)	26 (12.7)	32 (15.6)	13 (6.3)	205 (100)
Akbarpur	6 (17.1)	12 (34.3)	7 (20.0)	4 (11.4)	5 (14.3)	1 (2.9)	35 (100)
Atraulia	7 (17.5)	8 (20.0)	6 (15.0)	3 (7.5)	10 (25.0)	6 (15.0)	40 (100)
Jahanaganj	5 (15.6)	11 (34.4)	5 (15.6)	6 (18.8)	4 (12.5)	1 (3.1)	32 (100)
Jeeyanpur	7 (25.0)	9 (32.1)	3 (10.7)	6 (21.4)	2 (7.1)	1 (3.6)	28 (100)
Mubarakpur	15	24	9	7	11	4	70
Varanasi	51 (25.5)	75 (37.5)	22 (11.0)	18 (9.0)	21 (10.5)	13 (6.5)	200 (100)
Bajardiha	14 (23.3)	20 (33.3)	6 (10.0)	7 (11.7)	9 (15.0)	4 (6.7)	60 (100)
Jaitpura	13 (26.0)	20 (40.0)	7 (14.0)	2 (4.0)	4 (8.0)	4 (8.0)	50 (100)
Jalalipura	8 (26.7)	7 (23.3)	4 (13.3)	3 (10.0)	5 (16.7)	3 (10.0)	30 (100)
Lohta	10 (33.3)	14 (46.7)	2 (6.7)	2 (6.7)	1 (3.3)	1 (3.3)	30 (100)
Madanpura	6 (20.0)	14 (46.7)	3 (10.0)	4 (13.3)	2 (6.7)	1 (3.3)	30 (100)
<b>Grand Total</b>	<b>91 (22.5)</b>	<b>139 (34.3)</b>	<b>52 (12.8)</b>	<b>44 (10.9)</b>	<b>53 (13.1)</b>	<b>26 (6.4)</b>	<b>405 (100)</b>

Source: Compiled from collected data.

Note: Figures in parentheses is percentage of the respondents

In Azamgarh district, out of 205 respondents, 64 (31.2 percent) respondents are depending on master weavers, 40 (19.5 percent) respondents are getting loan from money lenders, 32 (15.6 percent) respondents are getting from commercial banks, 30 (14.6 percent) respondents depending on friends and relatives, 26 (12.7 percent) respondents are depending on banks for indebtedness, 26 (12.7 percent) respondents are depending on cooperative societies for indebtedness and rest 13 respondents (6.3 percent) are taken from SHGs.

In Varanasi district, out of 200 respondents, 75 (37.5 percent) respondents are depending on master weavers, 51 (25.5 percent) respondents are getting loan from money lenders, 21 (10.5 percent) respondents are getting from commercial banks, 22 (11 percent) respondents depending on friends and relatives, 21 (10.5 percent) respondents are depending on banks for indebtedness and 9 (18 percent) respondents are depending on cooperative societies

for indebtedness and rest 13 respondents (6.5 percent) are taken from SHGs.

It can be found that majority of the respondents (34.3 percent) are depending on master weavers and 22.5 percent of respondents are getting loan from money lenders.

The handloom weavers depend very much on the master weavers, the master weavers have learnt to put up with these problems as they have taken loan from them. Master weavers establish long term economic relationship with weavers by giving large sums as an advance and personal interest free loans which are deducted as small amounts from weavers wage. Money lender is also very important source of loan to handloom weavers and he exploited the weavers by charging high interest rates. Banks and cooperative societies are very insignificant source for credit.

Table: 17 Type of employment Status

Districts/Employment Status	Independent Weaver	Under Master Weaver	Under Cooperative Society	Master Weaver	Total
Azamgarh	38 (18.5)	146 (71.2)	12 (5.9)	9 (4.4)	205 (100.0)
Akbarpur	4 (11.4)	29 (82.9)	0 (0.0)	2 (5.7)	35 (100.0)
Atraulia	5 (12.5)	33 (82.5)	0 (0.0)	2 (5.0)	40 (100.0)
Jahanaganj	7 (21.9)	25 (78.1)	0 (0.0)	0 (0.0)	32 (100.0)
Jeeyanpur	11 (39.3)	15 (53.6)	0 (0.0)	2 (7.1)	28 (100.0)
Mubarakpur	11 (15.7)	44 (62.9)	12 (17.1)	3 (4.3)	70 (100.0)
Varanasi	52 (26.0)	126 (63.0)	11 (5.5)	11 (5.5)	200 (100.0)
Bajardiha	15 (25.0)	38 (63.3)	4 (6.7)	3 (5.0)	60 (100.0)
Jaitpura	17 (34.0)	30 (60.0)	1 (2.0)	2 (4.0)	50 (100.0)
Jalalipura	7 (23.3)	20 (66.7)	0 (0.0)	3 (10.0)	30 (100.0)
Lohta	6 (20.0)	20 (66.7)	3 (10.0)	1 (3.3)	30 (100.0)
Madanpura	7 (23.3)	18 (60.0)	3 (10.0)	2 (6.7)	30 (100.0)
<b>Grand Total</b>	<b>90 (22.2)</b>	<b>272 (67.2)</b>	<b>23 (5.7)</b>	<b>20 (4.9)</b>	<b>405 (100.0)</b>

Source: Compiled from collected data.

Note: Figures in parentheses is percentage of the respondents

In Azamgarh district, out of 205 respondents, 146 (71.2 percent) respondents are working under master weaver, 52 respondents (25.4 percent) working as Independent weavers, 12 respondents (5.9 percent) are working under cooperative societies and 5 respondents (2.4 percent) are master weavers.

In Varanasi district, out of 200 respondents, 126 (63 percent) respondents are working under master weaver, 52 respondents (26 percent) are working as independent weavers, 11 respondents (5.5 percent) are working under cooperative societies and 11 respondents (5.5 percent) working as master weavers. It is found that majority of handloom weavers in both districts which is 67.2 percent working under master

weavers. It is also found that 22.2 percent weavers are working as independent, 5.7 percent weavers are working under cooperative societies and 4.9 percent working as master weavers.

## CONCLUSION OF THE STUDY

This paper has examined the socio-economic conditions of the handloom weavers. It found that most of the respondents (36.8%) were between 36-45 years of age. The age group of the handloom weavers in the Varanasi and Azamgarh districts shows that the number of respondents up to 25 years of age is low. The younger generation is not opting for weaving as their preferred profession. It found that nearly 91 per cent of weavers were male, while only 9 per cent were female. It observed that the female members of their family assist male handloom weavers. Therefore, in the study area, male handloom weavers are directly employed towards handloom weaving rather than female members. The majority (65 per cent) of weavers belonged to the Muslim religion, and (35 per cent) of the weavers were from the Hindu religion. Most of the respondents, i.e. 73.1 per cent, belonged to OBCs social group, whereas 19.8 per cent of respondents were from SCs social group. In both districts, the higher percentage of weavers are married (84.4 per cent), followed by unmarried (10.9 per cent), widowed or widower (4.2 per cent) and divorced or separated (0.5 per cent). The majority of the respondents (56.5%) have a joint family, and 43.5% of respondents have a nuclear family. The majority of respondents (60.5 per cent) live in pucca houses, and the rest, 27.2 per cent and 12.3 per cent, live in semi-pucca, and kutcha houses, respectively and 90 per cent were the owners of their house, and the rest 10 per cent lived in rented homes. The majority of respondents (28.6 per cent) were a primary level of education, about 28.1 per cent respondents had below the primary level of education, and 24.7 per cent of respondents had never attended school. It observed that less educated respondents opt for handloom weaving more significantly because handloom weavers prefer their traditional occupation

immediately rather than qualifying further. The study shows that most of the respondents, i.e. 81.7 per cent, have a weaving background. The majority of respondents (40.2 per cent) have eyesight problems, (21.5 per cent) of respondents suffer from back pain, (19.8 per cent) of respondents have the problem of joint pain, and (17.3 per cent) of respondents have the problem of hearing. The majority of the respondents (63.2 per cent) in both districts have a monthly household income between Rs. 5001 to 7500. Finally, the respondents in the Varanasi district have a monthly household income better than those in the Azamgarh district because the designs made by the Varanasi weavers are relatively innovative (particularly jacquard) and with modern technology. It concluded that the majority of respondents in both districts, 56.8% have monthly household consumption expenditure on food and non-food items of Rs. 5000-7500. Most respondents (58 per cent) have APL cards, while 34.1 per cent and 1.7 per cent have BPL cards and AAY cards, respectively. Most BPL and AAY cards belong to SCs/STs social groups. The majority, 60.5 per cent, of respondents borrowed money for other purposes, and 33.3 per cent of respondents borrowed it for weaving purposes. The different purposes are home needs, children's education and marriages, and to fulfil these purposes, they pushed off into indebtedness. The majority of handloom weavers in both districts, 67.2 per cent, work under master weavers. The study found that 34.3 per cent of weavers depend on master weavers, and 22.5 per cent of weavers are getting loans from money lenders.

