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### ***Trustee's Message***

**As rightly quoted " You must be the change you wish to see in the world"- Mahatma Gandhi**

Greetings to all the delegates and research scholars for 7<sup>th</sup> International Multidisciplinary E-Conference with focus on Sustainable Development organized by our educational institution Chandrabhan Sharma College of Arts, Science- Powai, Mumbai, India & Commerce in association with Shri Ram College of Science, Arts & Commerce. This college was started in the loving memory of my late father, Pandit Chandrabhan Sharma ji who is a renowned freedom fighter and philanthropist. Chandrabhan Sharma College of Arts, Science & Commerce was started as an educational institution keeping in mind my father's ideology of providing a quality education to all the sections of society and specially creating awareness of education in weaker section. In today's world with continuous advancement in technology, unpredictable market and wide spread of opportunities, the best we can do for upcoming generation is to inculcate them with values, skills & knowledge they will need in future. The international community, through the United Nations, has set in motion a historic plan – 17 Sustainable Development Goals – that aims to build a more prosperous, more equal, and more secure world by the year 2030. With this foresight and extension to serve the objective, International Conference is a platform which will give the insights to need of economic, environmental & social development for the society which will be beneficial in upcoming future. Together we can meet the needs of the present without compromising the needs of future. I believe the research scholars and learners will develop the understanding and skills essential for active participation in an uncertain and complex world for fighting the challenges and issues in the social and environmental context where sustainable development is concerned. The exchange of information is vital for the development of any field and, in particular appropriate for application of findings to the solutions of societys' individual and collective problems. Our college feels fortunate to conduct International Conference every year with a vision to support and discuss ideas, emerging trends, challenges with research scholars and budding researchers to experience as a part of formal education.

Best Wishes to all the delegates, research scholars and learners for their future endeavors!

**Prashant G. Sharma**

- Managing Trustee



## **TRUSTEE'S MESSAGE**

Vision is the art of seeing what is invisible to others"

### **-Jonathan Swift**

The mission proclamation of Shri Ram college of Commerce and Science -Bhandup, Mumbai is the indicative of the existence and the path that it has taken to achieve its vision and mission. We had a vision of excelling in the genre of education system. Our strong foresight helps us to adapt ourselves quite easily to the changing environment, compete with others and make a mark of our own. Each member on board of Shri Ram College has worked diligently and the priority has been to nurture, educate and craft remarkable professionals.

The success of the International Conference\_\_\_\_\_ jointly organised by Shri Ram college of Commerce and Science -Bhandup, Mumbai with Chandrabhan Sharma College of Arts, Science and Commerce is not sheer luck but a result of clear focus, vision and determination of the staff members of both the colleges. This has been achieved through capacity building in technical and soft skill, in order to make them capable of competing with International peers .

We had extremely dedicated team of faculty members who guide, mentor and counsel the researchers continuously and brought out the best from them. We are sure that our journey to excellence would continue with faster pace in approaching years with our reinstated commitment to disseminate quality education.

**Dr. Mrunal A Mule**

Hon. Gen. Secretary

Jan Seva Sangh



## **PRINCIPAL'S MESSAGE**

**“Ours can be the first generation to end poverty – and the last generation to address climate change before it is too late.”**

The above quote by Ban-Ki Moon, Former UN Secretary-General, aptly summarizes in a line the extent of crisis we face as a civilization and interestingly how well connected these problems are. We may disguise it as mere climate change, global warming, poverty, unemployment, migration, population explosion, but these are a part of some sort of holocaust, some sort of destruction that mankind has called upon itself. In its ruthless ways of consumption and lust for more, we have exploited resources in the name of development and now we stand at the cusp of this destruction where we don't have Plan B because we don't have a Planet B!

The United Nations, Sustainable Development Goals 2030 Agenda seeks to strengthen the social, economic and environmental dimensions of sustainable development. The Implementation of the 2030 Agenda requires a more holistic, coherent and integrated approach at the regional, national and global levels. Policies to implement the 2030 Agenda need to address inter-linkages within the social sector, as well as between the social, economic and environmental dimensions of sustainable development. Similarly, existing institutions and institutional mechanisms that are working in the field of social development will have to come together and work towards the timely mandates arising from the SDGs.

Chandrabhan Sharma College of Arts, Science & Commerce- Powai, Mumbai, India is proud to organize 7th International Multi-Disciplinary E-Conference with special focus on Sustainable Development. This One Day E-Conference will be graced by many dignitaries and delegates from various countries. The event will witness active participation from the paper presenters and the enthusiasm of the key speakers addressing the pressing issue of Sustainable Development.

I hope insights emerging out of the discussion lay a strong foundation for our future projects and endeavors. I am sure that this conference will present the decisive and immediate action needed to build a better world.

My best wishes and good luck all the Researchers, Presenters and Speakers!

**Regards,**

**Mrs. Pratima Singh/I/C Principal**

Chandrabhan Sharma College of Arts, Science and Commerce,  
Powai, Mumbai





## **PRINCIPAL'S MESSAGE**

It is a matter of great pride and satisfaction for Shri Ram college of Commerce and Science -Bhandup, Mumbai to collaborate with Chandrabhan Sharma College of Arts, Science and Commerce for organizing an International Conference “Sustainable Development: Environmental, Economic and Socio-Cultural Issues & Challenges” in order to bring out the innovative thoughts that are possessed by the teaching and research faculties and exchange it with others all over the globe. This was an ideal platform for researchers to exchange and enhance their creative potential and original thinking in ample measures. All of the articles that had been selected for publication are very informative, interesting and thought provoking. It was the best effort is to make our faculty reach the universe through their research contribution.

We want an education by which character is formed, strength of mind is increased and intellect is expanded by which one can stand on one’s feet,” said Swami Vivekananda. To achieve and promote excellence in education and applied research in interdisciplinary areas, both the college has taken the initiative to publish the proceedings of the international conference in the International Journal of Advance and Innovative Research journal. The Journal has provided an excellent opportunity to all the researchers to focus on research and exchange their views on different avenues. The Editorial team had done a great job by incorporating all the reported suggestions and recommendations by the referees which were then revised by the authors of the articles and then finally published.

I take the opportunity to congratulate all the researchers whose papers are published in this issue of the journal and simultaneously encourage others to contribute their research papers and articles so that we can exchange and enrich our knowledge.

Best wishes to one and all.

**Dr. Veera Talukdar**

Principal

Shri Ram college of Commerce and Science.

Bhandup, Mumbai



## **MESSAGE FROM CHIEF GUEST**

### **The Challenges of Sustainable Development in the Age of Globalization and the Impact of the Devastating Disaster Corona Virus**

Globalization is a set of multidimensional and complex processes in which many areas, including economics, ideology, politics, are the most rational alternative to globalization that Along with economic development and social progress, it also emphasizes the need to pay attention to the environment and preserve natural resources.

Sustainable development can be defined as the management of the relationship between human systems and natural ecosystems with the aim of sustainable use of resources to ensure the well-being of present and future generations. The facts show that ill-considered human interventions and excessive use of natural resources have disrupted the order of the ecosystem.

Therefore, it is necessary for all countries of the world to take advantage of the opportunities and possibilities arising from the process of globalization and by influencing in this process, guide it in the path of sustainable development that include the environment and increases the dependence of the countries of the world on each other.

Today, with the increasing growth and expansion of cities and the creation of new issues related to cities, new discussions have been raised about these issues and problems, and the factors affecting them, as well as appropriate solutions and methods to deal with these issues in relation to sustainable development,

Sustainable development is in fact to create balance between development and the environment. Sustainable development, according to the above definitions, it is a process that combines the economic, social, cultural and environmental goals of society wherever possible through policy-making, taking the necessary actions and supportive operations, and wherever integration is not possible.

Development deals with the establishment of exchange relations between them, examining and coordinating these problems and barriers and issues of exchanges.

Numerous economic, political, social and community health crises have a great impact on sustainable development, the most important of which is the crisis caused by the coronavirus epidemic, which has affected not only the physical and mental health of society but also have been emerged as a Disaster and dilemma and obstacles to sustainable development in the 21<sup>st</sup> century

Numerous economic, political, social, and community health crises has a great impact on sustainable development, including the most important problems and obstacles to sustainable development during the coronation period.

The faster the spread of the coronavirus, the more severe its effects on sustainable development goals, and the consequences of the Covid-19 pandemic have not only affected public health but, has left its

mark on the economy, social stability and national as well as Global policies in the worst possible way.

In addition, the development of sustainable development shall help to overcome the economic crisis due to spread of the virus and move the world toward a green path.

Today, the world, on the one hand, by focusing on the needs of public health strategies in the short term to curb the spread of the corona virus, and on the other hand, it depicts ambitious goals for the Corona liberation phase as well as the post-Corona world.

Prior to the spread of the coronavirus, there had been many successes in the field of sustainable development objectives achievement, and boldly can be said that once again, these goals can be guided in the best possible way through prudent measures and global unity.

Covid-19 disease exposed the vulnerabilities of health systems and showed how even the most advanced countries in the world, which have so far claimed to have the best treatment and health systems in the world, have been helpless in the face of the Corona virus.

Obviously, before the Emergence of Covid -19 disease, no country had seriously taken the necessary steps to achieve the goals of sustainable development in the last decade, and people were living in the wrong direction.

The decline in car traffic during the quarantine period, followed by an incredible drop in air pollution, showed that people play an important role in their health and the environment around them. For this reason, the adoption of a healthy lifestyle was rapidly promoted among the world, and this also led the urban authorities to achieve the goals of sustainable development.

As a result, sustainable development is a way of thinking and looking at life, it is a new beginning that is in line with nature. Achieving the concept of sustainability requires radical changes in people's thinking and behavior, as it has been called the world revolution. If the principles of sustainable development are followed, a better society, a more prosperous economy and a cleaner environment will be created. Of course, the present generation must pay attention to the quality of life of future generations, and this will be possible by observing the goals and principles of sustainable development.

And given that sustainable development emphasizes on human quality and standards more than any other criteria, so in order to achieve a real sustainable situation in cities, it is necessary to formulate policies to achieve sustainable cities.

Despite the importance of the economic aspects of development, it seems that development is something more than economic growth, and in addition to improving the material standard of living, it also includes social justice and indigenous values and traditions.

Therefore, development can be considered as the continuous improvement of society and social system towards a better life, in other words, development is a process that turns unfavorable living conditions into desirable ones.

Accordingly, the main goal of development is to benefit human beings, which includes improving the quality of life and in the form of increasing income and expanding employment and public welfare.

In fact, development means that the set of elements of a system, in accordance with the basic needs and desires of individuals and social groups within the system, get out of the unfavorable state of past life and move towards a situation that is materially and spiritually better.

Experience shows that crises, with all their severity and weakness, and with all the effects and damage that they leave behind, are reduced, weakened, and eliminated, but they re-emerge in other forms and dimensions.

But what is important here is get a lesson to reduce the negative effects of subsequent crises.

The experience of Corona and its effects shows that in order to prevent the effects of this crisis from intensifying, to create new crises or to reduce the effects of those crises, it is necessary to change the approaches that cause the crisis itself.

Given the causes of the formation and effects of corona heart disease, what can be learned from this crisis is the need to pay more attention to the sustainability of development and redefine development programs.

In other words, the crisis that has developed following this disease clearly shows the need to pay attention to the development plans of countries, especially developing countries, sustainability and related principles.

**Dr. Hamid Saremi**

Professor in Financial Management &HRM

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## **MESSAGE FROM CHIEF GUEST – VELEDICTORY FUNCTION**

**Dr (CA) Jayant Apte**

Principal

Ghanshyamdas Saraf College

I am delighted to know that Chandrabhan Sharma College in association with Shri Ram College have organized a multidisciplinary E conference on a contemporary subject of Environmental, Economic and Socio-cultural issues and challenges posed before developmental efforts to be truly sustainable. It is found that development and sustainability are at cross roads on some occasions especially when one look at the impact thereof on environment and socio-cultural fabric especially of the developing countries.

I am sure the conference will throw light of such challenges and also offer meaningful solutions to such problems so that the process of development does not halt or is not impaired due to these challenges.

CSC has been striving hard to generate meaningful discussion and quality research on subjects of national and international relevance and it is heartening to note that this is the 7<sup>th</sup> such international conference.

My best wishes to the organizing team of the conference and all the researchers who have contributed to the success of the conference

A handwritten signature in black ink on a yellow rectangular background. The signature appears to read 'Jayant Apte' in a cursive script.



## **MESSAGE FROM KEY NOTE SPEAKER**

### **Sustainable Development - Environmental, Economic and Socio-Cultural Issues & Challenges.**

**Elsie Gabriel**

Keynote Speaker.

(Brief)

The Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 represent a pragmatic yet a very ambitious blueprint to curtail inequalities globally and achieve a sustainable future for all humanity.

For the past several decades the color of the world's political scenario in the sustainable development agendas has been "green" but at large there is still a looming concern that activities in the name of sustainable development have given rise to several issues and problems due to plundering the very environmental and economic resources upon which development is actually based upon. In lesser developed countries over exploitation of natural biological assets is cited as one of the biggest threats to sustainable development which lead to environmental and social issues. How can the definition of sustainable development be justified when we are compromising the ability of the future generations to meet their own needs? We are living off nature! And depleting its capital.

These key challenges till today remain as

-Instability, such as inequality between nations,

-Implementation, such as ensuring programmed fit the local micro governance, not undermining rural livelihoods and enforcing political will to transform development programmes into sustainable long-term practices.

Not to mention the ongoing horrific consequences of global warming glaring at us every day. It's time to ask ourselves if this is the new normal or rise and contribute to action? Climate change and climate crisis does not discriminate between first world and third world, why should we?

I congratulate the Chandrabhan Sharma College Mumbai India for catapulting the discussions today at this international seminar, on issues and challenges in order to identify solutions with the agenda of sustainable goals.

This brings us to our academia participants and young generation audience of this international discussion that socio-environment-scientific issues should be considered in the curriculum of students' formal education in science, arts and commerce as one of the ways in which our education system ought to be connected to the goals of sustainable development. Approaches to education still perpetuate a way of thinking that is incomplete with preparing young learners to develop the understandings and skills requisite for active participation in an uncertain and complex world for fighting the challenges and issues in the social and environmental context where sustainable development is concerned.

Today's seminar hosted creates a milestone in changing the approach, by involving participation and carving out insights for solutions by an extremely august and highly impactful panel of presenters and speakers. I wish the seminar the very best in the enforcement of sustainable development goals and look forward to plan of action as a major key takeaway post today.

Thankyou



### **Message from Convener**

A warm greeting to all

It gives me immense pleasure that Chandrabhan Sharma College of Arts, Science and Commerce in association with Shri Ram College of Commerce, Arts and Science organized 7<sup>th</sup> International Multidisciplinary E-Conference on “Sustainable Development: Environmental, Economic and Socio-Cultural Issues & Challenges.” Invited all Academicians, Policy Makers & Regulators, Research Scholars, Students, Social Scientists, Natural Scientists, Environmentalists & Geo-spatial Experts and industrialists from across the world.

The central theme of the conference is one of the most important topics for the 21<sup>st</sup> century is sustainable development 2030 agenda of United Nations is considered to be charting a new path of balance for humanity and the planet.

The enthusiasm expressed by the researchers, educational community and participants for this E - conference were extremely encouraging. The presentation of research papers beneficial to research scholars and serves a motivation for us to organize many more such conferences.

I sincerely thank everyone who has contributed to the conference by presenting papers and sharing their valuable inputs. The success of this conference is solely on the dedication and efforts of innumerable people who have started working on the preparation to make this conference become reality. Eventually we express our special thanks and appreciate all for their valuable contribution. I wish all the best for its success

**Asst. Prof. Anjana Verma**

Conference Convener

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**THE IMPACT OF THE ECONOMY AND ECONOMIC ENVIRONMENTS ON FAMILY FINANCIAL STRESS AND WELL-BEING**

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**ABSTRACT**

*This article addresses the economic impacts of all types of stress as health concerns, including work-related stress, home stress, and post-traumatic stress disorder. Inherently, such an approach broadens the research beyond a few well-defined, quantitative factors, such as those most typically investigated by economists who focus solely on job stress. Recent published literature, on the other hand, places far too little attention on the economy and economic contexts, focusing instead on explanations rooted in persons and families. The role of the economy and economic settings in understanding financial stress and well-being in families is definitely confirmed. The economics and economic settings are discussed as gaps in the literature, and we recommend future study to focus on these explanations of stress and well-being, particularly in light of the pandemic.*

*Keywords: Financial well-being, Financial Stress, Pandemic, Capitalism, Economy.*

**INTRODUCTION**

The Great Recession, which began in 2007, was one of the most major macroeconomic catastrophes of the twentieth century, undermining the financial well-being of millions of families. The impacts of the global pandemic in 2020, which will be triggered by the rapid spread of the coronavirus COVID-19, will be substantially worse than those of the Great Recession. Families are likely to be financially destroyed by the Pandemic Recession unless the government intervenes forcefully and aggressively. The entire, long-term impacts of the Pandemic Recession on all parts of life will take years and decades to understand; yet, early accounts of families' lived experiences are already exposing their acute financial ruin. While lessons from the Great Recession can be used to present and future responses to the Pandemic Recession, considerably more comprehensive and grassroots-focused policy measures will be required to stabilize and shore up households' financial well-being.

**A Review of the Literature on Financial Stress and Well-Being**

The literature review centred on financial stress and well-being in general. Bauchet and Evans (2019), Income, wealth, and debt Economic hardship, Methods: linear probability models Data set: survey of consumer finances Longitudinal: 2007–2009 N=3856 households Outcome variable(s): filing for personal bankruptcy. Kim and Wilmarth (2016), Income, wealth, and debt Coping strategies, Methods: repeated imputation inference; logistic analysis Data set: survey of consumer finances Longitudinal: 2010–2013 N=3350 Outcome variable(s): debt-to-income ratio. Rauscher and Elliott (2016), Income, wealth, and debt, methods: multivariate growth model Data set: panel study of income dynamics Longitudinal: 1989–2011 N=3189 households Outcome variable(s): rate of change income; rate of change net worth. Park and Kim (2018) Financial stress, Methods: multiple regression Data set: health and retirement study Longitudinal: 2010 N=4935 (middle-aged males=1057, young-old males=761, old-old males=610, middle-aged females=1314, young-old females=760, old-old females=433) Outcome variable(s): partner support; partner undermining, Subjective financial strain was positively associated with partner undermining and negatively with partner support For middle-aged men, any positive effects of financial control disappeared and the effects changed in a negative way when the level of financial strain was high.

**Income, Wealth, and Debt**

During and after the economic collapse, families saw considerable changes or disruptions in their income, wealth, and debt. Savings account ownership was one of the most basic ways that families strove to build and preserve their financial well-being. Families can use their savings to supplement their income and make further investments. Families who were better positioned to take advantage of these assets benefited from intergenerational wealth transfers. Those with savings accounts were able to take better advantage of these assets for buffering against some of the negative consequences of the economic crisis.

**Economic Hardship**

Economic hardship, also known as material hardship, is defined as a family's inability to meet basic needs including food, clothing, and health care. Economic hardship, which is closely related to poverty, is a multidimensional term that has been assessed using a variety of methods that go beyond standard poverty metrics that are mostly focused on income levels. Economic hardship has been investigated repeatedly in the

aftermath of the Great Recession to get comprehensive understandings of families' experiences because the construct taps into several, diverse elements of well-being. Economic hardship invariably strains family relationships, making certain people more vulnerable to abuse and violence. Continuously high levels of economic hardship increased the probability of intimate relationship violence over time, showing that persistent economic hardship can be an extra stressor that makes women more vulnerable to intimate partner violence.

### **Financial Stress**

When a family's income, wealth, or debt is insufficient to withstand economic hardship, they incur financial-related psychological stress. Financial stress emerges when families are unable to pay their current and ongoing financial responsibilities, which is related to well-being. Financial stress is defined as the physical or mental health problems that result from not being able to satisfy basic necessities, having trouble paying bills, or having money left over at the end of the month. These variables, which evaluate how much a family's financial resources are insufficient to meet current or long-term responsibilities, assist to explain why higher income and wealth are generally linked to less financial stress.

Individuals within and across families experienced financial stress in different ways. When compared to males, women suffered the effects of financial stress by having inferior physical and mental health. In heterosexual partnerships, women reported higher levels of stress and anxiety in anticipation of discussing money than their spouses. The fact that women were in charge of managing their households' finances during times of economic crisis may have contributed to their greater levels of financial stress.

### **Aiming for a Greater Focus on the Economy and Economic Environments**

Families exist in unique historical, cultural, social, political, and economic settings. In the aftermath of the Great Recession and the COVID-19 Pandemic Recession, a focus on the economy and economic settings highlights or makes apparent some of these circumstances and policy decisions that are accountable for families' well-being. While explanations based on individuals and families—for example, focusing on a family's budgeting or observing their levels of financial knowledge—can decontextualize and flatten families' experiences, a greater focus on the economy and economic environments provides more holistic and accurate understandings.

### **The Economy of Capitalism**

#### **The economy and related policy decisions—**

The national and increasingly global macroeconomic sites of labour and production, trade, and consumption of goods and services have an impact on families' financial stress and well-being. Legislation aimed at weakening employees' collective bargaining strength, for example, altered how labour was compensated for output, resulting in decreased union membership, lower wages, and increase in inequality. Over time, families saw these policy decisions as a decrease in their income, which coincided with rising expenses of goods and services, forcing them to borrow money to make ends meet. As a result, the economy and related policy decisions are important drivers and explanations of financial stress and well-being among families.

### **Economic Environments**

Families exist in local and regional economic situations in addition to the larger macro economy. Families' financial stress and well-being are influenced by these economic contexts, as well as the resources and opportunities accessible within them. Decades of sociology, social work, geography, and public health study have stressed the relevance of family contexts in understanding various elements of well-being.

Within economic situations, financial services are one form of resource or opportunity that can affect a family's financial stress and well-being. Financial services are becoming increasingly important in local economies, according to mounting data. For example, the existence, absence, or relative mix of financial services provides families with a variety of tools and possibilities to supplement income, obtain credit, create wealth, and cope with financial adversity. People who reside or grew up in areas with at least a few bank branches are more likely to use these services, have bank accounts, and have higher credit scores. Furthermore, the prevalence and concentration of higher-cost, lower-quality financial services, such as payday lenders, in economic contexts exacerbates financial stress and negatively impacts family well-being. Increased use of higher-cost, lesser-quality financial services is linked to lower credit scores and financial difficulties.

### **Future Directions and Conclusions**

Focusing on the economy and economic settings can help to expand and advance the literature on financial stress and well-being in families. Future directions include applying or developing ideas, measuring variables and putting them into models, and assessing policy decisions, to name a few. These new directions are particularly essential for studies attempting to understand inequalities in race, class, and gender.

Future study should create or use ideas that include the economy and/or economic surroundings in explanations of financial stress and well-being among families. Family stress theory, life cycle theory, and ecocultural theory are all used in the current literature. While ecocultural theory considers economic settings, neither life cycle theory nor family stress theory were created with the economy in mind. Research instead focuses on individual-level solutions to bigger social and economic problems due to a failure to apply theories that combine these explanations. The growth of the stress paradigm, for example, demonstrates how a narrow focus on stressful life events can mask the impact of bigger social and economic issues on physical health and well-being. This bigger macrosystem includes the economy and an individual's economic environment. As a result, focusing on theories that ignore the economy and economic settings may obfuscate the role they play in understanding financial stress and well-being in families.

Finally, by emphasising the relevance of the economy and economic settings, this research fills gaps in families' financial stress and well-being. The importance of focusing on the economics and economic situations has never been underestimated. Given the lack of public welfare and increasing unemployment and debt, this focus is especially important for comprehending the immediate and long-term effects of the COVID-19 Pandemic Recession. Future study on the COVID-19 Pandemic Recession must take into account the settings and policy decisions that lead to family stress and well-being.