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## Research Article

# Analysis of Ground Water Quality in Aurangabad District (M.S.)

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## ABSTRACT

Ground water has been the primary source of water supply for domestic, agriculture and industrial uses. 18% of the drinking water required in rural areas and 50% in urban areas. Naturally ground water contains mineral ions. These ions slowly dissolve from soil particles, sediments and rocks as the water travels among mineral surface in the pores of the unsaturated zones and the aquifer. They are referred to as dissolved solids. The quality of ground water depends on various chemicals constituents and their concentration. Ground water quality parameters such as pH, Alkalinity, Salinity, dissolved Oxygen, Chloride, Sulphate, Hardness are analyzed in order to assess water quality. Ground Water quality tested for each tahsil four Villages selected for sampling.

**Keywords:** Ground Water Quality, DO, BOD

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## INTRODUCTION

Groundwater is an important natural resource and also a crucial element not only in dry land areas but also in meeting the rapidly increasing demands of growing population and improved living standards. Ground water has been the primary source of water supply for domestic, agricultural and industrial uses in Maharashtra. It is the single largest and most readily available source contributes to almost eighty percent of the drinking water requirements in rural areas, fifty percent of urban water requirements and more than fifty percent of the irrigation requirements of the nation.

## OBJECTIVES

The prime objective of this research paper is to assess the Ground Water Quality in Aurangabad District (M.S.).

## METHODOLOGY

To check out the chemical quality of ground water of the samples in the Aurangabad district, researcher has collected the samples of 36 wells from various tahsils of Aurangabad District. (Total 36 - 4 from each tahsils) from fixed locations and gave it to MGM Water Testing Lab. On the basis of examination of water, the parameter-wise analysis has given.

## ANALYSIS

Naturally, ground water contains mineral ions. These ions slowly dissolve from soil particles, sediments, and rocks as the water travels along mineral surfaces in the pores or fractures of the unsaturated zone and

the aquifer, they are referred to as dissolved solids. Some dissolved solids may have originated in the precipitation water or river water that recharges the aquifer.

The results of groundwater quality obtained from the lab is given in table 1

Table 1 - Chemical Quality of Groundwater in Aurangabad district (MS)

Sr. No.	Tahsil	Location of Sample Water	Color	Odor	Appearance	pH	Total Hardness as CaCO <sub>3</sub>	Total Alkalinity as CaCO <sub>3</sub>	Total Dissolved Solids (TDS)	Chloride as Cl <sup>-</sup>	Turbidity	Nitrate as NO <sub>3</sub>	Fluoride as NO <sub>3</sub>	Iron as Fe	Suitability for Drinking
1	Aurangabad	Jatwada	5	Agreeable	Clear	7.4	640	399	915	174	0.7	45.97	1.231	BDL	NS
2	Aurangabad	Daulatabad	15.4	Odourless	Clear	7.9	368	260	550	38	0.89	Nd	Nd	Nd	NS
3	Aurangabad	Shendra	8.9	Odourless	Clear	7.55	845	542	1146	324	0.57	49	0.45	Nd	NS
4	Aurangabad	Kumbhepal	12.7	Odourless	Clear	7.6	751	684	1473	396	0.68	195	0.31	Nd	NS
5	Gangapur	Gangapur	4.5	Agreeable	Clear	7.18	1056	133	1719	589	0.7	46.45	0.872	BDL	NS
6	Gangapur	Bhivdhanora	12	Agreeable	Clear	7.74	400	228	534.8	168.29	0.4	14.42	1.11	BDL	NS
7	Gangapur	Gawalishivara	4.5	Agreeable	Clear	7.65	248	186.2	288.2	86.1	0.5	19.65	0.798	BDL	NS
8	Gangapur	Turkabad	16.5	Agreeable	Turbid	7.59	220	159.6	313.4	117.41	7.8	3.93	0.228	0.023	NS
9	Kannad	Hatnur	8.88	Agreeable	Colorless	7.19	1100	384.75	1669	242.16	0.9	47.59	0.965	BDL	NS
10	Kannad	Kannad	23.92	Agreeable	Colorless	7.27	515	194.75	716.5	183.45	2.7	44.19	0.69	BDL	NS
11	Kannad	Chapaner	11.2	Agreeable	Colorless	7.67	210	275.5	314.8	44.03	0.6	2.97	0.82	BDL	NS
12	Kannad	Pishor	15.54	Agreeable	Colorless	7.61	190	213.75	269.7	41.58	1.1	7.44	0.792	BDL	NS
13	Khulatabad	Gallebargaon	73.73	Agreeable	Colorless	8.15	175	693.5	917	85.61	0.7	33.08	1.27	BDL	NS
14	Khulatabad	Loni	16.06	Agreeable	Colorless	7.79	200	285	376	48.92	0.4	4.94	0.86	BDL	NS
15	Khulatabad	Khultabad	25.76	Agreeable	Colorless	7.79	290	294.5	371.7	48.92	0.9	4.23	0.52	BDL	NS
16	Khulatabad	Golegaon	10.5	Odourless	Clear	7.08	400	248	520	90	0.33	2.5	Nd	Nd	NS
17	Paithan	Paithan	7.14	Agreeable	Clear	7.92	500	646	1298	338.53	0.6	46.02	0.75	BDL	NS
18	Paithan	Bidkin	6.12	Agreeable	Clear	7.25	220	133	247	78.27	0.7	6.88	0.076	BDL	NS
19	Paithan	Vihamandva	4.2	Agreeable	Clear	7.68	252	254.6	344.4	72.4	0.3	7.74	2.02	BDL	NS
20	Paithan	Adool	6	Agreeable	Clear	7.35	300	323	297.2	52.83	0.9	10.58	1.21	BDL	NS
21	Phulambari	Phulambari	5	Agreeable	Clear	7.62	360	334	566	97.84	0.9	44.79	0.626	BDL	NS
22	Phulambari	Khamgaon	30.4	Odourless	Clear	7.1	1160	332	1646	304	0.23	16.1	0.4	0.2	NS
23	Phulambari	Aland	10.5	Odourless	Clear	7.52	464	260	522	40	0.18	5	0.15	0.01	NS

Sr. No.	Tahsil	Location of Sample Water	Color	Odor	Appearance	pH	Total Hardness as CaCO <sub>3</sub>	Total Alkalinity as CaCO <sub>3</sub>	Total Dissolved Solids (TDS)	Chloride as Cl <sup>-</sup>	Turbidity	Nitrate as NO <sub>3</sub>	Fluoride as NO <sub>3</sub>	Iron as Fe	Suitability for Drinking
24	Phulambri	Peerbawda	7.8	Odourless	Clear	7.65	416	188	550	38	0.29	1.95	0.19	0.02	NS
25	Sillod	Sillod	21.8	Odourless	Clear	7.29	888	364	1272	184	0.17	18	0.21	0.21	NS
26	Sillod	Nillod	16.2	Odourless	Clear	7.62	380	304	594	60	0.27	1.95	0.18	0.01	NS
27	Sillod	Shivna	5	Odourless	Clear	6.9	580	400	922	92	0.29	5.1	Nd	Nd	NS
28	Sillod	Ghatnandra	18.4	Odourless	Clear	8	456	304	670	52	0.86	3.2	Nd	Nd	NS
29	Soegaon	Jarandi	35.8	Odourless	Clear	7.16	368	296	440	20	0.08	2.5	Nd	Nd	NS
30	Soegaon	Soegaon	9	Odourless	Clear	7.06	480	1720	2368	126	0.69	42.01	0.21	0.19	NS
31	Soegaon	Sawladbara	41.8	Odourless	Clear	7.18	292	440	532	20	0.23	1.95	Nd	Nd	NS
32	Soegaon	Banoti	23.7	Odourless	Clear	7.01	304	232	435	24	0.25	3.5	Nd	Nd	NS
33	Vaijapur	Vaijapur	6.4	Agreeable	Clear	7.51	480	406	870	299	1.8	47.46	0.614	BDL	NS
34	Vaijapur	Shirasgaon	5	Agreeable	Clear	7.85	584	399	797.8	318.96	0.5	41.52	0.691	BDL	NS
35	Vaijapur	Shivrai	7.15	Agreeable	Clear	7.55	320	239	362.2	62.62	1	44.74	0.028	BDL	NS
36	Vaijapur	Shivoor	8.5	Agreeable	Clear	7.22	156	152	251	70.44	1.3	3.03	0.86	BDL	NS

Source: Lab Reports of Water Samples

Table 1 reveals the following observations.

- The color of sample underground water seems to be ranges from 4.2 hazen to 73.73 hazen. As per the standards, the hazen score below 5 hazen is considered as good and usable water. Out of 36 selected samples, only 7 samples have shown below 5 hazen color whereas 29 samples have shown above 5 hazen results.
- From 36 villages / places of the Aurangabad district shows that, the water was odourless / agreeable. The sample was taken from well and bores. So it was odorless / agreeable.
- The pH value of sample water ranges from 6.9 (Shivna village) to 8.15 (Galleborgaon village). Above 8 pH value was received from two villages only whereas 33 samples have shown 7.01 to 7.92 pH value.
- Regarding total hardness of water, out of 36 samples, there is only 4 samples which comes in standard scale and other 32 are above the standard level. It clearly indicates that, More than 90% of samples are not as per the standards.
- In regard with alkalinity, It is noted that, almost samples have show the value less than 500 mg/L. About 31 samples have shown alkalinity value less than 500 mg/L where 500 to 1000 mg/L have been received from the 4 samples. Only one sample of Soygaon has shown the alkalinity value of 1720 mg/L.

- Regarding TDS, It is noted that, 23 samples have shown the value more than standards, i.e. 500 mg/L. About 13 samples have shown TDS value less than 500 mg/L where 500 to 1000 mg/L TDS have been received from the 15 samples. Only 8 samples have shown the TDS value of more than 1000 mg/L. It clearly indicates that, this kind of water is suitable for drinking purpose.
- The chloride of ground water samples varies from 20 mg/L for Sawaldbara (Soygaon Tahsil) to 589 mg/L for Gangapur (Tahsil Gangapur). This is also the highest and lowest figures for the same. Below 100mg/L chloride from ground water samples have been observed from 22 samples whereas 6 samples have shown the values of above 100 mg/L chloride.
- Turbidity value of ground water ranges from 0.08 NTU to 7.8 NTU. It shows that, it is highest for the sample of Turkabad (Gangapur tahsil) whereas lowest for Jarandi (Soygaon tahsil). The standard value for turbidity is 1 NTU. The lab result indicates that, there are only 5 samples which are above the standard values whereas 31 values are below the standard value.
- Nitrate in the ground water ranges from 1.95 mg/L for Sawaldbara (Soygaon tahsil) to 195 mg/L for Kumbefal (Aurangabad tahsil). It means the nitrate in water has been highest in Kumbefal and lowest in Sawaldbara ground water.
- The fluoride in the ground water ranges from 0.028 mg/L from Shivrai (Vaijapur tahsil) to 2.02 mg/L from Vihamandwa (Paithan tahsil). It means the highest nitrate in ground water has been noticed from the sample of Shivrai village whereas least has

been noticed from the sample of Vihamandwa village. The standard value for nitrate in ground water is 1 mg/L.

- Iron has been detected from only 7 samples out of 36 whereas 29 sample are below detection level. It means there is negligible level of iron in the samples. Among 7 detected sample, the iron ranges from 0.01 mg/L for Aland (Phulambri tahsil) to 0.21 mg/L for Sillod city (Sillod tahsil). The standard level of iron in ground water is upto 1 mg/L.

## CONCLUSION

After checking all the chemical parameter of ground water quality, based on the results, researcher has come to know that, the ground water samples (All 36) are not suitable for drinking purpose.

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## Research Article

# Post Covid-19 Paradigm Shift in Social Sciences, Technology and Public Health in Nigeria

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## ABSTRACT

The COVID-19 pandemic has altered the business world in unprecedented and historic ways, the effects of which have been felt the world over. As the new reality of the pandemic sets in, organizations and individuals grapple with the implications of the virus on technology, public health and social humanity. The difficulty comes in assessing paradigm shifts and the long-term implications of the pandemic. A paradigmatic shift is a fundamental change in the underlying assumptions of a phenomenon. This necessitated the study ascertain the post covid-19 paradigm shift in social sciences, technology and public health in Nigeria. A systematic search of published literatures on covid-19 pandemic and the changes that have taken place in the social phenomenon was examined. Published peer review journals, abstracts, Gray literature (technical reports, government documents, reports, etc.), inaugural lectures, and internet articles were reviewed. Manual search of reference lists of selected articles were checked for further relevant studies. The review showed that the COVID-19 pandemic has created multiple paradigm shifts the likes of which organizations have never before seen. Even the most prepared organizations scrambled to react to the rapid changes brought on by the pandemic. Whereas most organizations would agree that technology, public health, social sciences and humanity such as (financial consequences, remote work, worker well-being, and career attitudes) have all shifted, organizations ability to understand and respond to those shifts in both the short- and long-term has become another story altogether. It is recommended that the government should grant tax breaks to companies seeking to increase their capacity to produce import substitute goods, which could even mean zero-rating VAT for the next 3-months; Releasing VAT refunds to assist businesses with managing their cash flow.

**Keywords:** post covid-19, paradigm shift, social sciences, technology, public health

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## BACKGROUND

The COVID-19 pandemic has altered the business world in unprecedented and historic ways, the effects of which have been felt the world over. As the new reality of the pandemic sets in, organizations and individuals grapple with the implications of the virus (Akindamola, 2020). In the short-term, organizations have generally engaged in empathic pro-employee responses, and many have radically altered how and where employees work. At face value, both actions seem both reasonable and prudent. The difficulty comes in assessing paradigm shifts and the long-term implications of the pandemic. A paradigmatic shift is a fundamental change in the underlying assumptions of a phenomenon. In research, these are rare but impactful shifts that radically change our understanding of phenomena by altering the foundational assumptions upon which our understanding is derived (Antara, 2020). The COVID-19 pandemic has the potential to result in multiple paradigm shifts, the spectrum of shifts range from personal to professional, individual to organizational, and across most industries. The world is at its most interdependent economically and has never faced this level of comprehensive interruption. Whereas the short-term effects have been felt and recognized by many, resulting paradigm shifts caused by the pandemic will likely have long-term effects of unknown scope and impact (IMF, 2020). Many are adjusting to novel organizational demands of the pandemic while hoping for a swift “return to normal.” In time, the implications of these demands may not only shift but have a lasting effect on the way organizations and employees function, resulting in a “new normal (Loayza & Pennings, 2020).”

Initially, most individuals and organizations seemed to maintain a generally positive outlook on the situation. The need to rely on unemployment was serving its purpose as temporary assistance that would soon become unnecessary once the pandemic reached its peak and allowed workers to return to the status quo (ILO, 2020). However, even with most

stay-at-home orders expiring around the country, the pandemic continued to delay many individuals' ability to return to work. Whereas some industries have begun to rebound, rather than a simple return to the status quo, the recovery will be driven more by consumer behavior and demand than by a simple desire to return to normalcy (Antara, 2020). Indeed, many industries such as travel, entertainment, and restaurants continue to suffer as the pandemic draws on (World Bank, 2020).