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**LIFE SKILLS EDUCATION FOR SUSTAINABLE DEVELOPMENT - EFFECT OF LIFE SKILLS TRAINING PROGRAM ON RESILIENCE IN ECONOMICALLY VULNERABLE WOMEN STUDENTS**

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*Educational institutions prepare the youth for a new world order. The sustainable goals decided by world leaders at United Nations General Assembly can be achieved through life skills training provided in educational institutions. Quality education is essential for meeting the Sustainability goals and Life Skills training is an important component of it. This is being increasingly realised globally. The National Education Policy 2020 also emphasises life skills education. The ten core life skills as specified by World Health Organisation are self-awareness, empathy, effective communication, interpersonal relationships, problem-solving, decision making, creative thinking, critical thinking, coping with emotion and coping with stress. Training in these areas especially for the socio-economically disadvantaged can fast track progress desired for Sustainability.*

*This study was conducted to find out the effect of Life skills Training program on Resilience of young girls coming from economically vulnerable environments. The participants were 34 women students aged between 18-25 years studying at the Undergraduate level in the Metropolis of Mumbai. The results showed that there was a significant improvement in Resilience ( $t=p<.01$ ) after the Life skills intervention. Increasing Resilience in the vulnerable group would help meet the pledge of Sustainable development of 'leaving no one behind'. Thus, Life skills education could be used to move towards meeting the sustainability goals of Poverty alleviation & achievement of equity. Resilience is a crucial measure of Mental health. Physical and Mental health are intertwined and hence this study also reflects on the other sustainability goal of Health. The limitation of the study is that the study did not have a comparable group of students who did not undergo training in life skills during the period.*

**Keywords-** Sustainability, Quality Education, Life skills Training, Health, Resilience, Vulnerable, Women students.

Educational institutions prepare the youth for a new world order. Sustainable development means development of knowledge, skills and values required to accomplish the needs of present generation without compromising with the ability of future generation to gratify their needs. A Quality education is essential for meeting the Sustainability goals and Life Skills education answers this need - this is being increasingly realised globally. The National Education Policy 2020 also emphasises life skills training.

The sustainable goals decided by world leaders at United Nations General Assembly can be achieved through life skills training provided in educational institutions. Life skills are a group of empowering skills that enable people to cope with life and its challenges and changes. They are the psycho-social competencies required to navigate through life effectively and meaningfully. The ten core life skills as specified by World Health Organisation are self-awareness, empathy, effective communication, interpersonal relationships, problem-solving, decision making, creative thinking, critical thinking, coping with emotion and coping with stress. Life skills allow individuals to bridge what they currently know and do and what they can know and do in the future (UNESCO, 2005c).

Life skills are important for the promotion of well-being of adolescents and to develop positive attitude and values to lead a healthy life. Increase in the post intervention scores using educational intervention modules and interactive teaching-learning methods have consistently demonstrated the effectiveness of the life skills education programs. Implementing health promotion module on life skills in the school curriculum will address the overall development of the personality of the school students (Tiwaree Preeti, Naik P R, Nirgude A S, Datta Arijit, 2020). Life skills training can impact the health of individuals & society. A model proposed by Anand Deepika & Anuradha RK shows the role of life skills as a link between motivating factors of knowledge, attitudes and values, and positive health behaviour and it contributing to the primary prevention of health problems (Anand Deepika & Anuradha R K, 2016).

Huang Chien-Chung, Yafan Chen, Shannon Cheung, Loren Greene & Shung Lu (2019) found increased Resilience through mindfulness and life skills education among behaviourally delinquent adolescents in China. Resilience very simply is the capacity to recover quickly enabling an individual to bounce back from difficulties or adverse situations in his/her life. As Dr Nelson Mandela put it, "The greatest glory in living lies not in never falling, but in rising every time we fall." Resilience then becomes a very important quality not only for survival, but for progress and growth. Resilience plays a key role in developing and maintaining personal resources, having a positive outlook in life and adapting to healthy coping mechanisms. Resilience is also known to prevent depression - Psychiatric Mental Health Nurses use life skills as one of the strategies to develop Resilient qualities (Edward Karen-leigh 2005).

Vulnerable populations are the groups on the fringe of society. They are deprived of opportunities of growth & development. Of these the economically disadvantaged women are the most vulnerable. Building competence among this group would be of societal good. One of the aims of Sustainable development is also equity & alleviation of Poverty. The present study explores whether life skills training can increase Resilience in women students especially those who are the low resilient economically disadvantaged ones.

### **REVIEW OF LITERATURE**

A treasure trove of literature is available which unequivocally supports the positive impact of Life skills education across cultures and across the different stages of the life span. Life skills play a key role in facilitating educational and occupational success in early life. Higher education must integrate Life skills education in their curriculum so that students can apply the learnings in their life thereby producing graduates who would be 'agents of change'. (Rahayu Retno Indah, Mohammad Huda, Sonhadji KH and Sugeng Utaya, 2019).

Adolescents in undeveloped and under - developed countries like Zambia often face various challenges for achieving successful transitions through adolescence to early adulthood with consequences on economic, social and health sectors. The Adolescent Girls Empowerment Programme was a mentor-led intervention designed to facilitate this transition. The curriculum dealing with procreative health and life skills, economic literacy, and nutritive aspects - guided the meetings. Though more rigorous assessments of effectiveness were required the study nevertheless indicated the need & desire of such Life skills intervention programs (Hewett Paul C, 201 Austrian, K., Soler-Hampejsek, E 2017). Educating Adolescents in Life Skills for Achieving Sustainable Development in Nigeria was propounded very strongly by Garba Mohammed, Aliyu Azizatu, Garba Abdu Alhaji , Surajo Muhammad. Life skills education is an essential tool for empowering adolescents to behave responsibly, enhance civil ability thus improving the workforce, infusing social tolerance and reducing the possibility of resorting to anti-social behaviour for achieving sustainable development (Garba Mohammed, Aliyu Azizatu, Garba Abdu Alhaji , Surajo Muhammad , 2021).

Resilience can be a sole indicator of Mental Health (Connor K M, 2003) & hence is of paramount importance. Higher resilience is one of the important forecasters of psychological well-being (Christopher K A 2000). Research shows Resilience promotes and enhances individual's well-being (Kimberly, 2000; Sourì & Hasanirad, 2011; Fabio Di & Palazzeschi, 2015). Resilience ensures that an individual is prepared to fight against and remain vigilant regarding any sort of risk, acting as a deterrent to any potential maladaptive coping and behaviour with consequences on Physical & Mental Health.

Life skills are a necessary accompaniment to education, especially in India, where schools do not stress on developing character. They also offer an option to children outside the education system who find regular school curricula to be irrelevant to their lives, because life skills are generally universally applicable and can be further custom made to meet the needs of a specific communities (Shakya Veena Kumari, 2016).

The Youth is the most important segment of the population for any country. It invests considerable resources in building up the potential of this group - a precursor of success & progress. It ensures individual and societal good. Hence it becomes necessary that Life skills training be imparted to its youth - to build a resilient next generation. It becomes all the more significant that this training be provided to the ones from vulnerable backgrounds in educational institutions. The literature studied has consistently demonstrated that Life skills Training could be used as an effective tool for the benefit of society. It would be a good means to attain the sustainability goal too.

**Purpose-** To study the effect of Life skills training Program on Resilience in low resilient, economically vulnerable women students.

**Objectives-** To find out whether participation in life Skills Training program has an effect on Resilience in a group of low resilient economically vulnerable women students.

**Hypothesis**

The group of Participants who have undergone Life skills training Program will have significantly higher Post-test Resilience as compared to their Pre-test Resilience.

**Method****Sample**

Low Resilient, Women students from colleges in Mumbai, belonging to economically vulnerable group.

**Stage wise sampling**

**Stage I** Survey of women students from economically vulnerable group. Resilience Scale administered to identify students scoring low.

**Stage II**

The sample characteristics of selected group were as follows-

Age Range: 18- 25 years.

Gender: Female.

Education level: Undergraduate students.

Economic Status: Low income group. Those students whose families had an Orange Ration Cards from the State Government - Annual income level Rs 15,000/- to Rs 100,000/-

Geographical area: Urban Metropolitan - City of Mumbai.

**Tools****Resilience: Resilience:**

**Brief Resilience Scale** - Developed by Bruce Smith et al in 2008 It is a 6 item Self report measure used for adults (mean age range is 19-62). Each item is to be responded to on a 5-point Likert Scale ranging from 5 Strongly agree to 1 strongly disagree. The range of total scores is 6 to 30. Item 2, 4, 6 are reverse scored. The total score is averaged to give the Resilience score. Scores ranging from 1.00 to 2.99 are considered as low resilience, 3.00 to 4.30 as average or normal resilience and 4.31 to 5.00 as high resilience. The Psychometric properties of this scale were examined on four samples including graduates, cardiac and chronic pain patients. Factor loading on the scale range from .68 to .91 Cronbach alpha range from .80 to .91. The test Retest Reliability tested after one month was found to be .69 and .62 after three months.

**Connor Davidson Resilience Scale (CD-RISC Connor Davidson 2003).**

It is a 25-item scale measuring the ability to cope with stress & adversity. Alpha Reliability  $\alpha=0.89$

**Design:****One Group Design**

Pre-test	Intervention	Post-test
Resilience	Life skills Training	Resilience

**Variables**

**Independent Variable: One IV --** Training in Life skills

**Dependent Variables: One DV –** Resilience

**Operational Definitions**

**Independent Variable: Training in Life skills:** A training Program in Life Skills which are abilities for adaptive and Positive behaviour that enable individuals to deal effectively with the demands & challenges of everyday life.

**Dependent Variable:**

**Resilience-** One's ability to bounce back as measured by the Brief Resilience Scale. Higher the score, higher the resilience.

**Procedure**

The researcher made all the preparatory arrangements and began the first stage of sampling which was a survey.

**A Survey** - Resilience levels in women students from the age group of 18- 25 years of age studying in undergraduate colleges in Mumbai were tested using the Connor Davidson Scale. Results for Resilience were analysed using Mean as a measure of Central tendency & Standard deviation as a measure of Variability. After that the women students who fall in the lowest 27% were taken for the next stage of the study. These participants were then given Training in Life skills.

**Pre - Testing** The study began after taking the consent of the participants and their demographic details. Resilience was measured for the group of participants.

**Intervention Program:** The participants were given a Life Skills Intervention training Program. The modules included ten core life skills accepted by WHO namely - Self Awareness, Empathy, Effective communication, Interpersonal Relationships, Creative thinking, Critical thinking, Decision making, Problem solving, Coping with Emotions & Coping with Stress. The Facilitator's manual on enhancing life skills prepared by Rajiv Gandhi National Institute of Youth development was used for the six-days training program on all ten core Life Skills recommended by World Health Organisation. The training Program was designed based on training received by the Researcher from the Indian Association of Life Skills Education & Bombay psychological Association during a Trainer of Trainers Program. Facilitator's Skill training was received by the Researcher from University Grants Commission during Trainer of Trainers Program for Capacity building of women managers.

**Post - Testing** – Resilience was measured post this intervention Program. After debriefing the participants Feedback reports were taken and the study was concluded.

**Ethical Concerns:** The participants of this study are young girls with low resilience from the economically vulnerable group. The study followed the ethical guidelines set by the American Psychological Association namely *Institutional Approval*, *Participant's Informed Consent*, *Participant Protection* & participant's right to leave the study at any point in time.

## Results

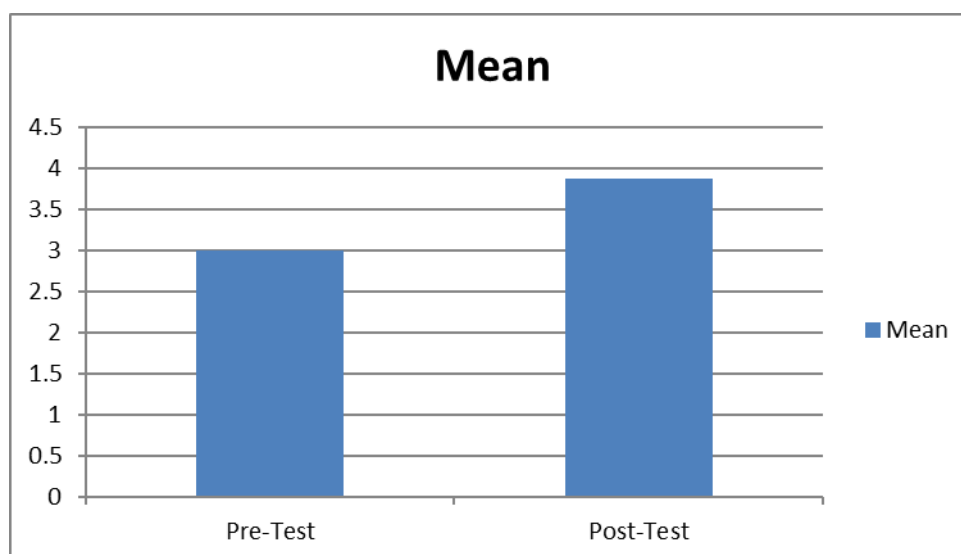
### Data Analysis-

Mean as a Measure of Central Tendency.

Standard Deviation as a Measure of Variability

Table 1. Analysis of Group Performance on Resilience		
	Pre-test	Post-test
Total	101.67	131.75
Mean	2.99	3.87
SD	0.45	0.59
t Test		8

t- test was used to find out Significance between Means.



Graph No 1. Analysis of Group Performance on Resilience

## DISCUSSION

Record of Participant's scores reveals that the Mean for Resilience for pre-test is 2.99 & for post-test performance is 3.87. It shows an increase in the average performance on the post-test. The Student t Test shows the difference is significant ( $t = p < .01$ ). The Variability of the group measured using Standard Deviation shows 0.45 during pre-test and 0.59 during post-test (Table No 1) demonstrates that the variability increased slightly. The hypothesis that "The group of participants who have undergone the life skills training program will have higher Resilience after the training as compared to before the training" is clearly supported. The Graph depicts the same result clearly.

This study has been a successful attempt to relate Life Skill Training and Resilience in low resilient economically vulnerable women studying in undergraduate colleges in Mumbai. A significant finding is that Resilience based Life skills programs support adolescents in surmounting adversities & this impact would be beyond the field of sports (Cox Hamish, Rich Neil, John Oliver, Sheldon Hanton 2016). The social skills training component in the Life skills program impacts many aspects of Psychological well-being. Kheirkhah Akram (2020) found that Social skill training had an effect on increasing happiness, self-efficacy and academic resilience in girl high school students in Tehran.

Teaching and learning life skills are part of quality education, which is essential for sustainable development (Anand Deepika et al 2016). The youth need skills in each of the four pillars of Education for All – learning to know, learning to do, learning to live together and with others, and learning to be (UNESCO, 2005b). Life skills enable this process.

Sustainable Development goals were for fast tracking progress on those who were left behind. The objective was to produce a set of universal goals that meet the urgent environmental political and economic challenges facing our world and measurable and universally agreed objectives for tackling extreme poverty and hunger & for preventing diseases. Pledge was to leave no one behind (Garba M et al, 2021). The pervasiveness of the influence of life skills facilitates the attainment of the goals of sustainable development. It impacts health & well being for one & helps in poverty alleviation & equity.

The current study is an example of the effectiveness of Life skills training as an intervention tool to boost Resilience & thereby contribute to Sustainable development.

## CONCLUSION

The Hypothesis "The group of participants who have undergone the life skills training program will have higher Resilience after the training as compared to before the training" is clearly supported. Increasing resilience in the youth can help move towards goals of sustainability development.

## Limitations

The study did not have a comparable group of students who did not undergo training in life skills.

## Implications

Life skills training can be used for increasing Resilience in low resilient economically vulnerable women students which has consequences for health & wellbeing – a goal for sustainable development. It also has consequences in the realm of Socio-cultural development also the goal of Sustainable development. It could be used to reduce inequality, alleviate poverty and fast track progress.

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**THE ROLE OF PARENTAL INVOLVEMENT IN ONLINE TEACHING-LEARNING DURING COVID-19 PANDEMIC FOR STUDENTS WITH DISABILITIES IN A HOME-BASED SETTINGS**

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**ABSTRACT**

*The ongoing study comprises the main practices on the role of parental involvement in online teaching-learning during the COVID-19 pandemic for students with disabilities (SwDs) in a home-based setting. Following COVID-19, some nations have already realized contingency preparations such as lock-outs and school shutdowns. This new approach has greatly affected parents, in particular their commitment to supporting home-based schooling for SwDs. One of the initiatives to promote family life and the Indian community, this parenthood service includes strengthening of civil society, particularly the promotion of early education, parental educational techniques, and communication patterns in many societies. Many schools and institutions have left teaching face to face. Education 2020 risks becoming lost or maybe more lost in the present. It is time to build and execute alternate teaching techniques and assessment methods. The breakout of COVID-19 provides an opportunity to find the way to online teaching-learning. This article aims to provide a complete assessment of the influence of several works on online teaching-learning from the COVID-19 epidemic and to point the way forward. The correct answer to parental support is expected to lead to better quality, which improves the quality of life by consolidating the family. Not only with an infrastructure policy, but also with online teaching-learning methods that will mold the Indian societal culture far more successfully in the future. On contrary, education is increasingly affected by the technology that is marked by better ideas and expertise and fewer connections to professors and classmates. Parents too have several barriers. In contrast to pandemic stress, death of family members, health problems in households, workers compensation, income, stay at night, innovative ways of working and in particular of helping your children study from home. At the very same time, the online teaching-learning technique enables numerous new ways of exploring routes and playing new roles. In addition, the engagement of institutions, teachers, society, and volunteers is essential to help SwDs to study from home-based settings. After investigative a collection of procedures to enhance SWD's ability to learn with online teaching-learning during COVID-19, the author then offers a diversity of strategies to better display the way of parental involvement in maintaining home-based settings.*

**Keywords:** *Online, Teaching-Learning, SwDs, Home-based Settings, Parental Involvement, and COVID-19 Pandemic.*

**INTRODUCTION**

In March 2020, worldwide schools shut down to prevent the global pandemic during the COVID-19 outbreak. This physical separation resulted in a quick migration to online teaching-learning, which gave parents more responsibility for the learning. The interaction of parents with their SwDs during the entire online teaching-learning process is one of the key educators and should be explored to assist guide policy development. The overwhelming majority of SwDs globally engaged during COVID-19 have endured a short school closure, promoting online teaching-learning and therefore reducing the spread of the virus (Viner et al., 2020). Online teaching-learning is pervasive in a variety of circumstances, starting with education. Many universities utilize different approaches to promote learning because the widespread character and international websites have led to increased global growth in online teaching (Chaney, 2010). Online teaching-learning has become necessary in the middle of the worldwide COVID-19 pandemic. Online teaching-learning has numerous issues since SwDs have excellent self-motivation skills and an excellent degree of dedication to achieve the intended outcomes. The goal of this study is to explore the viewpoints and issues of parents during school closings and to make use of online teaching-learning in the home environment. In all aspects of society, parenting in the contemporary era of the online teaching-learning revolution is of special interest. Due to the emergence of the COVID-19 epidemic, young people were reduced and various learning strategies were supported. A closer classroom also means that so many children can spend less or no time playing, having fun, or following with their friends outside. Parents also encounter issues, such as recognition and response to their children's necessities and goals, and enabling them to cope with many problems. Educating children may be difficult, especially if the reopening of school produces much uncertainty, and when they return they will be closed again. It is vital to recognize that it is natural for parents and family members to be anxious, frightened, and intimidated at those difficult times and that you are not alone. A cheerful and lively atmosphere that encourages SwDs to constantly challenge in their home education. How much you can especially do as families to facilitate

the continuance of education for pupils of all ages is mentioned here. The use of these strategies will help to keep youngsters connected, demonstrate your interest in school and provide them you the will motivate them. All parents, especially grandparents, uncles, relatives, elder siblings, want their youngest children. When families are genuinely interested in their families, children gain many resources and help, whatever they define what skills and knowledge. In contrast, if parents and teachers work together as collaborators, they contribute to the learning and very well of SwDs in a home-based setting.

### **Online Teaching-Learning**

Education can often be transformed by organizing knowledge on the subject and meetings by teachers and students, considering many perspectives and with different topics. The COVID-19 pushed for a worldwide problem for social separation. It required children to gather inside and to stay idle inside could add to mental anguish. The COVID-19 closed down schools worldwide. Globally, around 1.2 billion students are out of school. It led to a radical transition and a specific development into web-based and virtual classroom teaching. The study demonstrates that online teaching-learning has shown that it boosts the gathering of knowledge and requires less time to ensure that changes made to COVID-19 persist. Thus, online instruction can play a key role in keeping these people free from emotional pain and involvement. Teachers can construct these changes through the work of meaningful teaching methods in which SwDs can increase their comprehension, creativity, logical thought, imaginative thinking, knowledge of themselves, and their goals. Online teaching-learning comprises web-based education, virtual training, digital learning, and simultaneous learning (Office of Sustainable Development, 2000). Several skeptics about online learning discuss whether online learning can involve instructor students and teachers like traditional classrooms (Roblyer & Ekhaml, 2000). Some skeptics also argue the advantages of internet education, as the skills of online teaching-learning cannot be ensured (Weiger, 1998). Statements are reinforced that it is unclear that the measurement result of the programs offered can be used as users for online teaching-learning (Twigg, 2001). One of the advantages of such innovative strategies was the establishment of massive online teaching-learning in India and abroad. It becomes more prevalent in many academic institutes and offers entirely online and/or mixed/hybrid programs combining online teaching-learning with personal education. Online teaching-learning relates to web-based education. Online teaching-learning is allowed to motivate the modern student wherever but every time. Even though the number of online teaching-learning courses has expanded, difficulties and concerns enhance the services of this program (Yang & Cornelious, 2003). Online teaching-learning is the right option in this pandemic. Educators can obtain all the capabilities to do online sessions in virtual classrooms as successfully as traditional home-based ways. Pandemics may force students to stay at home for a long time and postpone the educational process. This article shows the benefits of online learning in times of disasters such as absenteeism and sickness. Numerous online teaching-learning methods and practices also are established to maintain education in a home-based setting.

### **Online Teaching-Learning during COVID-19 Pandemic**

The COVID-19 pandemic has interrupted ordinary work such as schooling and shifting online teaching-learning. Educational programs in schools were temporarily interrupted during the COVID-19 epidemic. In the past years, schools are in unprecedented circumstances that do not allow for a hopeful pathway. While this condition is not harmful, it plays a critical function in the spread of viruses (European Centre for Disease Prevention & Control, 2020). School closures were consequently considered vital for preventing the spread of COVID-19 (Abdulmir & Hafidh, 2020). The progress of an education reform system to address an outbreak of COVID-19 and the shutting of schools can be supplemented by a program that includes instruction and related COVID-19 understanding. It could contribute to improving education methods and promote home-based learning. These programs help self-learning children also feel a sense of personal and development. Very lately, the authorities have proposed online teaching-learning through its national children's programming. However, we still do include the influence of online teaching-learning and the completeness of curriculums. Until recently, but even now, it has been established that most parents promote home-based learning and study, particularly under COVID-19. Hence, this study will provide the personal experiences of integrating parents during COVID-19 in their homes. Unforeseen school closures affected the education of the SwDs, their parents, and educators. The length of the pandemic and its ramifications for daily living, prices, and other important difficulties might have a direct effect on school instruction. At the outbreak of the COVID-19 outbreak, students had to change their typical practices to adjust to a unique condition. The Corona Virus commonly referred to as COVID-19, is fatal and has a great economic impact. This catastrophe has also damaged school systems and is predicted to resonate from around the world. The COVID-19 outbreak led to various schools continuing. Many locations around the world are threatened and a bigger risk develops over the next year. The exclusion of integration is having an impact on SwDs, especially young people with such trouble, and their socioeconomic

equilibrium is suffering. Students responded that concern is the significant impact of isolation (UNICEF, 2020). In this pandemic with COVID-19, education can then effectively be provided online through multiple means. In this day, online learning is the perfect solution. Online teaching-learning is a web-based technique of learning. It is generally referred to as a method of online teaching-learning. The COVID-19 epidemic has forced schools around the country to shut down completely their facilities and to transfer their teaching-learning activities online. The schools were not suited for such a revolution and their strategy to online teaching-learning evolved gradually. We examined several areas of online teaching-learning in the present pandemic and examined the attitudes of pupils at an Indian school.