Observation revealed by scholars that pandemic such as SARS, Ebola among others have overtime affected the world economy, in which African countries are not an exemption. Indeed, the emergence of COVID-19 and its increasing incidence focusing on the Nigeria economy has called for drastic review and changes in the earlier revenue expectations and fiscal projections (UNESCO, 2020). The recent global crash in oil prices, fuelled by an OPEC price war and subsequent drop in demand of oil derivatives amid COVID-19 containment measures worldwide, resulted in so many oil producing countries reducing its oil production and exports including West African countries. However, depletion of foreign reserves in the West African countries Central Bank (normally countries get foreign currency from exports to replenish their reserves) has made it difficult to stabilise the local currency (Naira) against the US dollar, causing a rapid depreciation of the Naira. Depreciation of the Naira did not seem to have an immediate impact on inflation (Petroleum Economist 24/03/2020). However, prices of essential goods have risen, mainly caused by decreased trade following movement restrictions and lockdowns at global level. Higher transaction costs for trade of essential goods caused by prolonged movement restrictions and continued currency devaluation, following the global decline of oil prices, will likely result in a continued increase in prices and decreased households' purchasing power (Mahler, Lanker, Aguilar & Wu, 2020). Over the long-term, the crash in oil prices may lead to a continued reduction of the government's budget (normally based on anticipated earnings from

oil production), reduced government revenues and foreign exchange reserves, with the risk of economic fallout (Peeri et al., 2020). This would make it increasingly challenging for many African countries to borrow money from financial institutions, due to lenders' doubt on their inability to repay. The impact on financing flows risks pose a reduction in the government's ability to finance health and safety net programmes in response to the pandemic (Akindamola, 2020).

## STATEMENT OF THE PROBLEM

The lockdowns across countries have entailed a rise in the use of information systems and networks, with massive changes in usage patterns and usage behaviour. Employees are adjusting to new "normals" - with meetings going completely online, office work shifting to the home, with new emerging patterns of work. These changes have come across most organizations, whether in business, society, or government. The changes have also come suddenly, with barely any time for organizations and people to plan for, prepare and implement new setups and arrangements; they have had to adjust, try, experiment, and find ways that did not exist before. The outbreak of coronavirus disease-2019 (COVID-19) has shown to severely affect national and global economies. Various enterprises are facing different issues with a certain degree of losses. Particularly, enterprises are facing a variety of problems such as a decrease in demand, supply chain disruptions, cancellation of export orders, raw material shortage, and transportation disruptions, among others. Nevertheless, it is quite clear that enterprises around the globe are experiencing the significant impact of COVID-19 outbreak on their businesses. The major victims of COVID-19 outbreak are organizations in the developing countries including the government agencies because they do not possess sufficient resources, especially financial and managerial, and are not prepared for such disruptions likely to go longer than expected (Rahman & Matin, 2020).

According to AfDB 2020, as a result of the pandemic, growth in the West Africa region, will stand at 4.0 percent in 2020, following growth of 3.6 percent in 2019, and as result of the global pandemic is now projected to contract by -2.0 percent in 2020, and could fall by as much as -4.3 percent in a worst-case scenario. Countries that depend on oil and tourism for foreign exchange and fiscal revenues will especially face reduced fiscal space and heightened external account imbalances, stoking a build-up of public debt. However, the government of Nigeria must lead economic diversification drive. It is one practicable way to saddle through the current economic uncertainties and instabilities. What the consequences of COVID-19 pandemic should further offer the economy of Nigerian states and policymakers, is that the one-tracked, monolithic reliance on oil is failing. Diversification priorities to alternative sectors such as agriculture, solid minerals, manufacturing and services sectors, were not intensified by the government, due to lack of patriotisms (Akindamola, 2020). It is against this background that the research seeks to investigate the Post Covid-19 Paradigm Shift in Social Sciences, Technology and Public Health in Nigeria.

## RESEARCH OBJECTIVES

The aim of the study is to investigate the Post Covid-19 Paradigm Shift in Social Sciences, Technology and Public Health in Nigeria. The specific objectives were:

- To examine the effect of covid-19 spread rate on social changes in Nigeria
- To ascertain the effect of covid-19 spread rate on changes in technology usage in Nigeria
- To investigate the effect of covid-19 spread rate on changes in public health in Nigeria

## LITERATURE REVIEW

This section dwells on the conceptual framework, theoretical framework and empirical literature review.

### Concepts of Covid-19 Pandemic

Corona Virus Disease 2019 (COVID-19) is an RNA virus, with a typical crown-like appearance under an electron microscope due to the presence of glycoprotein spikes on its envelope. It is not the first time that a coronavirus causing an epidemic has been a significant global health threat: in November 2019, an outbreak of corona-viruses (CoVs) with severe acute respiratory syndrome (SARS)-CoV started in the Chinese province of Guangdong and again, in September 2012 the Middle East respiratory syndrome (MERS)-CoV appeared (Hsu, Chia & Lim, 2020). There are four genera of CoVs: (I)  $\alpha$ -coronavirus (alphaCoV), (II)  $\beta$ -coronavirus (betaCoV) probably present in bats and rodents, while (III) $\delta$ -coronavirus (deltaCoV), and (IV) $\gamma$ -coronavirus (gammaCoV) probably represent avian species (World Health Organization, 2020).

Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China. It was initially reported to the WHO on December 31, 2019. On January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency (Lu, Stratton & Tang, 2020). On March 11, 2020, the WHO declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza a pandemic in 2009 (World Health Organization, 2020).

Illness caused by SARS-CoV-2 was termed COVID-19 by the WHO, the acronym derived from "coronavirus disease 2019." The name was chosen to avoid stigmatizing the virus's origins in terms of populations, geography, or animal associations. Covid-19 is put as a patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND a history of travel to or residence in a location

reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset; ORB (World Health Organization, 2020). The virus has a natural and zoonotic origin: two scenarios that can plausibly explain the origin of SARS-CoV2 are: (i) natural selection in an animal host before zoonotic transfer; and (ii) natural selection in humans following zoonotic transfer. Clinical features and risk factors are highly variable, making the clinical severity range from asymptomatic to fatal. Understanding of COVID-19 is on-going. This review aims to summarize early findings on the epidemiology, clinical features, diagnosis, management, and prevention of COVID-19 (Lipsitch, 2020).

The COVID-19 epidemic expanded in early December from Wuhan, China's 7th most populous city, throughout China and was then exported to a growing number of countries. The first confirmed case of COVID-19 outside China was diagnosed on 13th January 2020 in Bangkok (Thailand). On the 2nd of March 2020, 67 territories outside mainland China had reported 8565 confirmed cases of COVID-19 with 132 deaths, as well as significant community transmission occurring in several countries worldwide, including Iran and Italy and it was declared a global pandemic by the WHO on the 11th of March 2020. The number of confirmed cases is constantly increasing worldwide and after Asian and European regions, a steep increase in cases is currently (31 March 2020) being observed in low-income countries (Letko, Marzi & Munster, 2020).

### Concepts of Paradigm Shift

The term paradigm shift refers to a major change in the worldview, concepts, and practices of how something works or is accomplished. A paradigm shift can happen within a wide variety of contexts from scientific research to industry (Janet & Ngugi, 2014). Paradigm shifts in industry often happen when new technology is introduced that radically alters the production process or manufacturing of a good or service. These shifts are key drivers in many of the

processes that a society undergoes, such as the American Industrial Revolution or the information revolution since the 2000s. Paradigm shift is a perception or a group of ideas about how things should be done, made, or thought about. In other words, it's the perspective on the world, subjective point of view, or beliefs about what's true. Paradigm shift occurs whenever there's a significant change in the way an individual or a group perceives something, and the old paradigm is replaced by a new way of thinking, or a new belief. Paradigm shift is an overarching assumption undergirding a general worldview. In the scientific community, this means the baseline beliefs about physics, biology, and other disciplines that experts take for granted as true. Scientists measure their experiments and observations in relation to these beliefs (Jibrilla, 2018).

In the present-day, paradigm shifts refer just as easily to surprising political outcomes or new artistic movements as they do to the arrival of a new baseline assumption and methodology in chemistry or astronomy. Still, the definition of paradigm shift remains the same no matter which field it crops up in: a radical change from previous prevailing attitudes that forms the basis of a new orthodoxy. Paradigm shifts happen by trickles of questioning and then in a flood of changes. Thomas Kuhn believed scientific research stays within a certain subset of beliefs (a scientific paradigm) most of the time. Scientists rely on these broad assumptions about the world and their field of study to do their work. Kuhn called this "normal science." But as time progresses, scientists occasionally discover new data that presents paradoxes or directly contradicts this dominant paradigm. These contradictions build and build until theoreticians arrive to make sense of them by proposing entirely new assumptions and beliefs, sweeping away the previous paradigm and replacing it with a new one (Johnson, S. & Nino-Zarazua, 2016). Paradigms are generally defined as a framework that has unwritten rules and that directs actions. A

paradigm shift occurs when one paradigm loses its influence and another takes over. The concept defines paradigm and paradigm shift and explains how it can relate to company strategies and industry cycles. A mature science, according to Kuhn, experiences alternating phases of normal science and revolutions. In normal science the key theories, instruments, values and metaphysical assumptions that comprise the disciplinary matrix are kept fixed, permitting the cumulative generation of puzzle-solutions, whereas in a scientific revolution the disciplinary matrix undergoes revision, in order to permit the solution of the more serious anomalous puzzles that disturbed the preceding period of normal science.