### **Parental Involvement in Online Teaching-Learning**

The study examined the involvement of parents for a long time and focused on: the concept of parental involvement, its benefits, the negatives of the family not even including the, and also how kids can be involved in the home-based environments. In nearly all elements of life, including learning, the COVID-19 prevalent has ensued about alterations in relations and actions. In terms of education, the COVID-19 epidemic has had many impacts on the life of SwDs, a significant problem for learners. It is useful if parents are involved in education for their child because it boosts school performance. Learners focus mostly on their work at school (Kwatubana & Makhalemele, 2015). With the arrival of online education, parental roles have transformed your students' education. For example, parents occasionally play the role of educator and supervisor via the online teaching-learning process (Ahn, 2011; Bogden, 2003; Huerta & Gonzales, 2004; McCluskey, 2002). If parents and children participate in the educational framework, the relationship between parents and children grows so that they can stay much greater. These events motivate parents to become happy to alleviate their distress and anxiety and to participate in dialogues with their children can contribute to the reduction of discomfort. Parent participation has been suggested on how to give social care to stressed youngsters (Wang, Zhang, Zhao, Zhang & Jiang, 2020). The online teaching-learning method will assist improve children's relationships with recommendations on parental participation. This inspires students not to give up fast if they do not understand a given problem and do not take bogus courses because parents demand their involvement in schools consistently (Lemmer, 2007). Parental involvement is a circumstance in which parents take part in educating their children, involve themselves and teachers in the education of children, and carry out their parenting responsibilities. Parents make sure that the learner is, as they wish, may be assisted in the learning process.

It does not only connect to parents who make comments about both the activities of a student in school but also connect to their children so that the procedure can be honest in encouraging, mentoring, guiding, and inspiring them (Clinton and Hattie 2013). Parental participation in traditional public schools is an important factor in the learning of the pupils. Parent participation has proved significant for student performance in a virtual classroom (Borup et al., 2014; Feng et al., 2011; Lee & Figueroa, 2012; Makrooni, 2019; Woofter, 2019). However, parents do have new and unanticipated duties when their students participate in online teaching-learning while being more and more able to comprehend their children (Liu et al., 2010). Parents often have problems understanding their engagement in their children's online teaching-learning (Boulton, 2008; Murphy and Rodriguez-Manzanares, 2009). Children whose parents are actively involved, enthusiastic, ready to learn, learn to be punctual from their initial periods, receive insights that are persistent because parents constantly question their progress and do not want to disturb them. Obligations are part of the children's characters that they organize and can finish the administrative quality of their job as intended (Sapungan & Sapungan, 2014). This enables parents to make sure their children are good at school (Hornby & Lafaele, 2011). Parents can actively engage in the education of SwDs by being part of a school forum, truly concerned regarding their child's academics, by committing to their kid's upbringing through using their youthful student to acquire a deeper insight into their child's success during their parental group sessions. Parents can also take part in evaluating their children's subjects to emphasize areas where kids have problems (Clinton & Hattie, 2013). If students tend, parents call on their teacher to build and strengthen the contact between both the teacher and the parent, showing their dedication to the education of the SwDs in online teaching-learning in a home-based setting.

### **Online Teaching- Learning in Home-based Settings**

The COVID-19 pandemic has a fascinating history and characteristics for studying because teachers and students had to quickly adapt from classroom to online teaching-learning in their home environment. The overpowering rate of the COVID-19 epidemic has affected parents and academics alike. Since school is stopped unexpectedly, kids do not even have human contact, which is vital to improved education and care, although most schools begin educating online. Many countries around the globe have recently suspended training centers to combat the risk of the COVID-19 disease. Schools are venues where social events and external exchanges take to occur. Many children and adolescents make contact, which is crucial to learning when schools are closed (Union, 2020). This has become an exhausting practice for parents to educate online teaching-learning at home

because they have to guarantee that SwDs are educated. Teachers had insufficient time to plan. There is also some question as to how long the chances of getting into a face-to-face encounter could last in the field of online teaching-learning. One such circumstance creates an opportunity to study the role of parental involvement in Online teaching-learning, the social-economic aspects that established educational outcomes in online teaching-learning, and the indicators that have been taken by teachers to create the teaching-learning process online in home-based environments. The purpose of the current research home learning in COVID Times was to explore the prospects of home learning in the COVID-19 period. Given the shutdown situation.

The study showed that the whole nation and the school globally promote home learning and offer a wide range of free online teaching-learning to help parents in home-based learning. This provides a chance for studying how parents have to work together when the group plan and implement online teaching-learning to encourage students' involvement and continuous effort. Online teaching-learning can also be enhanced by monitoring their connection with multiple sources and encouraging assessment. Teachers who communicate with students, parents, and contributors are recognized as a major difference between online education and face-to-face education and are one of the main features of online teaching-learning (Weiner, 2003). Educators provide children with educational opportunities. The description of the selection of technologies, construction methods, and school subjects in the online teaching-learning environment is essential to understand. The COVID-19 pandemic led the school to shut down and move its teaching-learning process towards home-based learning. Technology plays a major role, although it is difficult to build online teaching-learning settings that successfully involve students. This study intends to generate educators' concerns and comments in setting up home-based online academic activities for SwDs. Parents also responded quickly to the knowledge gaps in the difficult stages of effective teaching. Measures must be taken to give crucial learning skills for young people at home. Kids, parents, and schools can be updated utilizing centralized information and educational technologies. The model employed evidence that parents are involved in building programs to educate them in a proper online teaching-learning environment for home-based learning. While this work is being conducted, the further effort can be enhanced by connecting successful learning across topics, school, and home-based settings. Students and parents would also be involved in coursework tasks in home-based learning settings.

### **Online Teaching-Learning for Students with Disabilities**

Students learning in every situation should realize the importance of education (Keller, 2008). Educators are rarely the only educator to teach online (Tucker, 2010). Educators work directly with parents to help children achieve their academic objectives (Frey, 2005). Online teaching-learning activities are usually selected by SwDs. Online teaching-learning activities are offered to guarantee that these students participate in school. They choose areas of effect by writing on SwDs at hazards that can lead to parental involvement in home learning. The SwDs and those in danger of failure choose online teaching-learning more and more. They have found textual "effect areas" for kids that might contribute to parents' educational involvement in a home-based learning process. Restrictions for parents to help children in online teaching-learning have increased Parental involvement in online teaching-learning is important, especially for SwDs (Smith et al., 2016). All sorts of pupils, especially SwDs, participate in online learning (Archambault et al., 2010). Parents' involvement in online teaching-learning is equally crucial for their performance at any relevant gathering (Black, 2009, Berthelsen & Walker, 2008). However addressing SwDs on a personal level could also be achieved through learning needs, generally stated as a big advantage of education in an online teaching-learning environment (Wexler, 2017). This is mainly owing to a shift in the parent's role being the only one to help child's education (Smith et al., 2016). The SwDs are at risk of withdrawal happen instantly and study interventions across the topics (Bost & Riccomini, 2006; Daniel et al., 2006). The knowledge base behind the virtual education system indicates how students and faculty engage (Ferdig & Cavanaugh, 2011). Children who study online teaching-learning need the help of teachers and parents (Kennedy & Cavanaugh, 2010). Since online teaching-learning can be done outdoor school, continuing access to qualified and educational support is vital for the success of students in diverse online teaching-learning environments (Ferdig, 2010). Black (2009) showed that helping, improving, and modeling parents in a fully online learning environment had a beneficial influence on students' academic performance. In the meantime, he also found out that parental education was inversely linked to educational achievement. This unfavorable link was particularly good since mothers were regularly characterized in totally online training contexts as "education coaches" for their children (Black, 2009; Ingram, Smith, Pace, & Johnson, 2014; Klein, 2006). Many teachers, parents, and students have not been prepared for this unexpected shift, which has highlighted specific problems and barriers to parental participation and help their pupils in numerous academic online approaches. Diverse terms are used in the domain, distance and online education in a home-based learning setting.

## CONCLUSION

This study evaluated existing conceptions of SwDs using complete online teaching-learning. This study shows us the first comprehensive study on the impact of school closure on parents. A study of views and problems of parents can be useful for recognizing patterns in the setting up of group activities in an online teaching-learning environment. Online teaching-learning is the most frequent way to distant learning. During the COVID- 19 closure, online instruction is the strongest way to protect instructors and pupils' separated relationships. Online teaching-learning approaches use numerous online programs to provide an instructional environment and allocate teachers and students to connect. Teachers can create a more efficient learning opportunity by delivering a wide range of online teaching-learning technology in real-time. Online teaching-learning is seen as a future learning experience, and contemporary school techniques can be shaped by this medium. Online teaching-learning is the greatest way to study because of the COVID-19 shutdown, yet comprehensive study can be carried out on the influence of online teaching-learning under lockdown. The studies show that the benefit of internet teaching-learning exceeds the problems faced by students during online classes. From a safety standpoint, this work stresses the necessity to examine the effect of online teaching-learning on student motivation and presents critical considerations regarding how students admitted to online teaching-learning should be supported effectively. More investigation is necessary to accurately assess the advantages, obstacles, and beneficial tactics of smart kids ' enrolled education. Parental involvement of SwDs is an essential field of investigation. This study is thus meant to broaden current studies to include parents of disabled pupils. The survey also looked for information on education and evaluation of students, the company announced, and assistance and parental concerns. Based on these performance goals, this study aims to expose self-identified issues and challenges. COVID-19 includes elements from the traditional classroom setting in parents through the online classroom context of their SwDs in a home-based setting.

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**ROLE OF MICRO FINANCE INSTITUTION TO DEVELOP UNORGANISED SECTOR WITH  
REFERENCE TO MUMBAI REGION**

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**ABSTRACT**

*Micro finance institution play very significant role to develop Indian economy. After independence 1947 financial sector changing very fast but only large scale industry was getting the financial resources advantages. But after 1991 financial sector reform change the entire major financial variables. Micro financial institution play very crucial role to develop all Marginal and small sector business activity, by providing attractive interest rate and easy documentation process. In India majority of population engaged in unorganised sector. Before financial sector reform hardly any financial institution provide credit facility to small scale business and unorganised sector, there for this unorganised sector not growing fast and lacking. But after financial sector reform government and monetary policy taken imitative to encourage microfinance institution to develop Indian economy. The main purpose of the study to analysis the role of micro financial institution to develop unorganised sector by using 50 random sample data from Mumbai region and secondary data collected from different data base and articles. The present investigation has to be done with different review of literature in microfinance areas. All data collected from Mumbai region and using different statistical tools like percentage methods to analysis the impact of microfinance in unorganised sectors.*

*Key Words: Micro Finance, Financial Institution, Unorganised Sector, Indian Economy*

**INTRODUCTION:**

Micro Financial Institution paly very crucial role to develop Indian economy by providing Micro finance, Micro credit, Micro insurance, Micro saving. Micro Financial Institution providing Small loan and other financial resources to small business owner and entrepreneur to help them get their business off the ground. Micro Finance also called as Micro Credit. The term micro finance conceder micro loans, micro insurance and micro saving. Micro saving also play key role to encourage small business by providing saving account with no minimum balance and Micro insurance they provided insurance with low premium rate for small scale business and entrepreneur.

After independence 1947 role of the micro finance very minimum only large scale industry and companies are getting financial advantages but after 1991 financial sector reform micro finance play very significant role and change the entire financial structure. After 1991 government and monetary policy taken many initiative to develop marginal and small scale businesses, therefor they introduced many micro financial institution. Recently more than 3000 microfinance companies available in India along with many SHGs and NGO – Micro finance institution.

Micro Finance not only provide financial facility but also provided training and management facility. Micro finance institution conduced many courses like book keeping, fund management, cash flow management and also provided other soft skill training courses.

Microfinance, pioneered by the Nobel Prize winner Muhammad Yunus, helps the financially marginalized by providing them with the necessary capital to start a business and work toward financial independence. These loans are significant because they are given even though the borrower has no collateral.

In India majority of population engaged in informal or unorganised sector. As per a survey carried out by the National Sample Survey Organisation (NSSO) in 2009 -10, the total employment in the country was of 46.5 Crore comprising around 2.8 Crore in the organised and the remaining 43.7 Crore workers in the unorganised sector. Therefor unorganised sector play very crucial role to develop Indian economy. In India the ministry of labour and employment has enacted the unorganised workers social security act 2008 for unorganised workers like weavers, handloom workers, fishermen and fisherwomen, toddy tappers, leather workers, plantation labours, beedi workers etc. under this act provides for a constitution of the National Social Security Board which shall recommend the formulation of social security schemes like life and disability cover, health and maternity benefits, old age protection and any other benefits as may be determined by the government.

Mumbai is the financial capital of Maharashtra and India with headquarter of almost all major banks, financial institutions, insurance companies and mutual funds. Current Population in Mumbai Metropolitan Region is

around 24,433,357 (2.44 Crore). In Mumbai region maximum population engaged in unorganised sector. In Mumbai many micro finance institution paly very important role to enhance productivity.

In India Government introduce many schemes like Pradhan Mantri Shram Yogi Maan – dhan (PM – SYM), Aam Admi Bima yoja for unorganised sector workers get insurance facility with minimum premium.

**Categories of Unorganised Labour force:** The ministry of Labour Government of India, has categorised the unorganised labours force under four groups depending on nature of employment. Occupation, especially distressed categories and service categories

**A) Under Term Nature of Employment:**

Attached agricultural labours, bonded labours, migrant workers, contract and casual labour come under this category

**B) Under Term of Occupation:**

Small and Marginal farmers, Share croppers, fishermen, those engaged in animal husbandry activity, beedi workers, building and construction workers, leather workers, artisans, salt workers, workers in brick, workers in saw mills , oil mills etc. come under this category

**C) Under Term of Service Category:**

Midwives, domestic workers, fishermen and women, barbers, vegetable and fruit vendors, newspaper vendors etc. belong to this category

**D) Under Term of Special Distressed Category:**

Carrier of head loads, Toddy tappers, Scavengers, drivers of animal driven vehicles, loaders and unloaders come under this category

**REVIEW OF LITERATURE:**

Dr. Shuchi Loomba 2013 in this study Role of Microfinance in women empowerment in India observe that in the year 1990 under unorganised sector especially women conditions are not up to the mark they was only concentrated in daily livelihood and remains non monetized areas. In India microfinance is dominated by self-help group as an effective mechanism for providing financial services for poor people. This Study based on in Ghaziabad district area and collected 50 samples size using different statistical tools like t- test, correlation coefficient methods and conclude that microfinance improved the literacy levels of the respondents and also improved their awareness on child education and maximum respondent agree that microfinance contribute economic development directly and indirectly. After getting microfinance services 88 percent women socially and economically empowered. After joining SHG there income significantly increase.

Dr. Devendra Singh 2019 in this paper entitled A critical study of micro finance institution & its growth in India observe that India is agro based economy the main objective of paper is to analysed comparative growth of banking sector in rural area and development of microfinance services in India and to what extant banking & microfinance services achieved their motive of establishment research based on primary data collected by questionnaire and focused group interview and secondary data collected from reference book journals and internet. They conclude that microfinance paly very significant role for economic development and upliftment for poor people, NABARD and SIDBI play crucial role to improve microfinance and strengthening economy by providing adequate resources.

Dr. Swati Sharma 2018 studied that Growth of microfinance in India: A Descriptive study under observe that Indian economy suffering many problems like unemployment, poverty etc. in this condition microfinance play pivotal role to strengthen the economy and fight against poverty by providing adequate resources this paper main objects are to study the depth of microfinance programmes in India, to study the purpose of availing microfinance credit and to study the usage of microfinance and other loans available. Using primary and secondary data they conclude that there is no discrimination in of loan given by microfinance institution study also raise many question like microfinance institution remove the effect of informal sources like money lender, landlords from the rural area.

**Research objective:**

- 1) To analyse the impact of microfinance institution in unorganised sector.
- 2) To study the different microfinance product.
- 3) To study the Microfinance as an instrument for the development of women empowerment.
- 4) To analyse the use of microfinance credit.

**Scope of the Study:**

The conclusion drawn from the study are based on the responses given by the small entrepreneur's in a specific area like Mumbai. This study would be undertaken different microfinance institution available in Mumbai region and analyse the different microfinance products. It would help us to understand micro finance institution contribution to develop unorganised sector especially in Mumbai region. Thus present study aims to understand different microfinance product that influence unorganised sector.

**RESEARCH METHODOLOGY****Research Design:**

The study is based on both primary data and secondary data. The primary data was collected through structured questionnaire for which samples of 50 respondents were selected for this study. The collected samples using convenient sampling method was validated and took it for further analysis. Secondary data is also been collected from different database sites and articles. The collected data were analysed with the suitable tools like percentage tools with the following assumption were made the onset of the project

**Area of the Study:**

The sample data are randomly collected from different areas in Mumbai region

**Research Approach:**

The questionnaire methods survey is used for collecting data from the unorganised small scale entrepreneur's. We requested all respondents to fill in the questionnaire, by self-explaining the various aspects mentioned in it. It contained both open and closed ended questions in the structured form which are very easy to understand at a glance

**Sample Technique:**

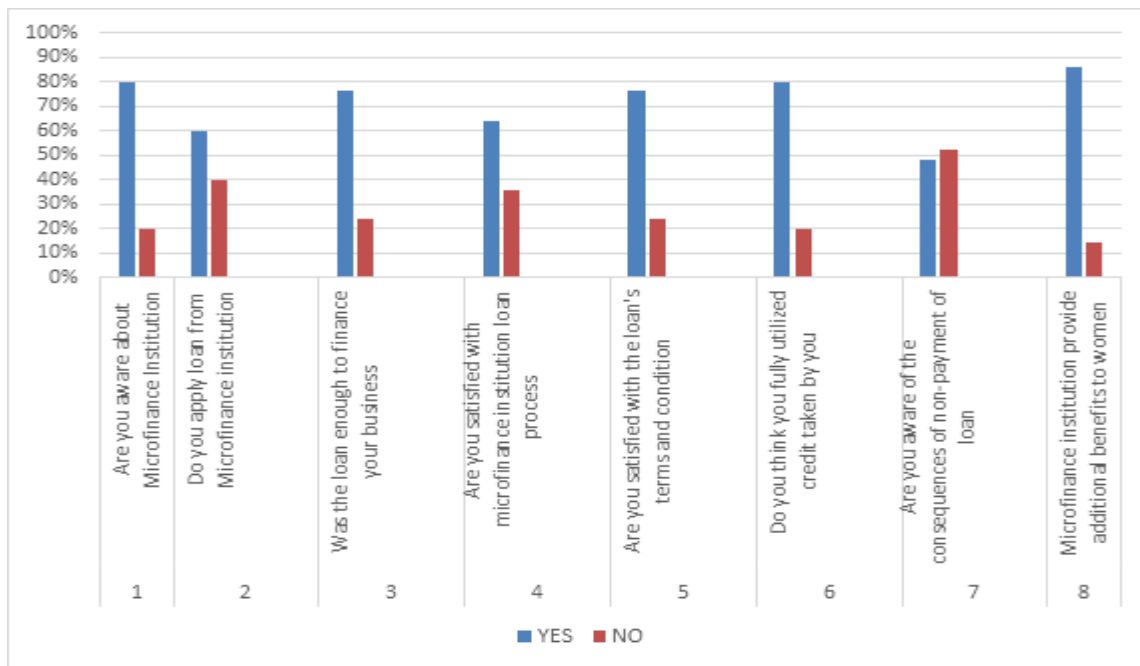
A convenient sample (Probability sampling method) of 50 respondent was shared their information of the study was request to complete the questionnaire on voluntary basis. The study was done in during July and August 2021

**Data usage:**

The analyses and interpretation is done on the basis of primary data. However for conclusion and recommendation mention using both primary and secondary data along with the verbal knowledge and information obtained from respondents are used. The outside parameters which are out of questionnaires are also considered. The data collected from these source were analysed using various tools like percentage analysis methods.

**Respondent's views (Table 1)**

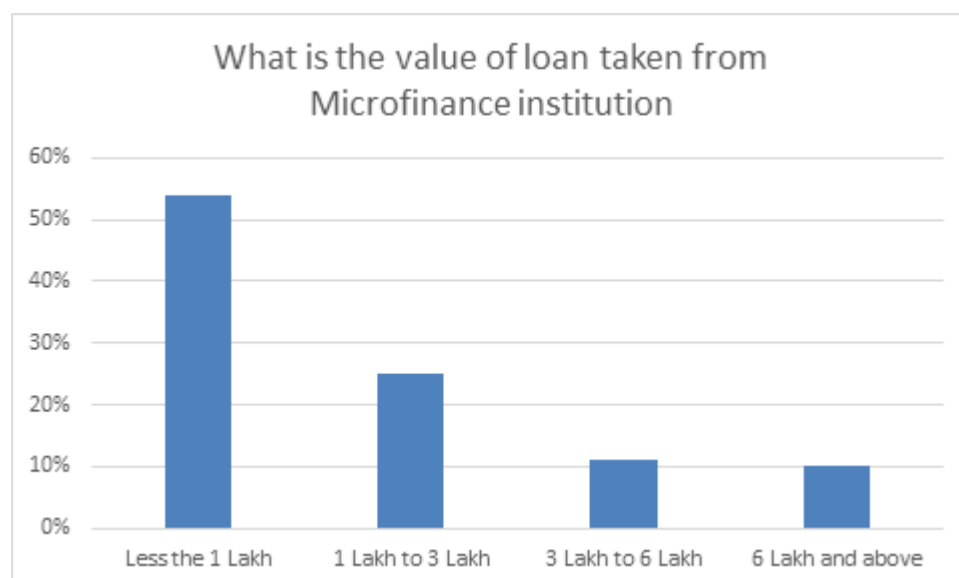
Sr. No.	PARAMETER	YES	NO
1	Are you aware about Microfinance Institution	80%	20%
2	Do you apply loan from Microfinance institution	60%	40%
3	Was the loan enough to finance your business	76%	24%
4	Are you satisfied with microfinance institution loan process	64%	36%
5	Are you satisfied with the loan's terms and condition	76%	24%
6	Do you think you fully utilized credit taken by you	80%	20%
7	Are you aware of the consequences of non-payment of loan	48%	52%
8	Microfinance institution provide additional benefits to women	86%	14%



As per our table number 1 it's observe that maximum people are aware about microfinance institution and their products and services. In Mumbai region we collected 50 random samples around 60% people already brought loan and took any other types of services from the microfinance institution. Majority of borrower say the loan is enough for their business and they are satisfy the loan process. Around 76% peoples are satisfy the term and condition of loan. And maximum people fully utilized their borrowed loan but under the research work we observe that maximum people are not aware about the consequences of non-payment of loan. Maximum people are agreed and said microfinance institution provide additional benefit to the women like low interest rate facility.

#### Respondent's views (Table 2)

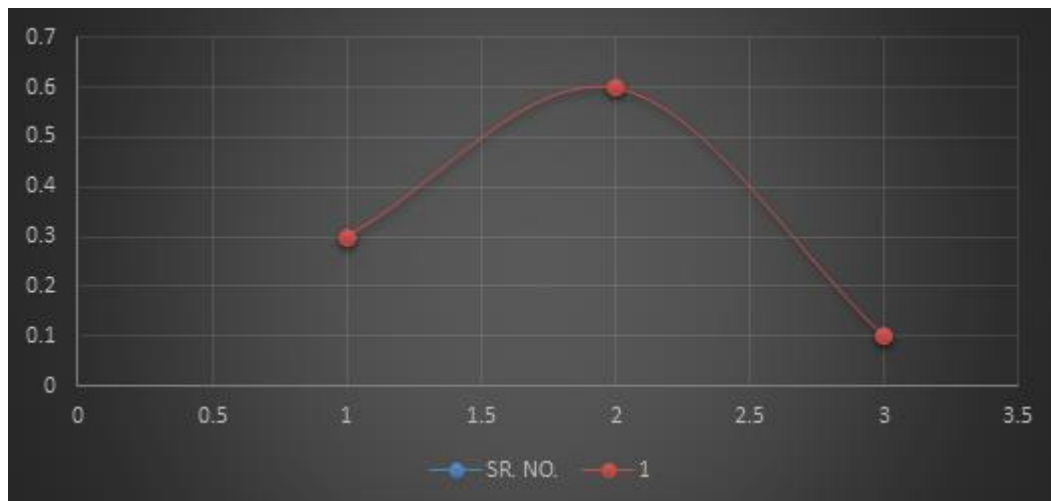
Sr. No.	PARAMETER	Less the 1 Lakh	1 Lakh to 3 Lakh	3 Lakh to 6 Lakh	6 Lakh and above
1	What is the value of loan taken from Microfinance institution	54%	25%	11%	10%



As per our table no.2 observe that around 54% people borrow loan from microfinance institution around less the 1 lakh value and reaming 25% borrow in range of 1 lakh to 3 lakh and 11% 3 lakh to 6 Lakh range and remaining 10% borrow more than 6 lakh form microfinance institution

#### Respondent's views (Table 3)

SR. NO.	PARAMETER	5% to 7%	7% to 9%	Above 9%
1	How much pay loan interest rate	30%	60%	10%



As per table no.3 observe that maximum respondents pay interest in range of 7 to 9 percent and around 10 percent respondents pay more than 10 percent and 30 percent respondents pay interest in range of 3 to 7 percent.