## THEORETICAL REVIEW

The following theories underpinned this study

### Swan Theory

The theory on which this study hinges is the theory of black swan. The black swan theory or theory of black swan events is a metaphor that describes an event that comes as a surprise, has a major effect, and is often inappropriately rationalised after the fact with the benefit of hindsight. Just like the case of the COVID-19 pandemic which came as a surprised and has affected the world economy in various ways; also affecting small and medium scale enterprises all over the world. There have been a number of Black Swan events throughout history and they can take very different forms. Both World Wars, the fall of the Soviet Union, the rise of Islamic fundamentalists, 9/11, the impact of the spread of the Internet, and the 1987 and 2008 financial crises are all examples of Black Swan events. But we are living through a Black Swan event right now.

There has been some debate over whether the coronavirus pandemic is a Black Swan, event while the threat of a virus was known, the unpreparedness of governments around the world shows it was considered an outlier event and that there was a low possibility it could happen. It has also had dire consequences, both on public health and the

economy. The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by the pandemic is devastating; tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year. Millions of enterprises face an existential threat particularly the small and medium scale enterprises.

### Flu Theory

The extreme immunologic response to the 1918 pandemic virus could have made patients more susceptible to deadly secondary bacterial infections, according to two researchers who explained the rationale behind their hypotheses yesterday in a perspective piece in an early online edition of *Emerging Infectious Diseases* (EID). The authors who detailed the hypotheses are Dr G. Dennis Shanks, director of the Australian Army Malaria Research Institute, and Dr John Brundage, a physician and epidemiologist with the Armed Forces Health Surveillance Center in Silver Spring, Md. In September 2011, the same two authors published an epidemiologic analysis of naval medical records that suggested the first wave of the 1918 pandemic was caused by an antigenically distinct virus that left its hosts vulnerable to getting sick again in the second wave with infections that weren't lethal. However, another study published about the same time suggested that cases in the first and second waves of the 1918 pandemic looked much the same, and it found no evidence of viral mutations that would explain why the fall wave was so much more severe. The study was based on tissue samples from pandemic victims.

During the 1918 pandemic, illness rates were highest among children, but mortality was highest in young adults, a highly unusual pattern for influenza. Shanks and Brundage wrote that an analysis of who got sick

and when they became ill provides some useful clues that might help explain the unusual mortality curve. Their assertions hinge on their view that the first of the three pandemic waves was caused by a different virus, given that clinical patterns varied between the first two waves. A review of 1918 pandemic flu mortality rates in different populations suggests that exposure to bacterial pathogens played an important role, they wrote. For example, case-fatality rates from secondary pneumonia were highest in Australian and American soldiers with pandemic flu who were relatively new to their settings. The authors hypothesized that many people in 1918 had their second exposures to an immunodominant T-cell epitope that was present on both the internal protein of the 1918 pandemic strain and on a similar previous strain, such as the 1889 pandemic virus. The second exposure could have led to a pathologic immune response that made patients vulnerable to deadly secondary bacterial infections, which they said may have contributed to the highly lethal nature of the second 1918 pandemic wave. They also suggested that the pathologic responses made people vulnerable to bacteria that they had not been exposed to before, noting military recruits in new locations or soldiers crowded on troop ships would've had such exposures. Mortality rates were lower in people who had previous exposure in their occupational settings, such as military clinics, the article says.

Factors that led to high mortality during the 1918 pandemic, such as commercial and social isolation, no longer exist on a global scale, and most young adults are likely to be exposed to numerous viral and bacterial pathogens, according to Shanks and Brundage, who said their hypothesis may explain why the mortality rate for the 2009 H1N1 pandemic was relatively low. The hypothesis about the T-cell epitope may have some implications for the development of universal flu vaccines, since it would be important "to ensure that T-cell-mediated responses to future seasonal and pandemic strains are protective but not pathogenic," they wrote. In an

editorial that accompanied the report, Dr David Morens and Dr Jeffery Taubenberger wrote that Shanks and Brundage's hypotheses were thought-provoking, but they said that a higher percentage of people of all ages, not just young adults, experienced flu that led to secondary bacterial pneumonia in 1918. Both were coauthors of the recent study on tissue samples from 1918 pandemic victims and are with the National Institute of Allergy and Infectious Diseases.

### Empirical Review

According to Harapan, (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 preventions strategies are all reviewed.

Pramath, (2020) review on basic sciences aims to clarify the jargon in virology, describe the virion structure of SARS-CoV-2 and present pertinent details relevant to clinical practice. Another component discussed is the brief history on the series of experiments used to explore the origins and evolution of the phylogeny of the viral genome of SARS-CoV-2. Additionally, the clinical and epidemiological differences between COVID-19 and other infections causing outbreaks (SARS, MERS, H1N1) are elucidated. Emphasis is placed on evidence-based medicine to evaluate the frequency of

presentation of various symptoms to create a stratification system of the most important epidemiological risk factors for COVID-19. These can be used to triage and expedite risk assessment. Furthermore, the limitations and statistical strength of the diagnostic tools currently in clinical practice are evaluated. Criteria on rapid screening, discharge from hospital and discontinuation of self-quarantine are clarified. Epidemiological factors influencing the rapid rate of spread of the SARS-CoV-2 virus are described.

Mohsin, (2020) study aims to assess the impact of COVID-19 outbreak on these businesses and provide policy recommendations to help MSMEs in reducing business losses and survive through the crisis. An exploratory methodology with comprehensively reviewing the available literature, including policy documents, research papers was adopted. Further, to add empirical evidence, data were 184 Pakistani MSMEs by administering an online questionnaire. The data were analyzed through descriptive statistics. The results indicate that most of the participating enterprises have been severely affected and they are facing several issues such as financial, supply chain disruption, decrease in demand, reduction in sales and profit, among others. Besides, over 83% of enterprises were neither prepared nor have any plan to handle such a situation. Further, more than two-thirds of participating enterprises reported that they could not survive if the lockdown lasts more than two months. The findings of our study are consistent with previous studies.

Mckibbin and Fernando (2020) study coronavirus pandemic in Nigeria: how can small and medium enterprises (smes) cope and flatten the curve. According to the authors the negative effect of the invisible enemy is ravaging the entire world populace, leading to global economic crisis. Businesses across the globe are feeling the negative impact of the coronavirus COVID-19 pandemic threatening their going concern status. SMEs in Nigeria are not left out

in the share of this negative effect of the invisible enemy, as their survival is being threatened and the government is not helping. We reviewed literature on the impact of COVID-19 on SMEs and subsequently proposed a model to help them win the fight alongside with the federal government in flattening the curve. We concluded that SMEs can triumph in this turbulent time following the laid down health advice, and we pray the world heals of this pandemic in no distant time.

Sharu and Guyo (2020) study was on COVID-19 impact on SMEs in Bangladesh: An Investigation of What they are experiencing and how they are managing. SMEs in Bangladesh have already been experiencing the devastating and ruthless impact as such the motivation of the study to develop insight relating to what is experiencing by SMEs and how they are managing.

This study used a descriptive analysis method of primary and secondary data obtained directly both from field survey and from various publication sources. The study findings might assist in formulating the strategic decision focusing on SMEs revival and growth after the pandemic become stable. Study findings also utterly established the fact i.e. government should invest considerable effects for mobilization and efficient reallocation of resources through collaboration of both Banks and nonbanks financial instructions. Else, unemployment, decline growth speed, and social insecurity might appear and prevail in the long run.