#### CONCLUSION:

The research is conducted to analysis the Role of Micro Finance Institution to develop unorganised sector with reference to Mumbai region. Study reveals that Microfinance institution paly very significant role to develop small scale business. Research was conducted in Mumbai region and collected 50 random sample size data. In our research find out maximum people brought loans and financial services from micro finance institution and this borrowed fund is enough to their business. Moreover maximum people are satisfy loans terms and condition and they utilized all their credit in desire areas. But maximum people they not aware of the consequences of non-payment of loan. In our research we also found that microfinance institution provide additional benefits to the women like low interest rate and micro saving, and micro insurance services.

The data analysis also shows that maximum people borrow loan less than rupee one lakh and they pay around 7 to 9 percent interest rate. Our all data analysis and we conclude that microfinance institution play very significant role especially unorganised sector and majority of people aware about microfinance products and this institution also help to develop women empowerment by providing attractive interest rate and other facility

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**YOUTH COMMUNITY WORKING TOWARDS ENVIRONMENT CONSERVATION IN MUMBAI:  
A CASE STUDY**

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**ABSTRACT**

*The only way forward, if we are going to improve the quality of the environment, is to get everybody involved. – Richard Rogers*

*Conservation is the protection, conservation, management, or restoration of natural habitats and the natural communities in which they live. Conservation is often underpinned by the human resource management of natural resources for the benefit of society at present and for social and economic sustainable use.*

*Young people can play an active role in protecting and improving the environment. They can change their way of life and how it affects the environment. They can make their homes, schools and youth organizations more environmentally friendly by adopting environmentally friendly practices, recycling and conserving resources such as water and electricity. Involving young people in environmental protection not only creates a positive impact on young people's changing behavior and attitudes, but can also affect their parents, relatives and families.*

*Young people have both special concerns and special responsibilities regarding the environment. Many accidents and environmental hazards affect young people, who have to live longer with the deteriorating environment given by previous generations. Before investigating the role that young people can play in addressing the environment and issues, it is important to provide a specific domain and establish a clear context to identify the current state of nature.*

*This article highlights about Youth Community working towards environment conservation in Mumbai. The paper presents cases on five communities who with their relentless zeal, incessant quench for conservation and willingness to walk the extra mile have broken all myths about their inborn limitations that were supposed to be major roadblocks on their success expressways.*

*Keywords – Environment, conservation, youth*

**INTRODUCTION**

We have only one planet to live on. The planet is full of resources, some renewable and some not, but unfortunately, we have a growing population that is a major threat to all of these resources. It is therefore unclear what future generations will find, if possible, and what life will be like for them if we use all available resources. To address this issue and ensure that we leave other resources in the future, conservation is underway and this article will consider further the topic. Conservation is our human habit that saves nature from the loss of biodiversity, as well as from the destruction of biodiversity, mainly due to pollution and human activities. Conservation is vital to the saving and survival of both animals and trees as we all depend on each other for survival

Conservation refers to protecting the environment from degradation through a variety of environmental measures such as deforestation, restocking, recycling wastes and planting of cover plants. In other words, conservation is the whole process of ensuring that the environment does not deteriorate in quality and that the environment that has been damaged in any way is restored to its original condition. Conservation is very important because it helps us to ensure that we continue to benefit from the resources that our environment provides such as access to clean air, protection of the earth from climate change, conservation of water resources and access to food and medicine. Environmental conservation is basically the practice of us humans to save the environment from collapsing, such as loss of species, ecosystems due to pollution and human activities. This helps both trees and animals, since some of us are dependent on them to survive. We need to save trees because they convert the carbon dioxide we produce from factories and such to oxygen for us to breathe and respire. Loss of species is another deal. If more and more species go extinct, then we would not be able to see them once again, and will make it very hard for scientists to study them. Not to mention, it disrupts the food web and can mess up the whole ecosystem as well.

**LITERATURE REVIEW**

Growing population and technological advancement are continuously putting a strain on the environment and on country's natural resources. Over-exploitation of the country's resources like land, water, fuel etc. has

resulted in degradation of resources mainly due to industrial pollution, soil erosion, deforestation and urbanization. Hence, it is utmost important to conserve and promote the natural resources and environment. (Mago P. 2019)

Human existence is quite impossible without the presence of a healthy ecosystem. Our environment comprises all living and non-living components and their interactions within a natural habitat. Environmental conservation has become one of the core issues that need to be addressed to battle climate change and global warming. Sustainable development is the need of the hour which can save the mother earth from the repercussions of industrialization. There are various core environmental issues which are taking a heavy toll on human lives. Ranging from overpopulation, hydrological issues, ozone depletion, global warming to deforestation, desertification and pollution, all these issues pose a severe threat to the existence of humankind. The environmental conservation is a practice that paves the way for protecting the environment and natural resources on the individual, organisational as well as governmental levels. Unless environmental conservation is becoming an effective mass movement, it is futile to expect positive growth especially in the age of digital media which holds the potential to bring a revolution to save our planet from destruction. (team Leverage Edu)

### **Case Study Approach**

#### **Case 1 – Beach Please**

This youth-run NGO is the idea of 21-year-old Malhar Kalambe who is also the recipient of the UN awards for launching this beach clean-up from September 2017. For 21-year-old Malhar Kalambe, there are no weekends to spend time with friends. Instead, they have a different job - cleaning up the beach in Dadar. It is their speech to thank their city and to keep it clean for the people who come to live here. Together, they have made so much difference on the beach that the United Nations has recognized their role. Kalambe and his volunteers were cleaning the Mithi River and the Dadar Sea. Kalambe aims to beat plastic waste and make people aware of the harmful effects of plastic use. Instead of waiting for the government or civil society to start operating, Malhar Kalambe, 21, introduced 'Beach Please' to clean the Dadar beach in Maharashtra. To set an example for the country's youth, Kalambe's initiative has earned him praise everywhere.

#### **Case 2 – Aarey Conservation Group**

The Aarey Conservation Group (ACG) is a group of people from all over the city of Mumbai who are committed to protecting, enriching and promoting Aarey as a natural green recreation area for the city's people. We are working to make Aarey a popular destination for Mumbaikars and tourists in the city, a place where the lush green forest and fresh air will make for a great place for family outings and social gatherings. The ACG is also committed to promoting and conserving all the other natural resources of the city - its beaches, street trees, parks and mangroves. The group is supported by leading NGOs working in the field of environmental development. They are Vanashakti, Greenline, SPROUTS, National Environment Watch and AGNI. Our members come from a variety of backgrounds - homeowners, film and television writers and artists, government employees, schoolteachers, corporate executives, and businessmen

#### **Case 3 – Beach Pe**

Afroz Shah is an environmental activist and lawyer in Mumbai. He is best known for organizing the world's largest beach cleaning project, which has grown into an organization that has inspired people around the world to clean up the environment around them.

In 2016, Shah was nominated by the United Nations as World Champion for leading the clean-up of Mumbai's Versova Beach. Shah has co-sponsored Dawoodi Bohra's Turning the Tide campaign to remove plastic from the Mithi River and Dana Pani rivers in Mumbai. Inspired by Afroz Shah's efforts to clean beaches in Mumbai, the United Nations Environment Program (UNEP) launches a global clean sea campaign. Afroz Shah won the CNN Heroes of the Year award - 2019.

#### **Case 4 – Vanashakti**

Vanashakti is a Mumbai based non profit environmental NGO whose thrust areas are forest, mangrove and wetland protection, environmental education for schools both urban and rural, livelihoods for forest based communities and scientific investigation into local environmental degradation. Vanashakti is founded by citizens who have a commitment to fulfil the constitutional obligation of protecting the environment; coasts, forests, wildlife, wetlands and rivers. We believe that all sections of the society need to be sensitized to the need to protect and conserve our natural wealth and resources. Vanashakti was born because we believe that India can progress only as long as her people are nurtured and its resources used sustainably. Water security for humans and all forms of life is critical to driving Vanashakti's efforts. Vanashakti is a Public Information



Initiative(PII). PIIs have helped open our eyes to a number of issues that would otherwise be swept under the carpet. PIIs seek to inform all the constituents of the interplay between factors.

### **Case 5 – Earth 5R**

Earth5R introduces a fresh perspective on ‘Sustainable Development’ which emphasizes collaborative citizen-led initiatives. It brings communities together and develops a symbiotic ecosystem that is beautifully driven by different stakeholders. Residential buildings and local businesses move towards zero waste while creating a positive environmental, social and economic impact in the locality.

Driven by 50,000 plus volunteers globally, Earth5R is one of the largest citizen-led environmental movements. Earth5R focuses on creating Circular Economy based Zero Waste communities, while reducing poverty and restoring the local ecosystem. With a specific focus on local communities and economic inclusion Earth5R works with citizens in meeting needs and addressing sustainability issues that affect their local ecosystem. The 5Rs of Earth5R refer to 5 Earth values: Respect, Reduce, Reuse, Recycle, and Restore.

### **CONCLUSION**

Environmental conservation is very important because it help us to ensure that we continue to benefit from resources provided by our environment such as getting clean air, protecting the earth from climate change, preserving water sources and getting food and medicines.

Destruction of environment have led to number of problems such as decline in agricultural production, increase in diseases related to polluted environment such as cancer, and extinction of various species of plant and animals. It is the responsibility of everyone to ensure that our environment is conserved since a better environment is good for all of us.

Young people have important environmental concerns and responsibilities. Because of their longer life expectancy, they will have to live for quite some time with the consequences of a deteriorating environment left to them by their parents. Fortunately, youth have a special talent for invention and the development of new forms of action and activism and can generate more effective responses to environmental issues. Addressing the concerns of future generations is difficult in the context of present policy-making; ultimately, however, it is enough to expand time horizons not necessarily many years into the future, but simply beyond the generally short-term focus of current decision-making. Environmental issues present some of the most profound and complex challenges requiring attention today and in the coming decades. One foundation-building step in enhancing local, regional, national and global capacities to respond to those challenges is increasing environmental awareness. Here the role of youth is central, for it is in the rising generations that heightened awareness can most easily be achieved. As this chapter indicates, there is much work to be done in terms of reforming and extending both formal and informal environmental education and inducing the media to play a more effective role in facilitating social learning about the environment. Political activism on environmental issues is also crucial; again, youth are well-placed to develop new forms of activism and bring new energies and perspectives to environmental affairs. Through their participation in the World Summit on Sustainable Development, young people recently demonstrated that they could inject social values and notions of equity into debate. Young people understand perhaps better than most that humankind is not living in a zero-sum, environment-versus-economy world. One way to equip young people to deal with environmental concerns is through more effective environmental education. Much of the information young people receive about environmental issues comes from the media. Therefore, environmental educators and the media should make greater and more concerted efforts to promote a larger process of social learning for sustainable development

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**GLASS CEILING THE SILENT VILLAIN FOR FEMALE EMPLOYEES AND THE SERIOUS  
DISRUPTION IN THE SUSTAINABILITY OF ORGANISATIONS - A STUDY ON PRIVATE  
HOSPITAL INDUSTRY OF KOLKATA**

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**ABSTRACT***Purpose:*

*In the last few decades women have come a long way in the corporate world situation, but still they face some obstacles at their workplace leading to career exit, one of which can be related to the problem associated with the management policies where women are considered as “women” first and managers later (Glass Ceiling).*

*Objective*

*The main objective of the paper is to determine whether Glass ceiling prevails in private hospital industry in Kolkata and it's impact on the women employees as well as the organization .*

*Research Methodology*

*The research incorporates a “Mixed Model”, which includes one to one interview, as well as study of both primary and secondary data, respectively. Primary data are being collected through a questionnaire survey among 200 women health care professionals working in several private hospitals across Kolkata. Secondary data is being collected from various journals and books.*

*The collected data was analysed with the help of suitable statistical and econometric tools .*

*Findings of the Study*

*The concept of Glass ceiling came into action, in the organizational framework, when it was felt, due to some unknown reasons, the men employees get advantages. The concept is not only unethical to practice but it also disturbs the internal environment of the organization, creates unnecessary complications among the employees and affects the sustainability gradually. This conceptual paper also addresses the theoretical origins and the impact of glass ceiling and allied issues of professional women.*

*Implications of the Study*

*However problem of gender bias and glass ceiling is prevalent in today's world, since in the corporate world, in this decade also, corporate policies and practices can maintain the status quo by keeping men in positions of corporate power. It states that women outperform in “taking care,” while men outperform in “taking charge” is how the corporate sector justify this bias. Lack of women role models in the authoritative positions has increased the intensity of the problem.*

*Keywords:, glass ceiling; gender; discrimination; sustainability ; career exit*

**.INTRODUCTION**

The general conditions of organizations still show the effect of glass ceiling and staying of women in lower organizational positions. Various studies by different researchers (e.g., Abraham, 2013; Baxter & Wright, 2000; Parcheta, Kaifi, & Khanfar, 2013; Purcell, 2013) demonstrate that the presence of women and men in management positions is still unequal in many countries. To celebrate International Women's Day (IWD) is not only sufficient in today's world to justify the contribution of women in society but to draw the attention of gender issues or gender discrimination which is all pervading and continuously affecting our modern society. Standing in this 21st century, women are still fighting for their rights in every aspects of life including the professional one. The present unfavorable situation created by gender inequalities has caused many countries to take various measures to eliminate discriminations and inequalities.

But still they face some obstacles at their workplace leading to career exit, one of which can be related to the problem associated with the management policies where women are considered as “women” first and managers later (Glass Ceiling).

Glass ceiling refers to an invisible barrier that prevents someone from achieving further objectives regarding their career at the work place. It is generally used in the work place for the women, where it refers to invisible hurdles that prevent women from reaching the highest level of the management at the work place. It is the

method of defining the things which keep away women from the grasping of power and success which makes them equal to the men.

### Objective:

The main objectives of the present study are

- To determine whether Glass ceiling prevails in private hospital industry in Kolkata.
- To determine the impact of some other relevant factors having effect on career exit of married women professionals simultaneously.
- To propose suggestions to address this issue.

### LITERATURE REVIEW:

Origination of Glass Ceiling : The term was first coined in March 1984 by Gay Bryant, the former editor of *Working Woman* magazine who was changing jobs to be the editor of *Family Circle*. It is not specifically clarified who used this word —Glass ceiling first time. In 1986A *Wall Street Journal* story popularized this term while looked out the barriers confronting women at the top level of management.

According to the US Department of Labor, a glass ceiling' is "an artificial barrier based on attitudinal or organizational bias that prevents qualified women and other minorities from advancing upward in their organization into senior management level positions."

As per survey conducted by Koshal & Gupta (1998), is to find out what degree the Glass ceiling exist in the democratic world and how women manager is functioning. The outcomes of study claims about existence of barrier is significant .

Mathur et.al. (2006) proposed that the glass ceiling is real which is considered a myth by many. It is encouraged by the organizational culture & policies moreover women's own inadequacies. A culture that supports women's top positions in decentralized organizations, will help in breaking down the glass ceiling, although women's own efforts to grow, develop and empower themselves through academic and career advancement is also required.

### Sustainable Development and Glass Ceiling

Glass ceiling is a kind of inequality and every set of inequality in an organization affects it's sustainable development. . Some criteria have been presented for recognition of inequalities caused by glass ceiling (Zahedi, 2003). Studies show that women, exactly the same as men, start development and growth after their entrance to organizations and develop to different positions of organizations; but as they approach top positions, the pace of their progress and promotion decreases so that some invisible factors which are called glass ceiling hinder their progress.

This glass ceiling is the ultimate result of different barriers faced by the women employees. Barriers may be tangible or intangible, actual or as imagined by the recipient (Maskell- Pretz and Hopkins, 1997). Glass ceiling effect is instigated by the issues of gender differentiation and gender stereotyping which affect women continuously.

### Why Health Care Industry is Chosen?

Healthcare is a high-demand, high-stress, high-risk industry. It operates in a round the clock manner, for the whole year and mostly healthcare workers are involved in matters of life and death. Healthcare workers have to continuously work with other people at the emotional level. The working environment of the private hospitals plays a major role in increasing the mental fatigue of health care workers. Some of the factors responsible for high pressure are: patient satisfaction scores, competitive performance edge, performance and productivity targets etc. All these things have a great impact on the emotional wellbeing and stress level of healthcare workers. Whether a super skilled specialized doctors or unskilled staffs handling bio-medical waste, the nature of problems is same though intensity remains different as their expectations from the organization are different.

### Methodology

The research incorporates a "Mixed Model" including one to one interviews, group discussions, other tools and techniques of Qualitative research as well as study of both primary and secondary data, respectively. Primary data are being collected through a questionnaire survey among 200 married women health care professionals working in several private hospitals across Kolkata. Secondary data is being collected from various hospital websites, journals and books.

The collected data was analysed with the help of suitable statistical and econometric tools like Chronbach's alpha, which is used to check internal consistency of the data set and TOBIT Model is used, as the study includes censored sample.

**Level of Detriment leading to Career Exit (LOD):** Depending on the **level of detriment** due to the factors identified in the literature survey, career exit can be permanent or temporary, whereby a woman sees herself transitioning to 'household manager' for the remainder of her lifetime, while her professional identity becomes dormant with or without the expectation that it will be revived at a later time in a similar or modified form.

The explanatory variables used for the study are Glass Ceiling as a combination of salary discrimination (SD), gender biasness (GB), equal facilities for both the genders (EFG) at work place and detrimental professional environment (DPE). The four parameters of measuring glass ceiling were measured in a 0-6 scale.

The other factors which are perceived as equal influence on career exit are,

**Work life balance as a combination of** existence of dependent elders in the family (DEP), number and age of children (NC), support of spouse and other existing family members (SFM), work overburden (WOB) leading to burn out etc. These were also measured in a 0-6 scale.

**Dual career** as a combination of parameters chosen in the study are threat on career due to change of location of the spouse (CL) and family pressure to quit the job (FPSE) and to be at home as a caregiver, when spouse belongs to a higher income bracket. These were also measured in a 0-6 scale.

Other than these, the most important factors assumed are **Age (AGE)**, **Education (ED)** and **Income (INC)**.

#### Hypotheses:

To examine the effect of Glass Ceiling, the following null hypotheses are set and tested.

$H_{0SD}$ : Salary Discrimination (SD) does not significantly affect level of detriment (LOD)

$H_{0GB}$ : Gender Biasness (GB) does not significantly affect level of detriment (LOD)

$H_{0EFG}$ : Equal Facility for both the genders (EFG) does not significantly affect level of detriment (LOD)

$H_{0DPE}$ : Detrimental professional environment (DPE) does not significantly affect level of detriment (LOD)

TOBIT MODEL explaining level of detriment leading to career exit is given below.

$$LOD = \alpha + \beta_{SD}SD + \beta_{GB}GB + \beta_{EFG}EFG + \beta_{DPE}DPE + \beta_{DEP}DEP + \beta_{NC}NC + \beta_{SFM}SFM + \beta_{WOB}WOB + \beta_{CL}CL + \beta_{FPSE}FPSE + \beta_{AGE}AGE + \beta_{ED}ED + \beta_{INC}INC + e_i$$

#### Findings

##### Quantitative Analysis

##### Glass Ceiling

The primary thrust of the study was to assess the impact of **glass ceiling** and its role in the decision of career exit among the identified married women professionals of the urban hospital sector. From the results of censored logistic regression in Table-1, it is observed that, level of detriment to individual's career is significantly enhanced by salary discrimination ( $\beta_{SD} = 0.101$ ,  $z = 3.251$ ,  $p = 0.001$ ). Similarly gender bias is significantly detrimental to individual's career ( $\beta_{GB} = 0.562$ ,  $z = 13.781$ ,  $p = 0$ ) which may lead to career exit. Equal facilities for genders is found to significantly decrease the level of detriment ( $\beta_{EFG} = -0.526$ ,  $z = -13.344$ ,  $p = 0$ ) and thereby reducing the probability of premature career exit.

But the results show that detrimental professional environment, as characterised by abuse, superior subordinate negative relationship, peer group pressure and politics etc does not have significant role in increasing level of detriment ( $\beta_{DPE} = -0.030$ ,  $z = -0.895$ ,  $p = 0.371$ ). This is contrary to logical perception and may indicate that personal ego, fear or both have come in the way of revealing the truth considering the widespread presence of detrimental professional environment for women.

Table-1
Regression Equation (Censored Logistic)
Dependent Variable: LOD
Method: ML - Censored Normal (TOBIT) (Quadratic hill climbing)

Sample (adjusted): 200				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
<b>SD</b>	0.101	0.031	3.251	0.001
<b>GB</b>	0.562	0.041	13.781	0.000
<b>EFG</b>	-0.526	0.039	-13.344	0.000
<b>DFE</b>	-0.030	0.034	-0.895	0.371
<b>DEP</b>	0.147	0.030	4.930	0.000
<b>NC</b>	0.259	0.063	4.113	0.000
<b>SFM</b>	-0.011	0.027	-0.394	0.693
<b>WOB</b>	0.296	0.035	8.514	0.000
<b>CLS</b>	0.023	0.031	0.740	0.460
<b>FPSE</b>	0.196	0.032	6.202	0.000
<b>AGE</b>	0.008	0.031	0.253	0.800
<b>ED</b>	0.077	0.097	0.797	0.425
<b>INC</b>	0.033	0.021	1.576	0.115
<b>C</b>	0.577	0.230	2.511	0.012

### Impact of other factors

**Work Life Balance-** The results of the regression analysis in Table-1 show that the coefficients are statistically significant and verified. It is evident that level of restriction in work related movements due to presence of dependent elders and responsibilities towards them are significantly detrimental to individual's career ( $\beta_{DEP}=0.147$ ,  $z=4.930$ ,  $p=0$ ). Similarly presence of children and the number of children in the family also plays a significant role ( $\beta_{NC}=0.259$ ,  $z=4.113$ ,  $p=0$ ) in career decision making, which may lead to the decision of career exit. With each increase in number of children, the problem multiplies. Support of spouse and other family members or attendants are generally considered to be of utmost importance in this juncture of decision making. When a working woman has the spousal or family support regarding her regular family related responsibilities, it becomes little easier for her to create a balance between her work life and family life. But the results does not support the belief that the level of detriment is significantly reduced with Support of family members ( $\beta_{SFM}= -0.011$ ,  $z= -0.394$ ,  $p=0.693$ ). Another issue, which plays a pivotal role in career decision making and is directly related with the level of detriment as per the study, is work over burden ( $\beta_{WOB}=0.296$ ,  $z=8.514$ ,  $p=0$ ).

**DUAL CAREER COUPLE-** One of the major thrust of the study was to assess the impact of the problems faced by the married women professionals of the urban hospital sector, being a part of the **Dual Career couples**, on the decision of career exit. Results of regression analysis indicates that the change of location of spouse is not significantly detrimental to career of women healthcare professionals ( $\beta_{CLS}=0.023$ ,  $z=0.740$ ,  $p=0.460$ ). Whereas, family pressure due to spouse's earnings has negative impact on career as it significantly enhances level of detriment ( $\beta_{FPSE}=0.196$ ,  $z=6.202$ ,  $p=0$ ).

**OTHER FACTORS-** Age ( $\beta_{AGE}=0.008$ ,  $z=0.253$ ,  $p=0.800$ ), Education ( $\beta_{ED}=0.077$ ,  $z=0.797$ ,  $p=0.425$ ) and Income Level ( $\beta_{INC}=0.033$ ,  $z=1.576$ ,  $p=0.115$ ) have been found to be statistically irrelevant as a determinant of level of detriment (LOD).

Interviews of the married women professionals in the hospital industry focus on the following hurdles for breaking Glass Ceiling

1. Due to career break in the workforce during pregnancy, most women are unable to upgrade to level of employment they held prior to pregnancy. Women face difficulty to manage with work life balance challenges due to family responsibility and other social pressure on women are more as compared to men which often contributes in Glass Ceiling.
2. Women are considered as more family oriented & emotional too, which sometimes projected as they are not aggressive towards their career goals.
3. They are better seen as home makers than rulers, similar to first women and then performers.
4. Lack of support from male colleagues and subordinates at work place.
5. Lack of support from their female peer group members due to different psychological issues.
6. Lack of inspiration as the number of role models are less in number in the higher positions in the industry.
7. Lack of implementation of laws and government actors on discrimination.
8. Male dominated management makes all the decisions for the company. As a result, due to different pre-perceived notions, absence of women friendly policies are frequently observed.

However problem of gender bias and glass ceiling is prevalent in today's world, since in the corporate world, in this decade also, corporate policies and practices can maintain the status quo by keeping men in positions of corporate power. Stating that women outperform in 'taking care', while men outperform in 'taking charge' is how the corporate sector justify this bias. However, the situation is changing gradually. Globalization is definitely narrowing the gender rift.

### **CONCLUSION AND RECOMMENDATIONS**

The role of women in Indian society continues to experience considerable changes, Women are becoming entrepreneurs & entering into almost all sectors in managerial roles, forming a place for themselves in Indian organization. But still it would be too early to claim that Indian women have shattered the glass ceiling. A number of reasons have been presented for this backwardness of women in workplaces. Stereotypes, interpersonal channels of communication, valuation of women's work, work-family conflict, and management style are some of the factors which are mentioned as effective in the creation of barriers to the development of woman human resources in organizations.

In view of combatting glass ceiling every organization

- i) Should focus on identifying talent or high potential employee irrespective of gender.
- ii) Incorporate career planning policies & mentoring and leadership development programmes keeping women as a part of company's overall corporate strategies.
- iii) Should have an open communication & women friendly environment.
- iv) Should recognise the significant role of women in the growth of the organizations.

The Leadership styles of Men & women are different. Every organization should prioritize talents over anything else for the growth of themselves which in turn, helps the society to grow. Every organization should focus on "human resource" rather than "man resource" or "woman resource" separately. Traits like commitment, patience, mentoring, developing & molding workers etc make a woman transformational leader. In fact, it is proved that companies which focus to create women friendly environments are able to show better financial performance & seems to gain over competitive advantage in today's world.

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**SUSTAINABLE DEVELOPMENT: - ECONOMIC ISSUES & CHALLENGES IN INDIA**

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Manchar**ABSTRACT**

*The 2030 Agenda for Sustainable Development with the Sustainable Development Goals (SDGs) at its core are based on this new understanding. The goals are universal – applicable to all countries with targets adapted to national circumstances and context. The agenda acknowledges that new approaches are needed to tackle an integrated set of challenges. The SDGs are also transformative – they contribute to systemic change and help anticipate future global threats. We improve Sustainability to save energy. By using less energy, you can help to reduce carbon emissions, Eat less meat, Use reusable alternatives, Use renewable energy, Recycle and reuse, Grow your own produce. Solution of Economic Problems -Free price mechanism operates within the private sector; hence, prices are allowed to change as per demand and supply of goods.*

**INTRODUCTION**

While global integration has been an engine of growth since the emergence of capitalism, the financial and economic crisis highlighted that the current level of interconnectedness between countries and its impact, positive or negative, was poorly understood. This increased complexity has exposed the limitations of prevailing analytical tools, policy frameworks, and governance arrangements. It has also underlined the fact that global challenges can only be addressed through collective co-ordination and action. The 2030 Agenda for Sustainable Development with the Sustainable Development Goals (SDGs) at its core are based on this new understanding. The goals are universal – applicable to all countries with targets adapted to national circumstances and context. The agenda acknowledges that new approaches are needed to tackle an integrated set of challenges. The SDGs are also transformative – they contribute to systemic change and help anticipate future global threats. The OECD is actively responding to the agenda with better policies for better lives – drawing on the cumulative experience of member and partner countries and capitalizing on its value-added. The New Approaches to Economic Challenges (NAEC) Initiative is helping the OECD to prepare for the SDGs – through developing integrated analysis and policy advice for tackling an ambitious set of interlinked goals, as well as the forward-looking transformational agenda. As Doug Frantz has argued, the SDGs and NAEC are like Romeo and Juliet – they are meant for each other.

**Definition**

Sustainable development can be defined as the practice of maintaining the productivity by replacing resources used with resources of equal or greater value without degrading or endangering natural biotic systems.<sup>[6]</sup> Sustainable development binds together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity. Sustainability Science is the study of the concepts of sustainable development and environmental science. There is an additional focus on the present generations' responsibility to regenerate, maintain and improve planetary resources for use by future generations.

**Objectives:-**

1. To study the concept of Sustainable development.
2. To Study Sustainable Development Economic Challenges in India.
3. To Study how can we improve Sustainability
4. To Study here are eight recommendations to consider for immediate implementation:
5. To Study solution of Economic Problems

**Research Methodology:-**

The Study is mainly based on the analysis of secondary data collected from different sources like journals, newspapers, website's, reports of various agencies and books etc.

**Economic Challenges For Sustainable Development**

Improving technology governance, developing infrastructure, harnessing the young population and ensuring the benefits of development are evenly distributed between urban and rural areas, as well as different states, will also be key to achieving India's ambitious growth goals going forward.

**1. Sustainable and inclusive growth:**

India has to set itself an ambitious growth rate target of 10% to adequately meet the requirements for sustainable and inclusive growth of her 1.29 billion people. Estimates for India's GDP growth average around 7.5%, which is an essential base growth rate to pursue the goals and priorities for the country's development. India's steady growth also offers a spark for supporting global growth. Its success is therefore in the interests of other countries in the region and beyond.

Significant challenges for sustainable and inclusive economic and social development continue to persist within India, such as the fiscal deficit, slowing private sector investment and industrial credit, and decelerating capital goods imports. Low carbon green growth, infrastructure development and entrepreneurship through national and international collaborations provide valuable opportunities for sustainable growth. India's young and rapidly growing working age population also presents both an opportunity and a challenge, depending on how effectively it can be harnessed.

**2. Environmental sustainability:**

Low carbon green growth and environmental protection is inevitable. An immediate priority for India is to improve the air quality in urban areas, as it is having a negative impact on life expectancy. Faster and stronger policies (including improvement of public transport) are therefore required across all major cities to tackle air pollution.

India's Intended Nationally Determined Contributions (INDCs) submitted before COP21 in Paris include commitments to reduce emissions intensity by 33-35% by 2030 compared to 2005 levels through introducing, new, more efficient, cleaner and renewable technologies; produce 40% of electricity from non-fossil fuel based energy resources; create additional carbon sink of 2.5-3 billion tonnes of carbon dioxide equivalent through additional forest and tree cover; and develop robust adaptation strategies for agriculture, water and health sectors.

The record number of at least 1000 deaths due to heat waves during summer, and the floods in Chennai in December 2015, provide learning that long term planning and policies for sustainable development are essential to mitigate risks and challenges due to climate change. Estimates suggest that at least \$2.5 trillion will be required for meeting India's climate change action plans to 2030 and she will need to spend around \$206 billion for implementing essential adaptation programmes in agriculture, forestry, fisheries infrastructure, water resources and ecosystems. But these projects will also provide opportunities to enhance growth, create employment and provide better and healthier living standards.

**3. Technology governance:**

This is a public policy concept with an aim to develop knowledge-based, transparent and efficient systems for sustainable economic growth and greater social cohesion. Technology governance is therefore crucial to transform growth and development in the evolving processes and politics of government (centre and state), private institutions, media, non-governmental institutions and society in India.

The large scale food security and various other social security programmes for poverty alleviation in the country struggle with concerns of implementation, with leakages, misuse, wastage by non-beneficiaries and provisions not reaching the beneficiaries. Some improvements have been initiated through development of national e-governance infrastructure. However, greater information, education and communication (IEC) programmes, better application of technological processes, further reforms, monitoring and evaluation are essential to improve implementation, transparency, accountability and reduce leakages of public and private institutions and individuals.

**4. Infrastructure development:**

India requires at least \$1 trillion to develop new infrastructure. Investments for developing infrastructure by public, private sectors and public-private partnerships, are requisite components to drive growth in the fastest growing economy in the world. The New Development Bank, Asian Infrastructure Investment Bank and Asian Development Bank provide additional resources toward infrastructure and sustainable development in the country.

Investment in infrastructure also provides an opportunity to create jobs for the large working age population (500 million), enables poverty reduction and inclusive growth and development in the country and in the region.

**5. Peri-urban and rural development:**

The state of Tamil Nadu has the best bus connectivity in the country, which has driven easier mobility and trade between rural and urban areas over the past decades and enabled more widespread growth and development

across the state. The long distance bus services (and roads) between contiguous cities within and between states (example between Chennai and Bangalore) have also helped drive *peri*-urban growth and development in the region over the last twenty-five years. The 'Golden Quadrilateral' of improved highway network (the fifth largest in the world) has enhanced movement across major cities in the country, as well as rural-urban regions across the country and enabled greater connectivity and growth in *peri*-urban and rural areas in the past decade.

#### **6. Responsible private corporations:**

As the fastest growing economy in the world, India's billionaires are increasing year on year. Private corporations should operate more transparently and responsibly to create wealth for a nation. They should also contribute more actively to drive growth and development in the country. There are examples of some foundations (Tata, Birla, Wipro, Mahindra, Shiv Nadar) involved in excellent social initiatives for inclusive development.

#### **7. Entrepreneurship:**

With 28% of her 1.29 billion-strong population aged between 10-24 years, India has the largest young population in the world. Today's young Indians enjoy new privileges and unprecedented opportunities to aspire. The challenge for India is to support their growing entrepreneurial aspirations as more and more Indian youth are seeking to tap into the opportunities that exist in a growing economy.

These young men and women are bright, capable, well informed and impatient for things to happen rapidly. Public and private sector initiatives are essential to improve systems and structures and provide advice, training, easily accessible loans, workshops and other enabling equal opportunities for young people across all economic and social strata, in order for them to translate ideas into reality. The success of their ventures will consequently contribute to advancing the country's development, for example by creating jobs and wealth or social entrepreneurships that address poverty and inequality.

#### **8. Demographic dividend:**

Although difficult to determine accurately, a reasonable estimate suggests that 250 million Indians now qualify as middle class. With the developments in recent decades, the current conditions in India are better than they have ever been before. At the same time, as the population with high disposable incomes continues to expand, the country's public and private sector goods and services for food, water, housing, education, health, roads, rails, airports and other infrastructure have to keep pace with the increasing demand. However the prevalent situation at the moment is that, by the time a particular service (for example, roads and airports) is completed, it's capacity has already been outstripped by the demand.

#### **9. Equalising development across states:**

India is unique in the vast diversity between its 29 states. The diversity of cultures and textures is worth celebrating. However, wide variation in economic and social development between states, and sometimes within states, is a cause for concern. Central policies, resource allocation and frameworks for equitable development across all states are essential. Policies should not be biased toward central or specific states. Collaborations between states should be enhanced for mutual development. Greater awareness and information now exists, so that successful examples can be drawn from various states and implemented early for improvements to be on par across all cities and states as required.

#### **10. Regional influence:**

India's engagement with its neighbours has seen much-needed advancement in the past year. As the country grows and develops further, its influence in the global community will continue to grow. Bilateral and multilateral communication and collaborations have the scope to be enhanced further at all levels between countries in Asia. Arbitration, building trust and working together will be beneficial for all countries in the region. In the fastest growing region in the world, geo-economic and geo-political initiatives such as silk road, spice route, among others, can expand opportunities for commercial, technological, cultural and peaceful advancements provided all involved can work together as equal partners with mutual respect, understanding and inclusion.

#### **How can we improve Sustainability?**

1. Save energy. By using less energy, you can help to reduce carbon emissions. ...
2. Eat less meat. ...
3. Use reusable alternatives. ...
4. Go paperless. ...

5. Use renewable energy. ...
6. Recycle and reuse. ...
7. Grow your own produce. ...
8. Donate unused items.

**Here are eight recommendations to consider for immediate implementation:**

1. Ensure stimulus packages shape a sustainable future. ...
2. Invest in the future. ...
3. Empower the consumer! ...
4. Create a level playing field for clean energy. ...
5. Modernize existing infrastructure. ...
6. Simplify government bureaucracy.

**Best solution of Economic Problems**

Under such economies, all economic problems are solved with the help of free price mechanism and controlled price mechanism. Free price mechanism operates within the private sector; hence, prices are allowed to change as per demand and supply of goods.

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## A STUDY OF HEPATITIS B VIRUS INFECTION IN MUMBAI USING CHI-SQUARE TEST

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**ABSTRACT**

Hepatitis B is caused by the hepatitis B virus (HBV) and it affects livers. It has been established that the disease is a serious medical condition caused by an overpowering immune response to infection. To this effect, there is a need for cross examination of records of patients on this disease to ascertain the factors that could be responsible for the survival or dying from this disease. Descriptive analysis of the data showed that sexually active age bracket (31 – 50) are greatly affected by the disease while female accounted for majority of those that are tested positive to the disease. Chi squared statistic was used to test for independence between age and gender of those who tested positive to disease. It was discovered that, both variables of age and gender are not independent which means there is association between the Age and Gender of HBV patients.

**Keywords:** Hepatitis B Virus, Infectious Disease, Liver, Chi Square Statistic

**1. INTRODUCTION**

Hepatitis B which affects livers is an infectious disease that is caused by virus called hepatitis B virus (HBV) [1]. Hepatitis has two major words combined together from the ancient Greek words which are *hepar* from the root word of *hepat* which means 'liver', and the Latin *itis* which simply means "inflammation". The disease could therefore simply be defined as liver injury which bring about inflammation of all the cells that are connected to the liver [1-2]. [3] Described HBV as circular genome hepadna virus which is composed of DNA that are double-stranded partially and in turns brings about replicated RNA through which intermediate form can be reverse transcription.

**2.1. Test Statistics  $\chi^2$  and  $G^2$** 

When considering multinomial sampling that has probabilities  $\{\pi_{ij}\}$  attached to it in  $I \times J$  table called contingency table, the statistical independence with null hypothesis of  $H_0$  is  $\pi_{ij} = \pi_i \pi_j \forall i$  and  $j$ . When dealing with multinomial that is independent with samples in  $J$  column or  $I$  rows, then the homogeneity of each of the outcome probability that exist among the rows or the column is said to correspond to its independent.

**2.2. Pearson ( $\chi^2$ ) and Likelihood-Ratio ( $G^2$ ) Chi-Squared Tests**

A test of independence null hypothesis ( $H_0$ ) uses  $\chi^2$  with  $n_{ij}$  instead of  $n_i$  and  $n_{ij} = n\pi_i\pi_j$  in place of  $e_i$ . Here  $e_{ij} = E(n_{ij})$  under  $H_0$  for all  $i$  and  $j$ . Usually,  $\{\pi_i\}$  and  $\{\pi_j\}$  are not known.

The maximum likelihood (ML) estimates for them are the sample marginal proportions  $\hat{\pi}_i = \frac{n_{i.}}{n}$  and  $\hat{\pi}_j = \frac{n_{.j}}{n}$ . so estimated expected frequencies are  $\hat{e}_{ij} = n\hat{\pi}_i\hat{\pi}_j = \frac{n_{i.}n_{.j}}{n}$ . Then  $\chi^2$  equals  $\chi^2 = \sum_{i=1}^I \sum_{j=1}^J \frac{(n_{ij} - e_{ij})^2}{e_{ij}}$

And

The ratio of the likelihood of the chi-squared statistic is  $-2 \log \Lambda$ . This is denoted by  $G^2$ , which equals

$$G^2 = -2 \log \Lambda = 2 \sum_i \sum_j n_{ij} \log \frac{n_{ij}}{\hat{\theta}_{ij}}$$

$\chi^2$  converges faster to chi-squared quicker than  $G^2$ . When  $\frac{n}{ij} < 5$ , the approximation when considering  $G^2$  is usually not very good. When the value of  $I$  and  $J$  is considerably large and some of the expected frequencies are very small say as low as 1 while some of the values exceeded 5 then, it can be decent for  $\chi^2$ . Chi-squared tests of independence may not be adequate sometimes to answer all the questions about a particular data set but may indicate the extent to which the evidence of association exists between or among variables under consideration. Investigating the nature of association through the use of: breaking into components of chi-squared, residuals study and parameter estimate such as: describing the strength of association through the use of odds ratios which is rather more efficient. [10-13]

**3.0 DATA ANALYSIS AND RESULTS**

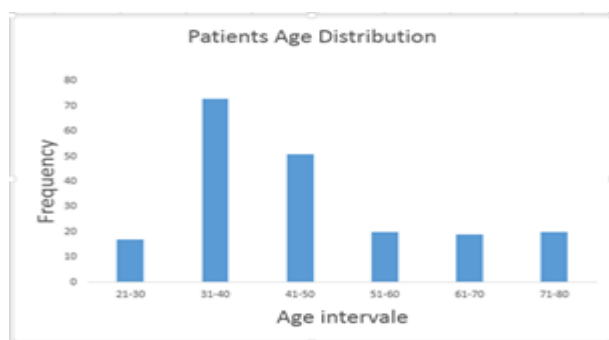
**Table 1 Distribution of Patients by Age**

Age Interval	Frequency	Percentage	Cumulative Percentage
21-30	17	8.5	8.5
31-40	73	36.5	45
41-50	51	25.5	70.5
51-60	20	10	80.3
61-70	19	9.5	90
71-80	20	10	100
<b>Total</b>	<b>200</b>	<b>100</b>	

Table 1 showed that, patients' age were classified into 9 categories. It was discovered from the table that 31- 40 and 41-50 age bracket accounted for 74.17% of the patients that were tested positive within the period under considerations. The descriptive statistics for the table 1 is presented in table 2 while the bar graph for the table is presented in figure 1.

**Table 2: Descriptive Analysis Hepatitis B Patients Age Distribution**

Mean	Variance	Standard Deviation	Skewness	Kurtosis
<b>40.23</b>	<b>86.45</b>	<b>8.75</b>	<b>0.69</b>	<b>0.85</b>

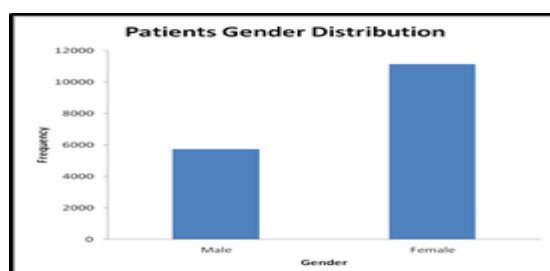
**Figure 1: Bar Chart for Hepatitis B Patients Age distribution****Table 3 Distribution of Patients by Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	76	38	34	34
Female	124	62	66	100
Total	200	100	100	

Table 3 showed the frequency distribution for gender of Hepatitis B patients recorded within the period of 2006 and 2015 under considerations. The table shows that female are greatly affected by the disease because 66% of the patients are female while just 34% of the patients are male. The descriptive statistics for table 3 is presented in table 4 while the bar graph for table 3 is presented in figure 2.

**Table 4: Descriptive Analysis for Hepatitis B Patients Gender Distribution**

Mean	Variance	Standard Deviation	Skewness	Kurtosis
<b>1.734</b>	<b>0.223</b>	<b>0.47383</b>	<b>-0.689</b>	<b>-1.64</b>

**Figure 2: Bar Chart for Hepatitis B Patients Gender Distribution**

### 3.1 Chi-square Analysis

#### Hypothesis:

$H_0$ : Age and Gender of HBV patients are independent

$H_a$ : Age and Gender of HBV patients are not independent.

Decision Rule: If p-value is less than the cut-off point of 0.05 significance level, reject the null hypothesis.

**Table 5: Cross Tabulation of Outcome and Gender**

Age Interval	Gender		Total
	M	F	
21-30	6	11	17
31-40	21	52	73
41-50	28	21	51
51-60	12	08	20
61-70	7	12	19
>70	2	12	20
Total	76	124	200

The subscript letter in each of the value denotes a subset of gender categories where the column proportion does not have significant different from each other at the .05 level.

**Table 6: Pearson Chi-Square and Likelihood Ratio Estimates for Table 5**

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson					
Chi-Square	.001 <sup>a</sup>	6	0.027		
Continuity					
Correction <sup>b</sup>	0.008	6	0.028		
Likelihood					
Ratio	0.002	6	0.026		
Fisher's					
Exact Test				0.008	0.046

This implies that the two factors (Age and Gender) are not independent which means that there is association between them since the p-values are less than 0.05.

### 4.0 CONCLUSION

From the analysis presented above, the descriptive analysis together with the bar charts of all variable considered for this work were presented. It was discovered that sexually active age bracket (31- 50) were greatly affected by the disease. Also, the research established that females have higher risk of contracting the disease when compared with male since 62% of the recorded data were female.

Test of significance was carried out using Chi-square method in order to established whether age and gender of those who tested positive to the disease are independent or not. It was discovered from the Chi-square test of independence that both variables (age and gender) are not Independent. It simply means there is an association between the two variables when it comes to the spread of Hepatitis B virus.

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**A STUDY ON NEED AND IMPORTANCE OF CORE BANKING SOLUTIONS IN INDIAN BANKING INDUSTRY**

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**Dr. R. K. Patra<sup>1</sup> and Ms. Priya Ashok Sapkale<sup>2</sup>**Principal<sup>1</sup> and Research Student<sup>2</sup>, Vikas College of Arts, Science and Commerce, Vikhroli (East), Mumbai**ABSTRACT**

*The research study is focusing to indentify the need and importance of core banking solutions in the Indian banking industry. The study investigates the need and importance of CBS in the eyes of customers of the bank. Customers' plays a vital role for growth and development of banks; hence banks have embraced the different software and solutions for providing better banking services. The present study is framed with primary and secondary data. Two-tailed Mann-Whitney U test and kruskal-wallis tests have been used to analyze the hypotheses of the study. On the basis of the findings of the study's conclusion has been drawn.*

**I. INTRODUCTION**

**Evaluation of Core banking solution in India:** In 1991, new economic policy came into force with a new concept called liberalization, privatization and globalization. The LPG policy opened doors for private and foreign banks with various avenues for their establishment. The new era of banking has given a momentum in the Indian banking industry; therefore the banking environment became competitive. In order to compete with advanced banking practices and technology, India took the first step towards Core banking solutions in the year 2000. Deregulation policy brought advanced technology, which results in the introduction of core banking solutions in the Indian banking environment. Core banking solution is conjoined with information and communication technology and enhancing the technical framework in banking practices. CBS is an ideal platform where banks are providing better desired service to their customers. It is computer based software which works through a centralized data center. It is a back end system which performs different banking functions such as recording the transaction, calculations of interest, passbook maintenance, balance of payment, etc. Core banking solution software installed in bank's branches and interrelated through communication lines like telephone, satellite and internet. Syndicate Bank was the first bank among the public sector banks that implemented the core banking solution in 2001. Core stands for Centralized Online Real Time Exchange/Environment. Core banking solution brought the highest level of transparency in banking. It is the combination of information technology and network devices. Core banking solution software is developed to perform the core operations of banks like recording of transactions, passbook maintenance, and interest calculations on loans and deposits, customer records, balance of payments and withdrawal. The software allows customers to operate the account from any branch if it has installed a core banking solution. The CBS is developed in such a manner where bank employees are also getting working benefits while working under the CBS system.