Tejal (2020) paper demonstrates the use of a linear Input-Output (IO) model to estimate the economic losses in India due to COVID-19. The results show that depending on the duration of the lockdown, the Indian economy is likely to face a loss of about 10e31% of its GDP. This method can be applied to assess economic losses for other regions also. The paper also discusses the impacts of COVID-19 on the demand and supply of electricity and CO<sub>2</sub> emissions from the

power sector. The results show that daily supply from coal-based power plants has reduced by 26% during the lockdown resulting in a possible emissions reduction of about 15e65 MtCO<sub>2</sub> depending on the lockdown duration. The cost of avoided carbon is approximately 186e264 \$/tCO<sub>2</sub>, much higher than the \$7e12/tCO<sub>2</sub> currently being paid by consumers in India indicating the difficulty of achieving emissions reductions through restructuring economic activity as often advocated.

## METHODOLOGY

The study was conducted with reference to the existing theoretical literature review. Published, unpublished, online journals and magazines by other researchers on similar research were critically examined to investigate the research problem. The qualitative approach provides perceptions to social components of the procedures amongst agencies (Denzin & Lincoln 2018). The qualitative technique is regarded as a suitable method to investigate the Post Covid-19 Paradigm Shift in Social Sciences, Technology and Public Health in Nigeria. The approach will assist the manner on which role players (beneficiaries, government, industries at large and policy makers) better understand the Paradigm Shift in Social Sciences, Technology and Public Health for proper policy recommendations.

## CONCLUSION AND RECOMMENDATIONS

The COVID-19 pandemic has created multiple paradigm shifts the likes of which organizations have never before seen. Even the most prepared organizations scrambled to react to the rapid changes brought on by the pandemic. Whereas most organizations would agree that technology, public health, social sciences and humanity such as (financial consequences, remote work, worker well-being, and career attitudes) have all shifted, organizations ability to understand and respond to those shifts in both the short- and long-term has become another story

altogether. However, by becoming more aware of these paradigm shifts in the key areas discussed above, practitioners can better position themselves to explore the myriad of organizational changes resulting from the pandemic. Furthermore, awareness of these paradigm shifts enables individuals and organizations to proactively adapt to a rapidly changing business environment. It is likely that the effects of this pandemic will need to be explored for years to come in order to truly understand the depth and magnitude of effect. By being armed with a knowledge of these paradigm shifts, their implications, and the issues for consideration, organizations and their leaders can take the actions that should lead to long-term organizational success. It is recommended that the government should grant tax breaks to companies seeking to increase their capacity to produce import substitute goods, which could even mean zero-rating VAT for the next 3-months; Releasing VAT refunds to assist businesses with managing their cash flow; Encouraging banks to give concessionary loans at low rates to facilitate businesses, and as well provide moratoriums on loans that are due; the government must ensure the equitable distribution of health care and other material support such as food, soap and water. Besides, community engagement is vital to increase access to information about control measures, address stigma surrounding COVID-19 and comply with the control measures; It is no news that the COVID-19 pandemic will disrupt the global and Nigerian economy in 2020. However, Nigeria can cushion the impact of the virus by introducing measures to protect companies and their workers, most especially the vulnerable citizens, from the impact of the quarantine measures. Such measures could include: Unemployment benefits, Employment retention, Social assistance benefits and financial support and tax relief.

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## Research Article

# Economic Challenges of India's Rural Economy during Covid-19 Pandemic

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## ABSTRACT

This paper carries the evidence about economic challenges of rural economy in India. India is the country of villages, where the major population lives in rural areas. Agriculture and agriculture-related services are the major sources of livelihood of the peoples. In the past few decades, farm distress led to huge migration from rural to urban centres. The structural economic growth theories explain every economy in the transition phase moves from traditional (agriculture) to the modern sector (manufacturing/services). India is the fifth-largest economy in the world in terms of purchasing power parity (PPP) whereas the mass population in the country lives in abject poverty. During Covid-19 pandemic rural economies faces infinite problems and consequences. But it had more response to produce and fulfil the basic necessities to entire population sans hesitation. Employment opportunities were abundant; fear about diseases and its treatment that great influences affected the production in agriculture sector. Rural economy not utilised the services of Transportation and communication for exchange of agricultural commodities to common people across the country. Price rose in the economy and people faced inflation and paid higher prices.

**Keywords:** Rural Economy, Employment, Production, Inflation, Agriculture

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## INTRODUCTION

In India, the government imposed a nationwide lockdown from 24 March 2020, bringing a range of strict restrictions to control the spread of the virus. The lockdown was lifted in a series of unlock phases by 30 June 2020. The lockdown disrupted the lives of millions of households across the country, with its effects lingering months after the lockdown ended. In rural areas, many households slipped in and out of poverty, facing food insecurity and having no source of income. The return of migrant workers back to their rural homes worsened the scenario.

The COVID-19 pandemic had unleashed a massive devastation across the world. It caused widespread loss of lives and brought the economy to a standstill, affecting the livelihoods of the masses. As India battles a second Covid-19 wave accompanied by viral mutations in 2021, state governments in India have imposed new mobility restrictions while trying to maintain economic activity. The mix of state-wise lockdowns and micro-containment zones currently being implemented could lead to less-severe economic impacts than the enactment of a national lockdown. A closer look at lessons from the first wave indicate that district-specific characteristics like age, population density, and the share of the contact-intensive services sector, are also likely to determine the extent of the impact. Due to that household incomes declined more than consumption in 2020, points to the importance of maintaining livelihood while battling Covid-19.

Public programmes were targeted towards employment and income generation of low-skilled workers could potentially hedge against job losses and reductions in earnings. A debate in many developing countries is whether public funds should be used to pay for vaccinations and public health expenditures. The economic costs of containment measures to combat Covid-19, and so the costs of vaccinations and public health improvements should be weighed against those. Given the very high

aggregate economic costs, most of the governments in developing countries like India would find that investments in vaccinations and public health pass the cost-benefit test in the context of the Covid-19 pandemic.

## EFFECT OF COVID-19 LOCKDOWN ON INDIA'S ECONOMY

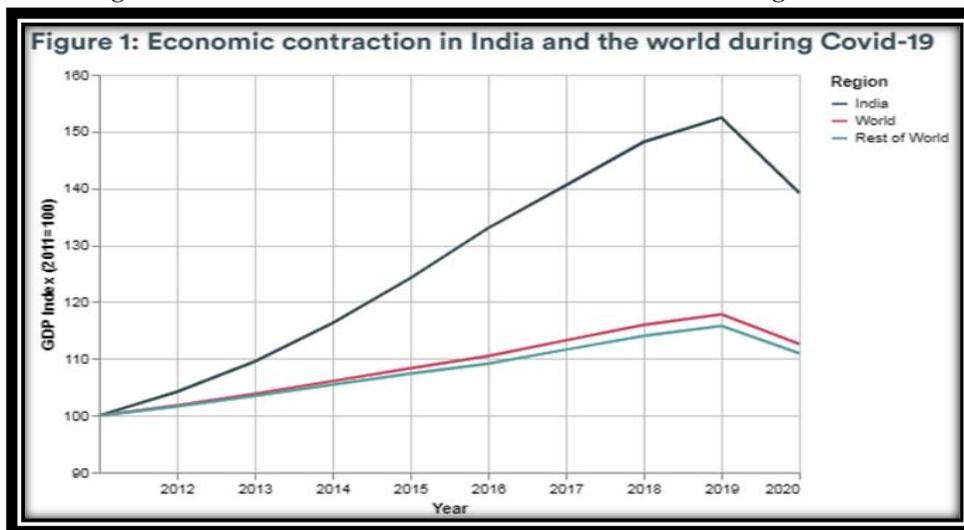
In 2020-21 the Indian economy registered its worst-ever contraction since Independence and also the first since 1979-80. The National Statistical Office has, in its Provisional Estimates released on May 31, pegged the growth in real gross value added at basic prices previously known as GDP at factor cost for 2020-21 at minus 6.2 per cent. But what's unusual this time is that the farm sector namely agriculture, forestry & fishing have grown by 3.6 per cent. As the chart below shows, there have been four instances of negative GDP growth earlier: 1979-80, 1972-73, 1965-66 and 1957-58. All four were drought years, with agricultural de-growth surpassing that of overall GDP in each of them. 2020-21 has been different. There has been record economic contraction, yet no drought; the farm sector actually grew by 3.6 per cent (Damodaran, Mekhala Krishnamurthy, 2021).