**II. REVIEW OF LITERATURE**

- 1) **B. Muniraja sekhar / Dr.B.Sudhir (2012)-** Authors' have demonstrated that the co-operative banks are facing issues and challenges for implementation of core banking solutions. As the advanced banking technology is being imperative in the banking sector, co-operative banks are still lagging behind. Therefore co-operative banks need to put their efforts and should make advanced investment in information technology. It has recommended that decision makers and authoritative heads of the co-operative bank's need to frame time schedules for implementation of technological solutions like core banking solutions.
- 2) **Malathy.K / Dr. Subhashini srivatsa (2017)-** Authors' studied that globalization has brought the free movement of different resources as the banking industry emerged with advanced technology after the introduction of new economic policy in India. Core banking solution in banking has been popular after economic reforms. This advanced concept is admired among customers due to their convenient services. The authors have noted that there are certain challenges in adoption and implementation of core banking solutions, but corrective measures need to be attempted in appropriate time so the ecstasy of the customers will increase.
- 3) **Selvaraj.N and santhanamari.R (2019)-** Researchers' stated that the banks should enhance technical strength where they can compete with their competitors by providing different products and services. Customers play a vital role in modern banking. The success of the core banking solution is not only dependent on technology, but it is also important and depends on the attitude, involvement of the operating staff who are deployed at all levels to look after the application software i.e. core banking solution. Similar to this, many studies have been undertaken and completed in the past by the researchers.

However, this literature review reveals that no work has exclusively focused on need and importance of core banking solutions in Indian banking industry and very few studies have been examined issues and challenges of core banking solutions in urban co-operative banks, customers satisfaction level with the help of core banking solutions in Madurai city and customers ecstasy towards core banking solutions. Hence, the present study is to fill this gap.

### III. OBJECTIVES OF THE STUDY:

- 1) To describe the core banking solution in the Indian banking industry.
- 2) To study the need and importance of core banking solutions in the eyes of customers of the bank.

### IV. HYPOTHESIS OF THE STUDY:

#### Hypothesis 1:

H<sub>0</sub>: There is no statistically significant difference between Gender and satisfaction level of customers due to CBS.

H<sub>1</sub>: There is a statistically significant difference between Gender and satisfaction level of customers due to CBS.

#### Hypothesis 2:

H<sub>0</sub>: There is no statistically significant difference between Occupation and satisfaction level of customers due to CBS.

H<sub>1</sub>: There is a statistically significant difference between Occupation and satisfaction level of customers due to CBS.

#### Hypothesis 3:

H<sub>0</sub>: There is no statistically significant difference between Educational Level and satisfaction level of customers due to CBS.

H<sub>1</sub>: There is a statistically significant difference between Educational Level and satisfaction level of customers due to CBS.

### V. METHODOLOGY-

**Research Design-** The Study is conducted to find the need and importance of core banking solution in the eyes of the customers of the bank. Convenience sampling techniques have been used for the present study. Approximately 74 bank customers were taken as a sample.

**Sources of Data-** Primary data was collected through a structured questionnaire. Secondary data was collected through research journals, books, RBI reports and other sources.

**Data processing, analysis and statistical tools employed-** Primary data were collected from the respondents to find out the need and importance of core banking solution in the eyes of customers of the bank. Various statistical tools have been used to analyze the data; such as mean percentage and median etc. The collected data were not normally distributed therefore Non-Parametric tests have been used to analyze the data. Two-tailed Mann-Whitney U test and Kruskal-Wallis test have been used to test the hypothesis.

#### Hypothesis 1:

H<sub>0</sub>: There is no statistically significant difference between Gender and satisfaction level of customers due to CBS.

H<sub>1</sub>: There is a statistically significant difference between Gender and satisfaction level of customers due to CBS.

**Two-Tailed Mann-Whitney U Test-** A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in satisfaction level between the levels of gender. The two-tailed Mann-Whitney two-sample rank-sum test is another to the independent samples *t*-test, but does not share the same assumptions (Conover & Iman, 1981). There were 43 observations in group Female and 31 observations in group Male.

**Results-** The result of the two-tailed Mann-Whitney *U* test was significant based on an alpha value of 0.05,  $U = 444.5$ ,  $z = -2.46$ ,  $p = .014$ . The mean rank for group Female was 32.34 and the mean rank for group Male was 44.66. This suggests that the distribution of satisfaction level for group Female was significantly different from

the distribution of satisfaction level for the Male category. The median for Female ( $Mdn = 13.00$ ) was significantly lower than the median for Male ( $Mdn = 14.00$ ).

#### Two-Tailed Mann-Whitney Test for SatisfLevel by GEN

Variable	Mean Rank		$U$	$Z$	$P$
	Female	Male			
Satisfaction Level	32.34	44.66	444.50	-2.46	.014

#### Hypothesis 2:

$H_0$ : There is no statistically significant difference between occupation and satisfaction level of customers due to CBS.

$H_1$ : There is a statistically significant difference between occupation and satisfaction level of customers due to CBS.

**Kruskal-Wallis Test-** A Kruskal-Wallis rank sum test was conducted to assess if there were significant differences in satisfaction level between the levels of occupation of respondents. The Kruskal-Wallis test is a non-parametric alternative to the one-way ANOVA and does not share the ANOVA's distributional assumptions (Conover & Iman, 1981).

**Results-** The results of the Kruskal-Wallis test were not significant based on an alpha value of 0.05,  $\chi^2(3) = 0.63$ ,  $p = .889$ , indicating that the mean rank of satisfaction Level was similar for each level of Occupation. Table 3 presents the results of the Kruskal-Wallis rank sum test. Figure 2 presents boxplots of the ranked values of satisfaction level by the occupation of respondents. **Kruskal-Wallis Rank Sum Test for Satisfaction Level by Occupation of respondents.**

Level	Mean Rank	$\chi^2$	df	$p$
Government service	42.33	0.63	3	.889
Salaried	38.68			
Self-employed	37.93			
Student	34.96			

#### Hypothesis 3:

$H_0$ : There is no statistically significant difference between educational level and satisfaction level of customers due to CBS

$H_1$ : There is a statistically significant difference between educational level and satisfaction level of customers due to CBS

**Kruskal-Wallis Test-** A Kruskal-Wallis rank sum test was conducted to assess if there were significant differences in satisfaction level between the Educational Level of respondents. The Kruskal-Wallis test is a non-parametric alternative to the one-way ANOVA and does not share the ANOVA's distributional assumptions (Conover & Iman, 1981).

**Results-** The results of the Kruskal-Wallis test were significant based on an alpha value of 0.05,  $\chi^2(3) = 11.09$ ,  $p = .011$ , indicating that the mean rank of satisfaction level was significantly different between the educational level Table 1 presents the results of the Kruskal-Wallis rank sum test. Figure 1 presents boxplots of the ranked values of Satisfaction Level by the Educational Level.

#### Kruskal-Wallis Rank Sum Test for Satisfaction Level by Educational Level

Level	Mean Rank	$\chi^2$	df	$p$
Undergraduate	31.79	11.09	3	.011
Graduate	35.06			
Post-graduate	51.25			
Professional	25.79			

**Post-hoc-** Pairwise comparisons were examined between each educational level. The results of the multiple comparisons indicated significant differences based on an alpha value of 0.05 between Post-graduate-Professional. Table 2 presents the results of the pair wise comparisons.

#### Pair wise Comparisons for the Mean Ranks of Satisfaction Level by Educational Level

Comparison	Observed Difference	Critical Difference
Undergraduate-Graduate	3.27	17.94
Undergraduate-Post-graduate	19.46	20.22
Undergraduate-Professional	6.00	26.26
Graduate-Post-graduate	16.19	16.46
Graduate-Professional	9.27	23.49
Post-graduate-Professional	25.46	25.27

**Note.** Observed Differences > Critical Differences indicate significance at the  $p < 0.05$  level.

#### Major Findings of the study-

- The study has ensured that (95.9%) respondents are agreeing that the banking through Core banking solution is a convenient way of banking.
- Majority (89.2%) respondent strongly agrees that CBS helps to provide advanced banking services.
- The study shows that the frequency of visits of the bank's customers to the bank have reduced after implementation of core banking solutions.
- Out of 74 respondents 65 respondents have stated that banks started providing efficient customer service after introduction of core banking solutions.
- Among all the E-banking services, i.e. ATM banking (17.3%), Internet banking (56.8%), Phone banking (31.3%) and mobile banking (67.6%) study has shown that mobile banking is frequently used by the customers.
- Out of 74 respondents, the majority (78.4%) of the customers agrees that banking transactions through core banking solutions are secure transactions.
- Majority (94.6%) respondents showed that core banking solutions need improvement for more efficient banking services.

#### VI. SCOPE OF THE STUDY:

The study has been undertaken mainly to understand the need and importance of core banking solutions in the eyes of the customers of the bank. The sample respondents are the customers of the various banks in Mumbai city. Researcher has not taken any particular segment of the banking industry i.e. commercial banking, co-operative banking, regional rural banking etc. hence; there is a scope to work on particular one segment of the banking and their customer's views and perception towards core banking solutions.

#### VII. LIMITATIONS OF THE STUDY-

The study is based on primary as well as secondary sources. The intention of the researcher is to study the need and importance of the core banking solutions in the Indian banking industry. The study is restricted to Mumbai city. The researcher could not obtain data from particular one segment of the banking industry like commercial bank; co-operative bank etc. convenience sampling method has been applied for data collection. It was found difficult to acquire extended knowledge of core banking solutions and its satisfaction level in the minds of customers from particular one segment hence researcher has tried to acquire the possible and appropriate output from the research.

#### VIII. CONCLUSION-

The study was aimed to study the need and importance of core banking solutions in the eyes of customers of the bank. The study clearly states that customers are satisfied with core banking solution software because it provides advanced banking services and also facilitates convenient ways of banking. It shows that frequency of visits to the bank have reduced after implementation of the core banking solution. The study indicated that among all the E-banking services i.e ATM banking (17.3%), Internet banking (56.8%), phone banking (31.3%) and mobile banking (67.6%) mobile banking service is frequently used by the customers. A majority (78.4%) customer agrees that banking transactions through CBS are secure transactions. The study reveals that the core banking solution needs improvement for more efficient services. The study indicated that there is a statistically significant difference between gender and satisfaction level of the customer due to core banking solutions. The

study has indicated that the satisfaction level of each occupation is similar. The results of the multiple comparisons indicated significant differences based on an alpha value of 0.05 between Post-graduate-Professional.

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**THE SUSTAINABILITY THROUGH MATHEMATICS: A NECESSARY INTERDEPENDENCY**

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**ABSTRACT**

*Guarantying a sustainable future for our children is truly the greatest challenge facing humanity and raises a profusion of scientific and mathematical challenges. In the language of the Brundtland Report, World Commission on Environment and Development, 1987, it means leaving for future generations the same options we have for how we want to live our lives. However, operational that concept is easier said than done*

*Here, Mathematical modelling is considered as an indispensable tool for sustainable development. Sustainable development is to balance our economic, environmental and social needs allowing prosperity for now and future generations. Mathematical Science plays as tackle the challenges facing our planet. Mathematical modelling plays useful roles towards sustainable development in arriving the understanding, prediction and control of development process. Mathematical modelling can be a powerful tool for understanding and observed phenomena which cannot be understood by verbal reasoning alone. It is conclude that for sustainable development, it is necessary to build mathematical model.*

*Keywords: Mathematical Modelling; Sustainable Development; Real life*

**INTRODUCTION:**

Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. Mathematical modeling plays useful roles towards sustainable development in arriving the understanding, prediction and control of development process. Education for sustainable development (ESD) promotes the development of the knowledge, skills, understanding, values and actions required to create a sustainable world, which ensures environmental protection and conservation, promotes social equity and encourages economic sustainability.

Mathematics not only helps us to understand natural phenomena, it also allows us to sustain the majority of human activity on the planet. ... A planet at risk, covering climate change, sustainable development, epidemics; invasive species and natural disasters.

**NEED FOR SUSTAINABLE DEVELOPMENT**

The idea of sustainable development is essential to address the following issues:

- 1) Prevent the environmental degradation.
- 2) to ensure a human life
- 3) to check the exploitative technology and find alternative sources
- 4) to check the cover exploitation and wastage of natural resources
- 5) to regenerate renewable energy resources etc.

**HOW MATHEMATICAL MODELING IS RELATED TO SUSTAINABLE DEVELOPMENT**

Biodiversity, climate change, water resources, hazardous waste, nuclear waste, population dynamics etc is the some global sustainable development problem .these problem are describe by mathematical model. The sustainability of planet Earth depends on mathematical science. Every phenomenon on earth is subject to mathematics, which is the only language we can use to describe them. Moreover, mankind must factor mathematics into any approaches it takes to addressing said challenges. Climate change, protecting biodiversity, tackling pollution, controlling epidemics, and ocean sustainability, natural disaster (volcanoes, earthquakes and tsunamis) are all subject to linear and nonlinear differential equation. Earth interior mantle, terrestrial crust, atmosphere and the life that it sustains are all subject to dynamics process. Mathematical model sustain the majority of human activity on the planet. Mathematical model are used to solve many real life situations like:

- 1) Mathematical modelling of launching a satellite.
- 2) Mathematical modelling of urban city planning.
- 3) Mathematical modelling of controlling pollution due to vehicles.
- 4) Mathematical modelling of the traffic flow on highways or the stock market options.

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- 5) Mathematical models to understand the working of heart, brain, lungs, kidneys, and the endocrine system.
  - 6) Mathematical models to demonstrate the action of medicine in the human system.
  - 8) Mathematical models for global warming.
  - 9) Mathematical models to understand the fluid flow in drains ,lakes, rivers, spillways, and so on Mathematical model are recognized as effective tool that could help examine economic, environmental and ecological impacts of alternative pollution control and resources- conservation actions, and thus aid planners or decision –makers in formulating cost –effective management policies.

**CONCLUSION:**

The problems of achieving sustainability are urgent and huge and will require complementary inputs of diverse disciplines. Hence mathematics has a great deal to contribute in addressing these problems, but it is equally certain, as has always been the case, that new mathematics will be stimulated by the energy and freshness that comes from new applications and new challenges. The discipline of mathematics has much to contribute, and much to gain, from engagement in future.

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## THE PSYCHOLOGICAL AFTERMATH OF NIGHT SHIFT

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*With the advent of 24/7 working, night working has become very common. In this 21<sup>st</sup> century BPO and ITES/IT industries also work night shifts along with the health care service workers, Police department, Drivers etc. Human beings are diurnal organisms; hence it is difficult for us to sleep in the day defying our body clock or circadian rhythm. The circadian rhythm of the body regulates the sleep-wake cycle of an individual, therefore, the quality and quantity of sleep achieved in day is poorer than what can be achieved at night.*

*Employees working the night shift face significant difficulty in sleeping due to the disruption of circadian rhythm and therefore face significant health issues. These issues have negative impact on the body and mind and can be very threatening unless adequate measures are taken to minimize the concerns. The night workers face extensive changes to their circadian rhythm due to their work schedule, which in turn gives rise to other physical and psychological issues.*

*This paper will discuss at length the different psychological problems that an employee can come across during night shifts. It will also illustrate the precautions that can be taken to reduce the impact of night shift on psychological health.*

*Keywords: night working, night shift, psychological problem, health issues, stress, anxiety*

**INTRODUCTION**

In recent times the economies are growing with leaps and bounds. This growth is triggered by the organizations bringing in new businesses from all over the world. Now, to cater to such businesses the business hours also need to be altered therefore, there is a significant increase in night shift working in this era.

To keep the balls rolling more and more employees are being appointed to work the night shifts or rotating shifts. Shift-work has become a dominant working schedule in the general public (Admi, 2008; Perry-Jenkins, 2007). The survival of night shift is not easy as the employees may face severe health challenges while coping with the odd hours. Working in the odd hours has many negative effects on health; this can be either being physical or psychological.

Melatonin is a hormone which is secreted by the pineal gland levels which regulates the sleep-wake cycle of the body. Melatonin is secreted as a response to darkness and is also known as the "hormone of darkness". Therefore, it is secreted more at night which signals the body to get rested and sleep. The melatonin levels of the body are lesser as compared to that in the night time. Due to the odd hours of working the employees in night shift face a lot of challenge managing their work and life as compared to the day shift employees. Individuals working in graveyard shift are often cut-off from family and social life and face significant changes to lifestyle. Therefore, apart from the physical challenges employees may also face some psychological concerns. These psychological problems if not addressed at the correct time may lead to irreparable damage to the health and mind of an individual. Cheng and Drake (2018) suggested that ups and downs in melatonin levels which can lead to downstream impact on mood and mood regulation. They also suggested that if the circadian pacemaker is disturbed it may lead to deregulations in mood.

There are other studies and researches which show that depression is a very common issue found within night shift nurses (Tyerman, 2009). Psychiatric indications are also reports to be more in rotating shift nurses than on nurses working in day time. The circadian rhythm, sleep and effective functioning are all very closely knit. If any one of these gets disturbed or disrupted then the others also get affected. Shift work sleep disorder (SWSD) is a very common concern which has been observed among the shift workers.

There has been a research which has shown that workers who are working on rotational shifts (combined day and night) are affected by psychological disturbances like depression and anxiety (Learthart, 2000). The psychological impact of shift work may get aggravated due to the concerns related to sleep (e.g., insomnia, parasomnias etc) and other physical problems that are associated with shift working. Poor physical health always increases the risk of developing psychological problems.

While shift working has its own set of advantages, it also has many underlying risks. Therefore, the health and hygiene of the shift workers should be one of the concerns for the organizations who employ shift workers. A monthly or quarterly review should be done to identify if any changes or amendments are required by the workers to have a better working environment. The psychological health of the employees should be regularly checked as they are not evident and do not show much symptoms. These are medical issues which may not show much physical evidence unless it has become chronic. However, it is very necessary to identify the psychological issues and treat them at the earliest to have a healthy and long life.

#### **LITERATURE REVIEW:**

With the rise in night shift work many people are joining the night operating lifestyle which means the number of people working opposite to their traditional body-clock or circadian rhythms will increase. The day and night cycle of the body is regulated by a secretion referred to as Melatonin which is secreted by the pineal gland of the body (Khullar, 2012). The Melatonin secretion decreases when light stimuli are received on the daytime and inversely the melatonin level increases when the light reduces at night, the increase in melatonin levels are perceptible as they are followed by sleepiness and exhaustion (Gumenyuk, Roth, & Drake, 2012). Therefore, the night shift staff has their melatonin levels at the peak when they start to work, and which in turn creates a secretional or hormonal conflict, these kind of misbalance of hormones is only found in the night shift workers.

Physical stress can be inculcated by operating against the body's internal clock. This stress can be the explanation for one or more health issues (Gumenyuk, Roth, & Drake, 2012). Night shift workers can also have issues with cholesterol and lipid levels (Boggliid & Knutsson, 1999). There is also risk of cardiovascular problems in night shift workers as reported by Boggliid and Knutsson. Most night shift workers have been reported to have the simultaneous existence of two or more diseases or medical conditions. The few of the diseases can be obesity, blood pressure issues, sleeping problems, and gastrointestinal disorders such as ulcers (Shen & Dicker, 2008). For permanent night shift workers the risk of developing cardiovascular issue can be as high as 40% and it is not gender specific, both men and women can suffer from the same.

Researchers have proposed that Shift Work Sleep Disorder (SWSD) is a sleeping complaint which can be caused by night shift work, those suffering from this disease can be prone to inappropriate wakefulness, insomnia and high irritation levels. When the circadian rhythm is misaligned then that may result in SWSD. The character of the odd hours has the tendency to create this misalignment in the night shift worker. The flexibility and unceasingly work against their biological clock, most of the night shift workers lack on the constant and this leads to the bulk of them to suffer from SWSD (Ohayon, Smolensky, & Roth, 2010).

A regularized sleep pattern required in order to reduce the negative effects that are related to SWSD. However, it is very difficult to achieve a normal, continuous and uninterrupted sleep during the day. This is due to the various factors like presence of children, household chore, professional and social obligations, other environmental and household noises which are always there during the day time (De Almondesa & Araujo, 2011). There are relatively well known negative effects of night shift. These effects however can also be interconnected with physical disorders. The risk of developing a psychological disorder is high in the night shift workers due to the additional stress that their bodies encounter. Few disorders like anxiety, panic attack and depression has been sometimes associated to night shift work. However, the night shift workers are known to be underdiagnosed (Shen & Dicker, 2008).

There is a specific hour that most of the clinics or private practices open and there is always a chance that the night shift worker was unable to change his work schedule to make an appointment to see the mental health professional. The lack of adaptation to a stressor is known as physiological distress (Winefield, Gill, Taylor, & Pilkington, 2012). This lack of adaptation to the stressor can lead to many other problems like substance abuse, addiction, depression, anxiety etc (Shen & Dicker, 2008). There are various other problems that a night worker may face which a traditional worker lacks. These problems may include issues which may arise for the matters of social nature or some for other scheduling issue with family. Marriage issues can also arise if there is work schedule incompatibility between the partners. These additional issues lead to additional stress in the night shift worker, which if not dealt with appropriately then the person is expected to suffer from the negative effects.

#### **STATEMENT OF THE PROBLEM:**

We find many studies regarding the physical problems associated with night shift workers. There are also several studies which have been done on the psychological issue front; however they are done on specific areas of psychology and mental health. However, the field of psychology and night shift should be explored more. There should be studies which will help us understand the overall basics and types of psychological issues that

can be faced by the night shift workers and also what should be done to avoid or what precautions should be taken to mitigate the risk of psychological issues.

#### OBJECTIVE OF THIS STUDY:

The aim of the study is to understand the:

1. Different Psychological issues that can be visaged by the night shift workers.
2. To exemplify the precautions that can be taken to diminish the risk and impact of night shift on psychological health.

#### RESEARCH METHODOLOGY:

This study is purely based on qualitative research and secondary data. The information's has been collected through internet via various websites.

#### FINDINGS:

The night shift may cause many changes in the body and therefore affect the human brain in different ways in different individuals. The physiological changes i.e. changes in the circadian rhythm of the body changes and has to adjust with the night shift working which might have adverse effect on the mental characteristics or attitude of a person, Below are few such changes which is possible to contract if the employee works on night shifts.

1. **Agoraphobia and Depression:** Agoraphobia is a type of anxiety disorder and which is the fear of open or crowded spaces. This is a type of phobia where one avoids places or situations which might cause them to feel trapped and panic. The individuals feel trapped in a situation which leads to helplessness, uncomfortable and embarrassed. People having this issue have a hard time feeling safe in open places, crowded areas or in public places. Depression is a mood disorder. In this the individual feels sadness, feeling of loss and anger. Depression may interfere with daily activities and lead to loss of productivity. An extensive evaluation of studies on night shift working and mental health by the medical researchers has observed that the employees working the night shift are at greater risk of developing anxiety or depression. According to the National Sleep Foundation (United States) a series of physical and mental health issues can be developed due to lack of sleep. People with insomnia are much likely to be diagnosed with Anxiety and depression. Research by the department of psychiatry at the University Of Pennsylvania School Of Medicine has found that same genes are responsible for anxiety and depression which are involved in causing adolescent insomnia. Shift workers go through unique situations which lead to rise in their tension levels. Due to the rotational shift pattern the personal life of the shift workers go out of sync and creates a lack of work-life balance. It is difficult to adjust with such life style and circadian rhythm changes and as a result the shift workers do not get much sleep. Sleep experts suggest that 7 to 8 hours of sleep is necessary to feel well rested. The shift workers due to their odd hours, day time sleep pattern and body clock changes are at greater risk of developing insomnia. Agoraphobia and depression may be aggregated due to the high stress and insomnia in night shift workers can therefore, an employee working the night shift should always take care of themselves and seek for help whenever they are feeling any of the above mentioned feelings.
2. **Bipolar Mood Disorder:** Bipolar Mood Disorders are such behaviors where an individual faces extreme shifts in mood; the mood may vary from depressive lows to high frenzied. It is also known as Manic Depression. The depressive low mood characterizes of loss of interest in daily activities, low of energy and motivation. However, the high frenzied episodes might include high energy, reduced sleep requirement and loss of touch with the reality. Individual who are suffering with bipolar disorder are likely to trigger an episode if they are working the night shift. The instability of circadian rhythm is a risk factor which may trigger the mood swings. An hypothesis called Social Rhythm Stability Hypothesis (SRSH) (Elhers, Kupfer, Frank and Monk 1994) describes that the main problem with bipolar disorder is the lack of regular or patterns of activity. It has also been researched long ago that the disturbance in circadian rhythm can both be a case and symptom of bipolar disorder. It is difficult for a person with bipolar disorder to find and keep a job as they face extreme mood swings; it is difficult for them to work productively through the working hours as they face many challenges. Night shift working comes with its own set of challenges and can be very unpredictable and demanding. Such work environment may cause rise in stress level and may trigger an episode and have a negative impact on mental and physical health.
3. **Suicidal Ideation:** The relationship between shift working and mental health has been a research topic for a long time. Suicide is one of the global, prevalent and public health issues. A study in South Korea in 2017 done on electronics production workers inferred that the chances of depression and suicidal ideation

increases when the individual suffers from insomnia. Suicide investigations in occupational settings have recognized specific causes and involvements in certain professions. Suicidal ideation in case of manual workers, miners and farmers can be due to poor social support and low income. There are other studies which have shown that long working hours are getting established in developing Asian countries. In Japan (2008) in a case series study suicide due to excessive work has been reported. Health care workers have easy access to lethal instruments and therefore, it is a well-known risk factor of suicide amongst health care workers. Additionally severe job stress leads to the risk of depression and depression is linked to suicidal ideation or attempted suicide. Long working hours exacerbates the adverse effect of poor life style and life style changes. Extended working hour's leads to poor life style choices and hence reduced quality of life, which also comprises of sleep disruptions. Another study based on suicidal ideation concluded that their study has found that there is an increased chance of psychological illness among night and rotational shift workers, suggesting that there is a possible link between night and rotational shift work and mental health (Yoon, Bae and Yoon 2015). Therefore, it is very necessary to take care of the mental health and also maintain a healthy personal and social life. Any issues if not addressed immediately may lead to certain mishaps which can be otherwise avoided. Hence, it is advisable to consult a therapist or doctor as soon as someone faces any challenges which may be either Physiological or Psychological.