The growth prospectus of India for the year 2020-21 was ranging from 0.8 to 4.0 per cent. This tentative and wide range of forecast is due to the extent of uncertainty. The International Monetary Fund (IMF) have predicted 2020-21 India's growth rate at 1.9 per cent, China's growth rate at 1.2 per cent and 3 per cent decline in global growth. The actual growth outcomes of India depends on various factors such as the speed at which the economy is opened, how fast the novel virus is contained and government plans to boost the economy. The government has recently announced Rs. 20 lakh crores package to revive the economy, but the actual effect of the plan lies in the effective implementation of the plan. To better understand the economic scenario of the country, the Gross Value Added (GVA) or total output is assessed for 12 major

sectors of the economy for the year 2017-18. It shows the contribution of agriculture and allied activities (12.003) in the total GVA. The contribution of the manufacturing (35.196) is highest as a single sector in

the economy but services combined contribute is more than 50 per cent of total GVA (Damodaran, Mekhala Krishnamurthy, 2021).

Figure 1: Economic contraction in India and the world during Covid-19



Source: *World Economic Outlook, International Monetary Fund, April 2021.*

From April to June 2020, India's GDP dropped by a massive 24.4 per cent. According to the latest national income estimates, in the second quarter of the 2020/21 financial year, July to September 2020, the economy contracted by a further 7.4 per cent. The recovery in the third and fourth quarters, October 2020 to March 2021 was still weak, with GDP rising 0.5 per cent and 1.6 per cent, respectively. This means that the overall rate of contraction in India was (in real terms) 7.3 per cent for the whole 2020/21 financial year. In the post-independence period, India's national income has declined only four times before 2020 in 1958, 1966, 1973 and 1980 with the largest drop being in 1980 that was 5.2 per cent. This means that 2020-21 is the worst year in terms of economic contraction in the country's history, and much worse than the overall contraction in the world. The decline is solely responsible for reversing the trend in global inequality, which had been falling but has now started to rise again after three decades (Deaton, 2021).

## MACROECONOMIC INDICATORS DURING THE PANDEMIC

During the 2020-21 financial years, the rates of decline in GDP for the world were 3.3 per cent and 2.2 per cent for emerging market and developing economies. Following Table summarises macroeconomic indicators for India, along with a reference group of comparable countries and the world. The fact that India's growth rate in 2019 was among the highest made the drop due to Covid-19 even more noticeable.

Table 1: Summary of key macroeconomic indicators

Macro-Economic Indicators	India	Reference group	World
GDP at constant prices 2019 (% change)	4.0 %	3.6 %	2.8 %
GDP at constant prices 2020 (% change)	-7.3 %	-2.2 %	-3.3 %
Unemployment rate 2019 (% of total labour force)	5.3 %	5.5 %	5.4 %
Unemployment rate 2020 (% of total labour force)	7.1 %	6.4%	6.5 %
Above-the-line additional health sector fiscal measures in response to Covid-19 (% of GDP)	0.4 %	0.9 %	1.2 %
Above-the-line additional non-health sector fiscal measures in response to Covid-19 (% of GDP)	3.0 %	2.8 %	7.8 %

Source: Data on gross domestic product, constant prices (percentage change) is obtained from the World Economic Outlook Database April 2021, IMF.

Comparing national unemployment rates in 2020, India's rate of 7.1 per cent indicates that it has performed relatively poorly both in terms of the world average and compared with a set of reference group economies with similar per capita incomes. Unemployment rates were more muted within the reference group economies and were also kept low by generous labour market policies to keep people in work. Despite the scale of the pandemic, additional budgetary allocation to various social safety measures has been relatively low in India compared with other countries. Although the country might look comparable to the reference group in non-health sector measures, the additional health sector fiscal measures are less than half those in the reference

group. More worryingly, the Indian governments announced allocation in the 2021 budget for such measures does not show an increase, once inflation is taken into account.

## EFFECT OF COVID-19 ON INCOME, CONSUMPTION AND UNEMPLOYMENT

While the macroeconomic statistics provide a snapshot of India's economic position, they hide the large and unequal effects on households and workers within the country. Both wealth and income inequality has been on the rise in India ([Ghatak, 2021](#)).

Table 2: Percentage of individuals by monthly consumption expenditure

Consumption Expenditure in Years	All-India		Urban		Rural	
	Aug 19	Aug 20	Aug 19	Aug 20	Aug 19	Aug 20
Rs 1,000 or below	5.0	10.0	2.3	5.5	6.4	12.5
Rs 1,600 or below	21.0	33.6	12.0	22.5	25.5	39.5
Rs 2,000 or below	34.9	50.3	21.9	37.1	41.3	57.5
Rs 2,400 or below	48.2	64.4	33.4	51.3	55.5	71.5
Sample size	570592	477237	362417	321100	208175	156137
Consumption Expenditure in Years	All-India		Urban		Rural	
	Dec 19	Dec 20	Dec 19	Dec 20	Dec 19	Dec 20
Rs 1,000 or below	6.0	9.0	3.0	5.4	7.5	10.9
Rs 1,600 or below	23.5	31.6	14.5	21.7	27.9	37.0
Rs 2,000 or below	38.3	48.3	25.7	35.7	44.4	55.2
Rs 2,400 or below	52.1	62.6	37.9	49.5	59.0	69.7
Sample size	433,021	499,879	278,759	331,809	154,262	168,070

Source: Consumer Pyramids Household Survey (CPHS) for December 2019 and December 2020, and for August 2019 and August 2020.

Estimates suggest that in 2020, the top 1 per cent of the population held 42.5 per cent of the total wealth, while the bottom 50 per cent had only 2.5 per cent of the total wealth. Post-pandemic, the number of poor in India is projected to have more than doubled and the number of people in the middle class to have fallen by a third (Kochhar, 2021).

During India's first stringent national lockdown between April and May 2020, individual income dropped by approximately 40 per cent. The bottom decile of households lost three months' worth of income (Beyer et al, 2021).

Micro data from the largest private survey in India, CMIE's 'Consumer Pyramids Household Survey' (CPHS), show that per capita consumption spending dropped by more than GDP, and did not return to pre-lockdown levels during periods of reduced social distancing. Average per capita consumption spending continued to be over 20 per cent lower after the first lockdown in August 2020 compared with August 2019, and remained 15 per cent lower year-on-year by the end of 2020. Official poverty data are unavailable, and the CPHS data come with a caveat of 'top' and

'bottom exclusions'. For example, official statistics show a rural headcount ratio of 35 per cent in 2017-18 (Subramanian, 2019). But the CPHS data estimate it at 25 per cent, which suggests exclusions at the lower end of the consumption distribution (Dreze and Somanchi, 2021).

Despite these statistical concerns, the CPHS does provide consumption numbers for a large sample of individuals, which can provide insights into changes in consumption levels arising from the pandemic. Table 2 reports the percentage of people who have monthly consumption expenditure below different cut-off values. The different cut-offs encompass the official poverty lines. The current rural poverty line is set at 1,600 rupees (£15.50) per month or over, and the urban poverty line is 2,400 rupees per month (£23.37) or over. Based on the latest CPHS data, rural poverty increased by 9.3 percentage points and urban poverty by over 11.7 percentage year-on-year from December 2019 to December 2020. Earlier months of the CPHS show that rural poverty increased by 14.2 percentage points and urban poverty by 18.1 percentage points. Yet the actual increase in poverty due to Covid-19 is

likely to be higher than what the CPHS data suggest, as indicated by other surveys.

## INDIVIDUAL CONSUMPTION EXPENDITURE

Taking into account the general trend of reduction in poverty, an estimated 230 million people in India have fallen into poverty as a result of the first wave of the pandemic. Households in the middle of the pre-Covid-19 CPHS consumption distribution saw large drops in spending after the first wave of the pandemic, helping to create a new set of people entering poverty. The percentage of poor people in the second lowest quintile of pre-Covid-19 consumption jumped from 32 per cent to 60 per cent within a year. This was driven largely by rural areas, where the headcount ratio for the second quintile almost doubled.

In urban areas, the poverty line is set higher due to greater living costs and 72 per cent of people in the second quintile of the urban income distribution were below this poverty line before the pandemic. Within a year, they were joined in urban poverty by many who had higher incomes before. Half of people in the third quintile and 29 per cent of people in the fourth quintile fell below the poverty line after the pandemic. The pandemic has brought severe economic hardship,

especially to young individuals who are over-represented in informal work. India has a large share of young people in its workforce and the pandemic has put them at heightened risk of long-term unemployment. This has negative impacts on lifelong earnings and employment prospects (Machin and Manning, 1999).