4. **Loneliness:** The interpersonal relation and communication between colleagues in an organization is very much necessary to sustain a normal and healthy life. There is always less number of employees working and it is not necessary that one will like all of them. Therefore, an employee who is accustomed to work in a day environment and suddenly moves to night shift, faces issues like solitude, where he misses his colleagues and the normal cheerful atmosphere which can be associated with day shifts. Apart from the professional side, while at home when the whole family is up and about doing their own work, the employee cannot participate in any of the household or family activity due to the prolonged nocturnal existence. This leads to sleep disorders as the employee is in a continuous tug-of war between his personal and professional life. It is very difficult to go to work on a summer Friday night when everyone around you is planning a evening of fun. Also, it Is not only that you are working the Friday night you also need your sleep and the employee sleeps through most of the Saturday. Therefore, unless the employee stays with people who are on the same kind of shift or people who prefer staying up late, solitude will creep into his life whether he likes it or not as his routine and their routine will not match. This mismatch leads to the employee putting in effort to sleep less in order to spend more time with family which in turn gives rise to complications like shift-work sleep disorder, issues with digestion, metabolism and cardiovascular issue. Situation might get created in office due to the panic attacks or anxiety faced by the employee. Hence, in case an employee is diagnosed with such a problem, then it should be brought into attention of the management and steps must be taken on how to make the situation better for the employee keeping in mind the Doctors recommendations.
5. **Social Phobia:** Social Phobia is also known as Social anxiety disorder (SAD). This disorder is mainly provoked by the lack of social activity and gatherings. The individual in this case develops an anxiety disorder which can be characterized by anxiousness in social situations, fear of going in gatherings. Somewhere these fears have been triggered by receiving the negative evaluation of others. There are various factors which need to be analyzed in order to understand SAD better. Factors like Cultural influences, substance-induced, Psychological factors, Social experiences etc play a vital role in a person's life that has been diagnosed with SAD. An employee with such inhibitions if hired in night shift will have a lot of trouble coping up. Also, in case an employee has a borderline issue and has been given night shift these issue might get perplexed and in turn may give rise to something much more serious which is incurable or is irreversible.

The employees in night shift do not get to see much people as the night shifts are generally lightly staffed along with this, they do not get much time to hang around with friends and family as the daily schedule does not match. The people in night shift are already vulnerable towards the gathering of people and crowds and with time grow a little less comfortable around people as they are happy in their world and think that no one else will be able to understand their situation. These people then start avoiding the social gatherings and family functions in fear of social rejection, negative comments etc. which gives rise to the symptoms of Social Phobia. A person if diagnosed with such disorder should seek counseling and a psychotherapist recommendation is a must. It is necessary to understand the root cause of the phobia in order to cure it and if its diagnosed that the employee is in such shape due to the night shift that he./she is ding then appropriate actions should be taken to change the situation.

**6. Others :**

- **Neurotic disorder:** Depression, Social phobia, Generalized anxiety disorder are few of the neurotic disorders which we have already discussed. However there are other neurotic disorders which can be caused due to night shift like Obsessive-compulsive disorder, antisocial personality disorder etc.
- **Device Mania:** In this the individual becomes repellent towards any electronic gadgets like computer and mobiles. If these problems are avoided for a long time it becomes impossible to treat them and the individual will have to seek continuous psychological assistance.
- **Acrophobia:** Night shift is one of the recurrent reasons for circadian disruption and interruption of sleep-wake cycle. These alterations of the biological functions of the body bring in a lot of change which has an impact on the physical and psychological well-being of an individual. These impacts also have a very negative impact on work performance.

The above mentioned factors are few of the psychological challenges that are faced by an individual while working the night shift. Psychological changes are such that it doesn't have any specific symptoms. They are difficult to diagnose and treat. The individual who is going through the pain would not realize that there is an issue. Therefore, it is the duty or responsibility of the people around that person to realize that they need help. There are few give away that can help identify that a person is facing issues. The first and foremost symptom is that there is a change in behavior of the person facing the challenge. The individual going through this will not realize himself that there is a change as they believe it is the normal way of life. They tend to keep themselves aloof. They become lonesome and try to hide their feelings. The irritation level or the level of anger increases for such individuals. They are unable to control their anger and therefore, they avoid being in public as they don't know what will trigger their issues and what reactions they will have to that trigger. Another give away of psychological problems is to start having family related issues. They start having problems in their family and relationships and start lacking the motivation to do anything. Marital discords are one of the most commonly seen problems. These people also, start believing in procrastinating and start abandoning their tasks, even the most general task like, cleaning the attic or opening their mails. These individuals also start substance abuse and get addicted to alcohol and other forms of intoxication. These can also be presumed as the ways they try to cope with their situation by numbing their self from the outside world by being high.

Above mentioned give aways are little intimation that an individual is having some psychological problems and that it needs to be addressed. Night shift aggravates the risk of getting depression or other mood disorders. The individual might also develop different kinds of Phobia as discussed above. If these issues are not addressed immediately then it may give rise to various other issues which could have permanent damage to the health. These employees should immediately consult doctor and stop doing night shifts. The employees should seek counseling or psychotherapy or medications as per the Doctor's directives.

**RECOMMENDATIONS AND SUGGESTIONS:**

There cannot be any specific solutions to reduce or avoid the psychological challenges. The study has revealed few ways and techniques by which the psychological stress can be reduced and managed, however there are no explicit solutions to the issues that might show up due to working the night shift. The below solutions will help in managing the night shift and mitigating the chances of any psychological occurrence if followed by employees.

Employees who work night shift should follow a very well defined routine and should eat and drink healthy. The consumption of caffeine should be limited. Caffeine gives a boost of energy right after its consumed, however the effects of it stays longer than the boost which impedes with the sleep pattern. Also, one should turn off electronic gadgets before hours of going to sleep. Computers, Tablets emit light of shorter wavelength which hinders with the melatonin production of the body and the body takes much longer to slow down and fall asleep. Therefore, a well-defined routine and disciplined life can keep an individual healthy even while working the nightshift. Eating a healthy diet is also a necessary step in combating the negative impact of night shift. While working the night shift try eating the same way you eat during the day time. Eat light foods which are easily digestible and not rich and spicy food which brings in drowsiness. Food which is easily digestible helps to keep the body awake and alert. One should avoid eating sugary food while finishing the day. You should eat such food which helps you keep awake at night, which are easily digestible and are a correct balance of carbohydrates, protein, and fat. When you find the meal that suits you the best to cope with night shift carry the food with you to office such that you do not land up eating the foods which you should avoid altogether.

Lastly, asking for help from family members while trying to cope with night shift helps a great deal. All the members of the family together can come up with a routine and help the individual survive the night shift. This

way the individual also feels like a part of the family which helps him/her less miserable during the night shift and helps them keep their focus on work and reduce the chance of any psychological episodes.

Employers also play a very vital role in helping an employee coping with night shifts. There are various ways in which the employer can show their support:

1. Managers should help their employee's transition gradually from a day shift job into a night shift job. This gradual shift change gives time to the body to accept and adapt the changes gradually and not instantly without any notice. This helps the body in coping with night shift and in turn helps keep oneself mentally active during the wee hours.
2. The managers can also help the employee's by providing them the shift schedules well ahead in time. This way the employees can manage their work and life and find some balance causing reduction of psychological stress and social maladjustment.
3. Proper recreational activities or lounge should be available for the night shift employees like: a games room, or a TV room where an employee can keep in touch with the outside world. The employers can arrange some annual get together with families which will help the employees know each other better and also help them understand that they are not alone.
4. Employers should provide the minimum requirement like the cafeteria at night. The cafeteria should be well equipped and should encourage the employees to have a healthy meal in office.
5. 24 hours medical assistance and counsellors should be made available to the employees by the employers, such that in case of any assistance required or emergency they can approach and get help.

**Further scope of the research:** As per the research it can be concluded that employees may face a lot of psychological issues due to night shift. Further studies can be done on the impact on domains of psychological functioning and Cognitive Functioning. Qualitative research can also be done to understand how night shift can affect the psychological functioning of different age groups and if there is any difference based on the gender.

This research opens a wide arena of research scope for the employers and management's role in mitigating the night shift risks. Researchers can also focus on estimating the psychological changes that can take place with the increasing years of night shift.

### **CONCLUSION:**

Human brain is a very complex mechanism and there is infinite number of psychological issue that might occur. Again there is a possibility that nothing changes and the individual keeps working comfortably in night shift. It is very difficult to pin point on who will face what challenges. However, the above listed findings have been based on the studies that have taken place with respect to night shift and mental health of workers. Therefore, it can be concluded that long working hours, disrupting of circadian rhythm, poor social life and self-isolation can lead to numerous mental health conditions. However, it can be mitigated by following few simple life style changes, having a routine and by cutting a slack for oneself every now and then.

This paper has outlined the different psychological issues that an individual can face while working the night shift along with the ways by which it can be managed. Human psychology is a very wide subject and many of its aspects are yet to be tested against the night shift. Every individual is different hence night shift effects everyone in different way. Some may only face few hardships on the physical front, however few may not have any hardships at all due to the lifestyle and habits they follow. Psychological issues are very unpredictable and can show up anytime therefore, it is very necessary to have periodic health assessments. Not everyone can cope with night shift, as not everyone is built the same way. Some people's mind and body just cannot survive while doing the night shift these individuals should immediately consult with their Doctors and stop doing the night shift. Once diagnosed and treatment has started they can phase back to work. The employers can also help by changing their shift pattern.

Both employee and employer need to work hand in hand to lessen and decrease the psychological stress and social instability of an individual such that everyone's goal is achieved. The organization can has its work done on time and the employees can also perform without any loss or impact in health. Night shift comes with many disadvantages and risks which has negative impact on health. However there are ways in which it can be mitigated and reduced. In today's global economy night shift is becoming a necessity, hence people should learn how to cope and survive while working the night shift.

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## ANALYSIS OF COVID -19 IMPACT ON INDIAN ECONOMY

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**ABSTRACT**

*In this paper we describe the state of the Indian Economy in the pre- Covid-19 period, assess the potential impact of the shock on various segments of the economy, analyze the policies that have been announced so far by the central government and the Reserve Bank of India. Corona virus had its impact in the industry in general, which has seen not only reducing salaries but also the reducing manpower, their employees. The live events industry has also estimated a loss of more than Rs3000 crores. According to the survey, covid- 19 is having a deep impact on Indian economy, businesses, overcoming jobs, are at high risk because firms, industries are looking to reduce the manpower, because due to covid- 19 economy is deteriorating in last few weeks. Lockdown has put great stress on the supply chains of essential commodities, and therefore many of the Indian companies have focused on the production and supply of essential items only*

**INTRODUCTION**

Whole economy is facing the Covid- 19. Everything will change due to covid- 19 the big question is how the life will be post pandemic period. Everyone that is what fundamental changes will take place, how people will survive many more people have to struggle to make stand their business. Some may even die, but as with economic adversities of the past, new industries will emerge bringing with it renewed hope of recovery.

According to the survey, covid- 19 is having a deep impact on Indian economy, businesses, overcoming jobs, are at high risk because firms, industries are looking to reduce the manpower, because due to covid- 19 economy is deteriorating in last few weeks. The survey clearly highlights that unless the substantiate economic package is announced by the government immediately, we could see a permanent impairment of the a large section of industry which may lose the opportunity to come back to life again. Corona virus had its impact in the industry in general, which has seen not only reducing salaries but also the reducing manpower, their employees. The live events industry has also estimated a loss of more than Rs3000 crores.

Lockdown has put great stress on the supply chains of essential commodities, and therefore many of the Indian companies have focused on the production and supply of essential items only. **Likewise other sectors like agriculture being the primary sector and the tertiary sectors are also** not hidden from this impact. The lockdown have manifestly made farmers difficult to take their produce for sale in markets. Informal sector of India the backbone of this economy will be the hardest hit in view of economic activities coming to a total standstill.

**Global Epidemic-Pandemic Timeline :**

1. Great plague of London: 1665-1666 (Died more than 10,000-15% population of London)
2. Great plague of Marsille 1720-1723 Died more than 1 lakh -30% population of Marsille and surrounding
3. Russian Plauge: 1770-1772 (Empress Catherine-II, more than 1 lakh people may have died)
4. Philadelphia yellow fever epidemic 1793: (US Capital at that time, 5000 people had died)
5. Flu Pandemic :1889-1890 st-petersburg (Europe and rest of world despite the fact that air travel didn't expected million people killed)

**History of pandemics :**

As humans have spread across the world, so have infectious diseases. Even in this modern era, outbreaks are nearly constant though not every outbreak reaches pandemic level as covid- 19 has. Major channels of impact: There are three major channels of Indian business according to the report namely linkages, supply chain and macroeconomic factors. The data of Dun and Broad street shows that at least 6606 Indian entities have legal linkages with large number of confirmed covid- 19 cases and the business activity in the foreign markets slow down negative impact on the top line of these companies.

Further according to the world bank assessment India is expected to grow from 1.5% to 2.8%, and IMF projected a GDP growth of 1.9% for India in 2020 because the global economy is affected by covid19.

The government constituted an empowered group headed by economic secretary Atanu Chakraborty which is entrusted with the task of suggesting measures that can bring economy on track quickly post the lockdown.

**Problems facing Indian Economy:****1. Unemployment :**

In 2017, the official unemployment rate was just below 5%.

However, a report by the OECD found over 30% of people aged 15-29 in India are not employed.

**2. Poor educational standards:**

There is still levels of illiteracy amongst the population.

It is worse in rural areas and amongst women. Over 50% of Indian women are illiterate.

**3. Poor Infrastructure:**

Many Indian lack basic amenities, lack access to running water.

Indian public services are creaking by inefficiency.

Constraints and inefficiency facing the Indian economy.

**4. Business difficulties:**

-According to the world bank the ease of doing business in India is poor. India ranks 130/190.

-Big issues for companies include :

-Ease of enforcing contracts.

-Dealing with construction contracts.

-Paying taxes.

-Trading across border

**Relief and welfare measures:**

To minimize the effect caused by covid 19 outbreaks, the union finance and corporate affairs minister on 24/03/2020 announced several important relief measures taken by government of India, especially on Saturday a regulatory compliance matters related to several sectors. The central government amongst the others announced much needed relief measures in order of income tax, GST, customs and central exercise, corporate affairs, insolvency and bankruptcy code (IBC) Fisheries, Banking sectors and the commerce intended to boost the economy, relief to poor:

The government had announced relief package for poor people on 27/05/2020. Government announced a 1.7 lakh crore relief package aimed at providing a safety net for those hit the hardest by covid19 lockdown along with insurance cover for the front line personnel.

Direct measure announced by government under the package include fixed, direct benefit transfer, payment of salaries, etc. Today's benefit is directly received by the real beneficiary.

However indirect assistance by government, such as Reserve Bank of India loan accessibility measures, is not being extended directly to the beneficiary.

Recently Indian banks have deposited Rs 8.5 lakh crore in the central bank.

Thus, despite the declared amount being 10% of GDP, less than 5% of GDP is expected to reach people directly.

**Covid 19's impact on society :**

The covid -19 pandemic has overwhelmed the entire world, and India also has borne the brunt of the same. The spread was so colossal that the World Health Organisation (WHO) had to declare it as a pandemic. The only way to control and defeat this mammoth pandemic was to make people follow social distancing and also to restrain them from moving out to avoid social connect.

Business will experience an increase in productivity due to reduced staff. Remote work will see an uptick. The Burden on local transportation infra will ease. Fewer roads, less traffic and pollution. In coming days, months

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the digital medium for the central entertainment will emerge rapidly. The 3d 4d chat rooms, conference rooms also grow rapidly it's a golden period for media and entertainment.

**Our Strength:**

1. Low cost of living
2. Diversity
3. Demography
4. Well educated youth
5. Political stability
6. International Relations
7. Our culture

**CONCLUSION:**

This Corona Virus pandemic may wreck the Indian economy. The level of GDP may further fall itIt is believed that India is more vulnerable, since its economy has already been ailing and in a deep-seated slowdown for several quarters, much before the Covid 19 outbreak became known.

Now it's time to reset. We have to standstill, we have opportunity to rethink everything of the things are right we may be able to fix challenges that face mankind, environmental damage, inequality etc.

It is most important that we must ensure something like this never happens again. History says that the humankind has never learnt from history. Let's hope that it's a thing of past, and instead join hands whole heartedly to tackle the outcome of Covid-19.

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**IMPACT OF COVID 19 ON INDIAN BANKING SYSTEM – A REVIEW**

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**ABSTRACT**

*Chaos created by the world-wide pandemic COVID-19 toppled the complete economic status of almost each part of the world. This is the most tragic period human have seen. Even the most powerful country could not escape himself from the dangerous virus. Nation's economy has been very badly affected due to COVID 19 Pandemic. Central Bank of the nation has made few necessary changes in their policy to handle the financial crisis after taking opinion from experts. Indian Banking sector faced and continue to face many challenges such as liquidity issue, changes in REPO rate and few others changes to control the financial crisis. A good number of populations were mentally disturbed as few lost their job or there was cut in their income. The Central Bank of the nation decided to offer concession in paying EMI to their customer by increasing the period for re-payment. One of the objectives of the research paper is to study the changes bought by the Central Bank of nation in its policy due to COVID-19 and also how COVID-19 has impacted the Indian Banking Sector in general. The researcher also proposes solution to the Indian banking sector so that they can tackle the losses incurred due to the pandemic. On research it was founded that the banking sector of India has taken a good number of measures to over the difficult situation. There were banks that were facing issues such as poor recovery of loan, frauds by few customers, bad loans and such others and upon that COVID 19 have expedited the collapse of Indian Banking business. Banks are established with a view to make profit but COVID Pandemic has changed the entire scenario. Due to sudden lock down income of many people came to halt and the these challenges Indian banks again increased*

*Keyword: COVID 19, relief, financial crisis.*

**I. INTRODUCTION**

COVID 19 has created a great depression on the economy of the nation. Indian Banking system has constantly worked to minimize the effect due to COVID-19. The first case of corona virus disease was identified in Wuhan, the capital of Hubai China in December 2019 and later entire world got infected. On observing its infection and increase the rate of death, World Health Organization (WHO) declares as Pandemic on 11th March 2020. Corona virus has impacted India both socially and economically. As on August 25, 2021 confirmed cases of COVID 19 have been 3,25,12,366 out of that 4,36,365 death cases were declared by Government of India. Entire world went into recession due to this dangerous virus and impacted almost all the sectors.

Most of the people lost their job and were forced to remain unemployed for nearly six months. There was high stress on supply chain management. Government too lost its revenue. A sudden break has made life difficult. There was a huge change in buying patter of the consumer. Sectors like automobile, construction, aviation and hospitality was affected the most due to COVID 19 pandemic.

Indian Banking sector was also not spared from this Pandemic. Indian banks get outbreak due to novel Corona Virus. Money borrowers faced a big issue in repayment of loan due to slowdown in sales and decrease in profit. These borrowers were looking for some financial relief and Reserve Bank of India came out with good banking policies which were a great relief to the customer.

Considering the cause of spread of the infection few employees were asked to work from home in those department where remote work was possible. People now started using online payment method for their monetary transactions and on the advice of WTO handling bank notes were avoided as much as possible. One of the fine reforms which started in India due to Corona virus is banks are now anticipating this shift towards Digital Marketing. Now in India people rely on Online Banking transaction, Telephone Banking and such others.

Banks in India started working by dividing the people in shift or by calling them alternate days. At Bank level problem of Non Performing Asset has now increased. Indian Banking System converted from steady to negative due to constant disruption in economy activity caused by the COVID-19 pandemic and an decline in asset quality. From the research it was identified that quality of the asset continuously decreased. Reduced productivity and lockdowns have already started to take a toll on the financials of the commercial sector. Indian Banks faced number of challenges due to COVID -19 Pandemic. The total operating environment is negative due to uncertainty surrounding the harshness and long duration of the pandemic.

Considering the poor situation of the market, Reserve Bank of India framed the policy in the best possible way to handle the situation and gave guidelines to both public sector bank as well as private sector banks. The following are the few decisions taken by RBI to counter the impact of corona virus.

- 1) **Repo Rate** – RBI announced that it might cut the repo rate by 0.75 percent to 4.4 percent.
- 2) **Reverse Repo** – RBI also announced that it would cut the Reverse Repo rate by 0.90 percent. On an average, banks had been parking Rupees Three lakh crore with the RBI on a daily basis. The current reverse repo rate was 4 percent.
- 3) **Loan Moratorium** - In a huge relief to the middle class segment, the Governor of Reserve Bank of India announced that lenders could give a moratorium for a period of three months on term loans, which were outstanding as on March 1, 2020.
- 4) **CRR** – It was also announced that the Cash Reserve Ratio (CRR) would be reduced by one percent, to three percent. This would be applicable from March 28, 2020 and would inject Rs.1,37,000 crore in the economy.
- 5) **LTRO** – The RBI will also take on Long Term Repo Operations (LTRO) allowing further liquidity with the banks. The banks however are specified that this liquidity are becoming to be deployed in commercial papers, non-convertible debentures and investment grade corporate bonds
- 6) **Simplicity of Capital financing** – Banks were also allowed lending to recalculate drawing power by dipping margins and/or by reassessing the working capital cycle for the borrowers. The RBI also specified that such a move wouldn't end in asset classification.
- 7) **Working Capital Interest** – All lending institutions shall also be permitted to a three month interest moratorium. By this time bank already faced weak business and consumer confidence. Global risk aversion has hit the Indian Financial Market

## II. REVIEW OF LITERATURE

**Dr. Asif Perwej (2020)** in his paper states that COVID-19 pandemic could be one of the most serious challenges faced by the banking industry in nearly a century. This impact on banking will be severe fall in demand, lesser incomes, and production shutdowns and will adversely affect the trade of banks. The situation is exacerbated by shortage of manpower, insufficient digital maturity, and pressure on the existing infrastructure as firms were mess up to deal with the impact of COVID-19 on financial services. Borrowers and businesses face job losses, slowdown in sales and declining profits as the virus continued to spread around the world. Bank customers are likely to start looking for financial relief. A clear way that pandemics can impact financial systems is through their huge economic costs.