A study by the Centre for Economic Performance (CEP at the London School of Economics) analyses the depth of continuing joblessness among younger workers in the low-income states of Bihar, Jharkhand and Uttar Pradesh (Dhingra and Kondirolli, 2021). The first round of the survey randomly sampled urban workers aged 18-40 during the first lockdown quarter, finding that a majority of them who had work before the pandemic were left with no work or no pay. After the first lockdown in April to June 2020, 20 per cent of those sampled were out of work, another 9 per cent were employed but had zero hours of work and 81 per cent had no work or pay at all. Ten months on from the first lockdown quarter, 8 per cent of the sample continued to be out of work, another 8 per cent were working zero hours, and 40 per cent had no work or no pay. The rate of no work or no pay was higher (at 47 per cent) among the youngest low-income individuals aged 18-25 had below median pre-Covid-19 earnings.

Table 4: Crisis labour force status of individuals who were employed pre-Covid-19

Duration/ Working hours	April to June 2020	January to March 2021	January to March 2021
	All	All	Below Median pre-Covid-19 earnings and 18 - 25 years
Out of work last week	0.20	0.08	0.11
Zero hours last week	0.09	0.08	0.11
Not paid	0.70	0.29	0.32
No work/Zero hours/Not paid	0.81	0.40	0.47
Sample Size	3201	3201	542

Source: CEP-LSE Survey 2020 and 2021.

The recovery after the first wave was too muted to get many young Indian workers back into employment. For example, rural migrants continued to be reluctant to return to work in urban areas even before the second wave hit (Imbert, 2021). And the second wave, which started in mid-February and appears to be flattening out in June 2021, heightened these risks of long-term unemployment by increasing the spells of economic inactivity.

## ECONOMIC CONSEQUENCES OF COVID-19 LOCKDOWNS

India is battling a second wave of the Covid-19 pandemic, that has affected an estimated 26.5 million people as of 23 May 2021, with reporting 0.3 million deaths cumulatively. In this situation, one widely adopted approach to combating Covid-19 infections is restricting mobility. During the first wave of infections in India during March-May 2020, the Government of India implemented the “world’s strictest lockdown” (Hale *et al.* 2020). This lockdown severely disrupted business activity and mobility, with millions of migrants traveling back to their villages as opportunities for work in the cities dried up.

In addition, lockdowns may allow for quicker resumption of normal economic activity over time. However, the trade-off from lockdowns are short-run reductions in economic activity. A lockdown potentially affects developing countries more as the practice of remote working is less prevalent and extent of digitisation is lower as compared to advanced economies. A larger share of households depended on daily incomes, and the social protection architecture is weaker. The economic implications of a graded ‘unlock’ in May and June 2020 when the central government decided to vary containment rules across districts in the country (Beyer, Jain and Sinha 2020).

To facilitate a gradual resumption of economic activity, the government announced a differentiated

unlock of districts with three zone categories (130 districts as Red zone districts, 284 as Orange zone districts, and 319 as Green zone districts. Starting 4 May 2020, districts were categorised based on multiple criteria including the incidence of cases, the extent of testing, and vulnerability to the pandemic. Finally, varying degrees of MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) operations, a large public-works programme deployed as a counter-cyclical measure, as well as inter-district migrant shares that proxy for reverse migration after the lockdown) have had no impact on these dynamics.

## ECONOMIC CHALLENGES OF INDIA’S RURAL ECONOMY IN LOCK DOWN

India is the country of villages, where the major population lives in rural areas. Agriculture and agriculture-related services are the major sources of livelihood of the peoples. In the past few decades, farm distress led to huge migration from rural to urban centres. The structural economic growth theories explain every economy in the transition phase moves from agriculture to the manufacturing and services sector. India is the fifth-largest economy in the world in terms of purchasing power parity (PPP) whereas the mass population in the country lives in abject poverty. Since Independence, there is a substantial decline in the contribution of agriculture and allied activities in the total GVA. There is a large number of studies confirms the agrarian crisis in the Indian economy (Mishra 2007). The GFCA in agriculture was declining year after year (FAO 2020). Even as India has reached a new level in Covid-19 with over one lakh positive cases, there was no clear idea yet on the incidence of the disease in the rural areas. Irrespective of any such incidence, rural areas have also come to bear a major brunt of the lockdown imposed since March 25.

With hordes of migrants returning to rural areas, there could be the double-whammy of the spread of

Covid-19 and the worsening of the socio-economic situation. The large-scale reverse migration that has been witnessed under the duress of lockdown is an unprecedented tragedy which needs to be understood well. Migrant's workers are the engine of growth from centuries which have been working day and night for the economic success of any region across the globe. On the other side, they are the most vulnerable and have no access to any kind of social security. The forced reverse migration from urban to rural areas will have a significant impact on the demography, society and economy of rural India. Most of the migrant workers were marginal farmers in the past which left agriculture and moved to urban areas for better economic opportunities. The forced reverse migration amid agrarian crisis poses a big threat on people to fall into abject poverty (Yasotha Margaret, 2020).

## EFFECT ON INDIAN AGRICULTURE

The central and states government in India under the special economic package, Pradhan Mantri Garib Kalyan Yojna (PMGKY) scheme etc. tried to take care of the economy and the poorest among the poor but effective implementation of this scheme poses a big challenge (Jha 2020). The agriculture sector has shown resilience despite the many challenges of the pandemic, including supply chain disruptions and mobility restrictions that impacted labour and input availability. With schemes like PM KISAN poised to spur growth in investment and expenditure in agriculture, the government has the opportunity and platform to introduce similar policy instruments to effectively target relief and accelerate growth in rural communities. There is also need for interventions that support climate-resilient and resource-efficient food systems.

## EFFECT ON INDIA'S HEALTH SECTOR

COVID-19 was first declared a public health emergency and later a pandemic by the World Health Organization (WHO). Currently, the spread of the

novel virus is in more than 190 countries. There are a national emergency and lockdown in most of countries. Till date, more than 4 million people across the globe are affected by COVID-19 virus and around 300 thousand people lost their life. In light of this, it is pertinent to take stock of our rural areas. The risk of spread in rural areas is heightened. This is due to a number of factors, including lack of awareness, a limited supply of clean water, low levels of nutrition, and most importantly, ill-equipped and insufficient public health centers and district hospitals. The informal industry in cities being badly affected has resulted in loss of rural income.

## EFFECT ON INCOME OF THE RURAL PEOPLE

Slowed down economic activity in urban areas has an effect on rural areas as well. The informal industry in cities being badly affected has resulted in loss of rural income. Massive layoffs and lack of relief measures were pushing migrants to return to their villages that would increase the risk of the spread of the virus.

## EFFECT ON CONSUMPTION AND EMPLOYMENT

Economy faced inflationary situation during covid-19 pandemic. The prices of all the commodities rose slightly. The analysis of the survey data reveals how widespread and severe some of these impacts were in the six states of Jharkhand, Andhra Pradesh (AP), Rajasthan, Bihar, Uttar Pradesh (UP), and Madhya Pradesh (MP) (World Bank 2020a). The survey covered nearly 5,000 rural households across each of the three rounds of which 1,068 households were surveyed across all rounds. Overall, we find that consumption and employment were severely affected with a slight recovery by September 2020. A large share of the migrants was still back at their rural homes, three months after the lockdown restrictions were removed. As for access to relief to programmes by the households, self-help groups (SHGs) being

involved in some relief activities as well as good coverage by the public distribution system (PDS) in providing relief support in the form of free food items supplied from ration shops (Pratap C Mohanty and Jipson John Jaimon, 2021).

## CONCLUSION

In rural economy hits severely, inflationary condition, high prices for agricultural goods, loss of jobs, high expenses on medical, shortage of foods and essential commodities, lack of transportation and communication facilities were reasons economy has challenged and could not contributed thoroughly during pandemic. In rural area people severely affected for getting food, job, medical and transport facilities to satisfy their basic needs, unfortunately nothing happened. This is picture that shows the entire visual about economic challenges of rural people hoe they faced and overcame the problems during pandemic.

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