**Dr. Chanduji P. Thakor (2020)** states that cut in productivity and lockdowns have already started to take a toll on the financials of the business sector. Supply chain disruptions, manufacturing hindrances and poor health systems need a large public fund to continue operations smoothly. With economic growth poised to slow down, the International Monetary Fund (IMF) has cut India's GDP growth estimate to 1.9 per cent for 2020-21. The banking and financial sector, whose projection are tied closely to the financial system is bound to bear the impact. There could be a spike in bad loans as well. The slowdown could lead to possible job losses, which could cause pressure in bank's retail loan booking. Income from tourism, entertainment sectors and many others has already crippled the economic situation. All these factors are adding up to strain the global economy which might also have its repercussion in the near year. Asia-Pacific governments, central banks, and supervisory powers that be have rolled out diverse measures to address issues from COVID-19. These comprise liquidity injections, targeted loans to affected industries and regions, and policy rate cuts. It also includes support for banks to offer patience to otherwise economically viable households and businesses sideswiped by COVID-19.

**Vikas Kumar and Sanjeev Kumar (2021)** The COVID-19 outburst is an extraordinary shock to the Indian economy. It has affected almost all the sectors across the country. The economy was already not stable before COVID 19 outbreak and after the nationwide lockdown the economy is likely to face prolonged period of slowdown. The strength of the economic slowdown depends upon the nature and duration of the lockdown across the nation. With huge number of population and more dependence on the informal labor and haphazard banking practices has turned the economy into a troublesome situation. The damage to the economy is not as good as than the current estimates.

## III. OBJECTIVES OF THE STUDY

1. To study the Changes in RBI policy owing to COVID-19.

2. To study the impact of COVID-19 on Indian Banking Sector.
3. To find out solution for Indian Banking system to face COVID-19 Pandemic.

The research is based on the secondary data. For the purpose of research, data is collected from various sources such as Reserve Bank of India Website, Reserve Bank of India Manual, Guideline provided by RBI in their manuscript, books, internet, magazines and newspaper

#### **IV. INVESTMENTS / DEVELOPMENTS IN BANKING SECTOR**

The following are the Key investments and developments in the year 2021 in India's banking industry

- Google Pay for trade has allowed small merchants to access credit through tie-up with the digital lending platform for MSMEs, Flexi Loans.
- In response to the RBI's advisory message, the Digital Lenders' Association issued a revised code of conduct for digital lending.
- Number of bank accounts opened under the government's flagship Program financial inclusion 'Pradhan Mantri Jan Dhan Yojana' reached to 42.55 crore.
- WhatsApp started UPI payments service in the nation on receiving the National Payments Corporation of India (NPCI) sanction to 'Go Live' on UPI in a graded manner.
- HDFC Bank and Apollo Hospitals joined to launch the 'Healthy Life Programme', an overall healthcare solution that makes healthy living available and inexpensive on Apollo's digital platform.

#### **V. GOVERNMENT INITIATIVES**

- The Indian Government will disinvest IDBI Bank and privatize two public sector banks.
- The Indian Government projected fully automated GST refund module and an electronic invoice system that will remove the need for a separate e-way bill.

#### **VI. ACHIEVEMENTS**

**Following are the achievements of the Government:**

- In May 2021, UPI recorded 2.80 billion transactions worth Rs. 5.57 lakh crore
- In April 2021 According to the RBI, India's foreign exchange reserves reached US Dollar 582.41 billion
- To improve infrastructure in villages, 204,000 Point of Sale terminals have been authorized from the fund of Financial Inclusion by National Bank for Agriculture & Rural Development.

#### **VII. FINDINGS**

1. Government take initiative by announcing Rs. 1.7 trillion relief package for the underprivileged people that includes cash transfer and security of food
2. Financial Institution declare larger corporate help packages to the needy
3. Reserve Bank of India provide relaxation in Asset Classification Norms to both the public and private sector Banks.
4. Reserve Bank of India reduced REPO Rate by 90 BPS.
5. RBI Reduced further REPO Rate by 2-3 percent
6. Government introduces emergency measures for economic survival specially in the rural areas.
7. Indian government strengthening administrative machinery to competently distribute the benefit of welfare program.
8. Reserve Bank of India provide three month Moratorium period for paying term loans
9. Reserve Bank of India sustained REPO Rate reduction to near zero level.
10. Government increasing empowerment of local bodies for effective crisis management of crisis.
11. Government push priority sector by providing lending from banks.
12. RBI makes further infusion of domestic liquidity through dollars SWAPS LTRO

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**VIII. CONCLUSION**

The worldwide spreads of COVID have been disadvantaged. COVID has impacted every industry across the globe in recent months. As industries attempt to recover, there is a need for new planned initiatives and higher groundwork. Banks and other financial service sectors are facing quite a few challenges from the ongoing worldwide impact of COVID-19 pandemic. Banks must carry on influencing technology and building flexibility in their infrastructure to find the way for these challenges. Banking services in India are classified under the necessary services list. Financial Institution facilitates a positive healthy environment to the staff and re skilling of the employees on new processes for ways of working. They get better customer centric approach through digital channels. RBI frames the policy for ensuring trade continuity, connect in partnership to make the most of process and improve experience. Reprioritize sectors and customer segment based on growth and risk profile. As situation change due to COVID-19 pandemic government is motivating people to design new business model for the industrial environment. Focusing on build robust digital ecosystem leveraging latest technology.

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**INFORMATION AND COMMUNICATIONS TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT**

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**ABSTRACT**

*We discuss various views and conceptual frameworks put forward in the discussion of ICT and sustainable development: An optimistic and a pessimistic view of ICT with regard to sustainability, the three-pillar approach to sustainable development, the three-level approach to ICT impacts, the claim of human, social and ecological compatibility of ICT and the plain use of ICT for development. We show that each of these approaches has its problems and limitations and conclude with formulating the challenges of finding an analytical approach which will effectively support decision-makers in using ICT in the service of sustainable development.*

*Key words: Information and Communication Technology, Sustainable Development, Ethics, Technological Determinism, Life Cycle Assessment, Green ICT, Rebound Effect, ICT for Development.*

**INFORMATION AND COMMUNICATIONS TECHNOLOGY: HOW IT IS DEFINED**

Information and Communication Technologies (ICTs) is a broader term for Information Technology (IT), which refers to all communication technologies, including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking, and other media applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form.

**THE ETHICS OF SUSTAINABLE DEVELOPMENT AND THE ROLE OF ICT**

The most-cited definition of “Sustainable Development” was given by the World Commission on Environment and Development: In order to be considered sustainable, a pattern of development has to ensure “that it meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition, also known as the “Brundtland definition”, combines two ethical claims:

- intragenerational justice (meeting the needs of the present) and
- intergenerational justice (not compromising the ability of future generations to meet their own needs).

Given the physical and biological limits of our planet, this double claim is in fact an ethical dilemma because extending the present consumption patterns of the industrialized countries to all parts of the world would put a great burden on future generations. Escaping this dilemma requires a structural change of the economy that will deeply affect today's industrial patterns of production and consumption.

**THE LIMITS OF TECHNICAL SOLUTIONS TO SUSTAINABLE DEVELOPMENT**

Both views mentioned above – the optimistic and the pessimistic – suffer from the same problem: they are based on technological determinism insofar as they implicitly assume that ICT development cannot be controlled and the resulting impacts on society are a logical consequence of some “autonomous” technological development.

Technological determinism denies that the development and application of technologies are the result of human choice. In the context of ICT and “the information society” this basic assumption is particularly debilitating.

Consequently, using technologies influences needs, values, beliefs and other social realities that provide the context for the further development and application of technologies.

From this view of technologies as being embedded in societal development, it follows that solutions to the sustainability dilemma will not be technical solutions alone. As far as technology is involved – and ICT might play a crucial role there – it can only be instrumental as part of a more comprehensive approach, being embedded in organizational or institutional frameworks or in structures of governance.

**CONCEPTUAL FRAMEWORKS FOR ICT AND SUSTAINABLE DEVELOPMENT**

A conceptual framework for an analytical approach to the relationship between ICT and sustainable development first has to decompose the normative concept of sustainable development.

A very common idea is the so-called three-pillar or three-dimensional approach to sustainable development, decomposing the concept into an ecological, a social and an economic dimension. The role of ICT can then be analyzed along the following questions:

- Ecological dimension: What is the role of ICT in ecological (environmental) issues? How can we use ICT to increase our understanding of ecosystems and to reduce environmental burden (Environmental Informatics)? How can the environmental impact of production, use and disposal of ICT be reduced (Green ICT)?
- Social dimension: What is the role of ICT in social development? How can we use ICT to support (virtual) communities working towards the aim of sustainable development? How can social justice on a global scale be supported by ICT? How can we increase the contribution of ICT to long-term thinking and avoid short-sighted, technologically determined developments?
- Economic dimension: What is the role of ICT in the structural change of the economy from an industrial to a post-industrial mode? How can ICT contribute to a decoupling of economic growth from growth in resource consumption, to substitute virtual forms of production and consumption for energy-intensive processes, to dematerialize relevant parts of the economic system? And how can ICT help emerging economies to leapfrog into this mode without copying the unsustainable patterns of the industrial mode first?

### THREE LEVELS OF ICT EFFECTS

This approach focuses on applications of ICT and first asks in which way they influence the environment. The three levels cover environmental impacts ranging from the most direct effects (physical effects of using the hardware) to the most indirect effects such as the influence of ICT on economic structures and lifestyles:

- “First-order effects: Includes all environmental impacts resulting from ICT hardware during the product lifecycle, covering production, use, and disposal.”
- “Second-order effects: The use of ICT causes effects to other processes such as traffic or industrial production and influences their environmental impacts indirectly.”
- “Third-order effects: Owing to the assumed widespread use of ICT in everyday life, economic structures and lifestyles can change, indirectly affecting the expression of first- and second-order effects.”

The three-level approach is very common in research on environmental impacts of ICT, although it could in principle be generalized to effects on social systems, including the economic system. In fact, the concept of second-order effects presupposes some organizational context in which ICT is used, while third-order effects can only be assessed or explained in a societal context, including, for example, market dynamics.

### HUMAN, SOCIAL AND ECOLOGICAL COMPATIBILITY OF ICT

The German Informatics Society set up a working group named “Sustainable Information Society” to clarify the opportunities and risks of ICT for sustainable development one decade ago.

The approach taken by the working group has two essential features. Firstly, it builds upon the tree-level approach described in the previous section by redefining the levels as follows:

1. “effects of supply”: effects of the effort necessary to provide people with information and communications services, including the production of ICT hardware and software, supplying the energy and other resources to use ICT, and the end-of-life treatment of the hardware.
2. “effects of usage”: effects of services provided by ICT viewed in the restricted context of the application, such as substitution or optimization effects.
3. “systemic effects”: long-term effects that have to be taken into account, mainly because positive effects of usage may backfire in the economic system (rebound effects).

### ICT FOR DEVELOPMENT

ICT is seen as a vehicle to empower the poor and enable development in underdeveloped regions of the world. The overuse of natural resources is implicitly expected to be reduced, rather than, increased by economic growth in poor countries.

This approach has at least some arguments working in its favour, the first of them being the statistical fact that population growth is negatively correlated with the education of young women. If it is true that ICT can successfully be applied in educating the poor, ICT would then indeed contribute to sustainable development. Secondly, there are some impressive examples of leapfrogging into the information society, most of them centered around the role of the mobile phone, which is an essential infrastructure that can be built up without waiting for other industrial infrastructures, even without centralized and stable power grids.

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**CONCLUSION: CHALLENGES IN ICT AND SUSTAINABLE DEVELOPMENT**

We have shown that analysing the relationship between ICT and sustainable development poses a number of challenges:

- finding a meaningful decomposition of the concept of sustainable development to start with,
- finding a meaningful classification of ICT interactions with aspects of sustainable development,
- finding methods to quantify effects of the ICT life cycle, of ICT applications and the way ICT changes societal structures (including the economic system), and finally,
- embedding these analyses in an organizational or political context of decision making and in a societal discourse.

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**ENSEMBLE LEARNING OF AUDIO - VISUAL BASED EMOTIONS ON MULTI-MODAL ARCHITECTURE – A REVIEW**

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*Online medium of communication has made people understand or realize how difficult it is to understand the social signals of humans based on their non-verbal behavior. Complex behavioral patterns can be well analyzed by seeing the person face-to-face rather than online videos or actions. This curiosity of behavior patterns is well understood in a Multi-modal approach that has been and proven by many earlier studies. Using both audio and images to detect images is no easy or trivial task. A lot of research has been done on this topic to improve the prediction accuracy which introduced new architectures and methodologies. The area of reviews under study in this research is the well-defined architecture of a two-track ensemble based ResNet-LMTM architecture. The dataset used to predict is the Ryerson Audio-Visual Database of Emotional Speech and Song (RAVDESS) to train both the audio and visual track separately and then predict collectively using ensemble learning. Multi-modal architecture can produce very promising results which can allow us to use it as an application at many places without much computation power.*

*Index Terms-* ResNet, CNN, facial expression, audio, LSTM, ensemble learning.

**I. INTRODUCTION**

Emotions are present in all aspects of human life and can impact or even determine our judgement as well as reasoning [1]. Affective computing is a human's emotion stimulating through Artificial Emotional Intelligence. Affect recognition has been a key area of study of non-verbal behavior relating to the online mode of human interaction. Many areas of research has set foot to understand the mind set of the customers in business or students in online classes or among friends or near -and dear ones who are less communicating and silent. It is critical in any business to understand how customers truly feel about your brands and facilities, because this is what makes the difference [2]. In order to determine how our products are actually making our customers feel or whether they are truly serving the aim for which they were designed. Product reviews can be found in a variety of places, including social media, feedback forums, and any other internet platform. We can collect this type of information and use it to assess how does a consumer feel. Emotion recognition is required for such a purpose. We can make machines recognize emotions in a variety of ways. We can use audio and evaluate various aspects such as speech, tone, and so on, and we can also use facial gestures to anticipate the emotion. Human perception of the world involves a variety of modalities [3]. Face and speech have the greatest impact of any of these modalities. When we think of something, the thought which is being processed in our mind is first, and the emotion of that thought is first expressed on our face, so by assessing the emotion from the face during a mental process, we can determine the emotion of what the person could be thinking and anticipate what the person might well say next in real time. We can use the audio modality after we have examined the facial expression.

**2. METHODOLOGY**

The research paper implemented is two fold : The intital part of the paper reviews modelling temporal dynamics that measures signals of non verbal behaviour across both spatial and temporal behaviour. Spatial feature representations: concerns learning features from individual images or very short image sequences, or from short periods of audio. Temporal feature representations: where sequences of audio or image inputs serve as the model's input. This created a spark of interest in developing this area of research.

Six Categorical models with discrete values are used for representing emotions, for example, Ekman proposed a model with 6 discrete emotions: Anger, Disgust, Fear, Happiness, Sadness and Surprise.

In this, we can assess the speech to see what the person is saying. Sentiment analysis on the speech can provide us with strong suggestions for the emotion. The tone of voice also conveys important information about the emotion of what is being said. Multi-modal emotion recognition is one of several applications of emotion recognition. A multi-modal approach to emotion recognition is presented in this paper. This architecture is made up of two tracks: one audio track and one visual track. They both will train collectively using an ensemble method.

The Dataset used is the Ryerson Audio-Visual Database of Emotional Speech and Song (RAVDESS) that has two lexically-matched statements with speech that includes calm, happy, sad, angry, fearful, surprise, and

disgust expressions, also a song contains calm, happy, sad, angry, and fearful emotions. Each expression is produced at two levels of emotional intensity (normal, strong), with an additional neutral expression.

```

1  def train_model(model, criterion, optimizer, scheduler, num_epochs=25):
2      since = time.time()
3
4
5
6      for epoch in range(num_epochs):
7          print('Epoch {}/{}'.format(epoch, num_epochs - 1))
8          print('*' * 15)
9
10
11         for phase in ['train', 'val']:
12             if phase == 'train':
13                 model.train()
14             else:
15                 model.eval()
16
17             running_loss = 0.0
18             running_corrects = 0
19
20
21             for inputs, labels in dataloaders[phase]:
22                 inputs = inputs.to(device)
23                 labels = labels.to(device)
24
25
26                 optimizer.zero_grad()
27
28
29                 with torch.set_grad_enabled(phase == 'train'):
30                     outputs = model(inputs)
31                     preds = torch.max(outputs, 1)
32                     loss = criterion(outputs, labels)
33
34                     if phase == 'train':
35                         loss.backward()
36                         optimizer.step()
37
38                 running_loss += loss.item() * inputs.size(0)
39                 running_corrects += torch.sum(preds == labels.data)
40             if phase == 'train':
41                 scheduler.step()
42
43             epoch_loss = running_loss / dataset_sizes[phase]
44             epoch_acc = running_corrects.double() / dataset_sizes[phase]
45
46             print('{} Loss: {:.4f} Acc: {:.4f}'.format(
47                 phase, epoch_loss, epoch_acc))
48
49         print()
50
51         time_elapsed = time.time() - since
52         print(f'Training complete in {time_elapsed // 60:.0f}m {time_elapsed % 60:.0f}s')
53
54     return model

```

For both audio and visual ResNet-LSTM [7,13] network will be used. Both tracks will be discussed in detail in their respective audio and visual tracks, and the overall architecture will be discussed in a separate section. The remainder of the paper is arranged as follows: section 2 is an audio track, section 3 is a visual track, section 4 is a multi-modal architecture, and section 5 is a conclusion.

## II. Audio Track

Traditionally, machine learning (ML) models for speech emotion recognition (SER) were built using hand-crafted and engineered features such as mel-frequency cepstral coefficients (MFCC), Chroma-based features, pitch, energy, entropy, and zero-crossing rate [4, 5, 6], to name a few. We can fine tune a resnet 18 model to find hyperparameter which can be used to get very high accuracy, if we use similar spectrogram settings we can reach even high settings [10]. We can combine ResNet [7] and LSTM [13] to get an even better accuracy. The ResNet [7] here gives us the abstraction of the inputs which we are getting and that we can use to pass to the LSTM [8] which is a sequence. Because there might be lags of undetermined duration between critical occurrences in a time series, LSTM networks are well-suited to categorising, processing, and making predictions based on time series data.

LSTMs were created to solve the problem of vanishing gradients that can occur when training traditional RNNs.

In many cases, LSTM has an advantage over RNNs, hidden Markov models, and other sequence learning approaches due to its relative insensitivity to gap length [11]. Figure 1. Describes the audio track which we are have proposed.

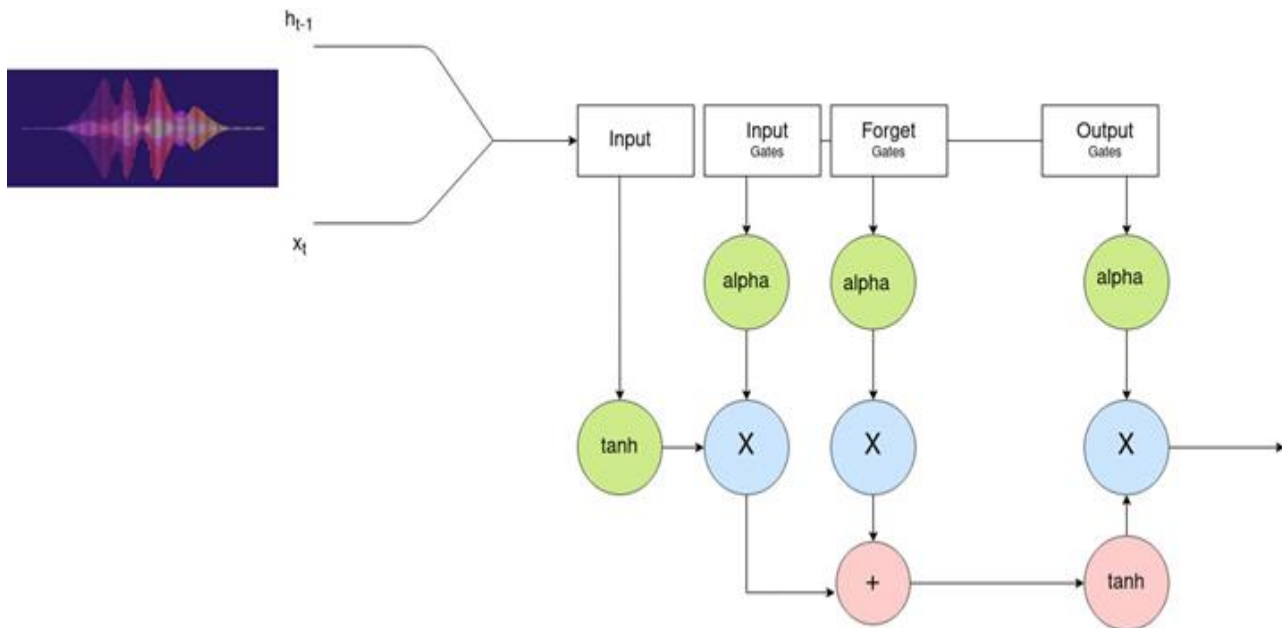


Figure 1. Audio track with MFCC features

### III. Visual Track

We can use CNN [12] to capture the facial features, These facial features can be use to classify the expressions. Now for this architecture we could have gone for CNN but, when classifying facial emotions we cannot have a plane face every time, there will be a lot of noise, like people turning their heads , dim lighting and so on. This problem can be solved using a ResNet 18 model. With the help of ResNet 18 we can go deeper within the layers and can classify features with great abstraction. This will help us capturing a lot facial data, which can be helpful. The data which should be used with this should contain images with different kinds of noise so that it can adapt to those noise, that's the main purpose of the ResNet. To fully preserve the information from the discrete signals, a Sequence Aggregation Component (SAC), such as a Long Short Term Memory (LSTM) or a Transformer [14], is required to process the retrieved features further. Finally, the integrated characteristics are classified using a classifier such as a Support Vector Machine (SVM) or a neural dense layer [15]. Figure 2 shows the architecture for visual track.

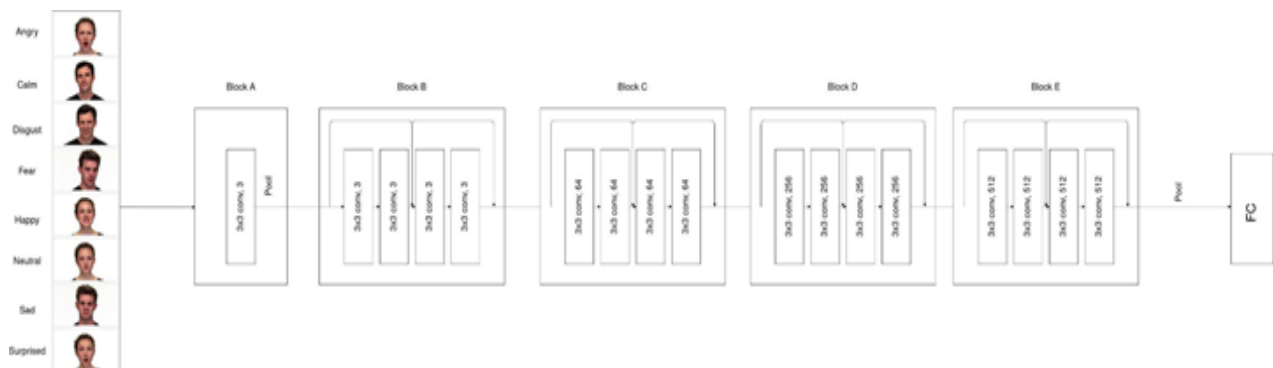


Figure 2. Video with ResNet Model

### IV. Multi-Model Architecture

In this architecture we are going to use two ensemble learning [16] to predict the results collectively. Ensemble methods in statistics and machine learning combine many learning algorithms to achieve greater prediction performance than most of the machine learning algorithms. A machine learning ensemble, unlike a statistical ensemble in statistical mechanics, consists of only a specific limited collection of different models, but typically allows for considerably more flexible structure to exist within those alternatives [16]. When there is a lot of variability among the models, ensembles tend to produce better outcomes [17 18]. As a result, several ensemble approaches aim to create diversity among the models they combine [19 20]. More random algorithms (like random decision trees) can yield a stronger ensemble than extremely purposeful algorithms, which may seem counterintuitive (like entropy-reducing decision trees) [20]. However, it has been proven that applying a range

of strong learning algorithms is more beneficial than using strategies that aim to dumb down models in order to foster diversity [21].

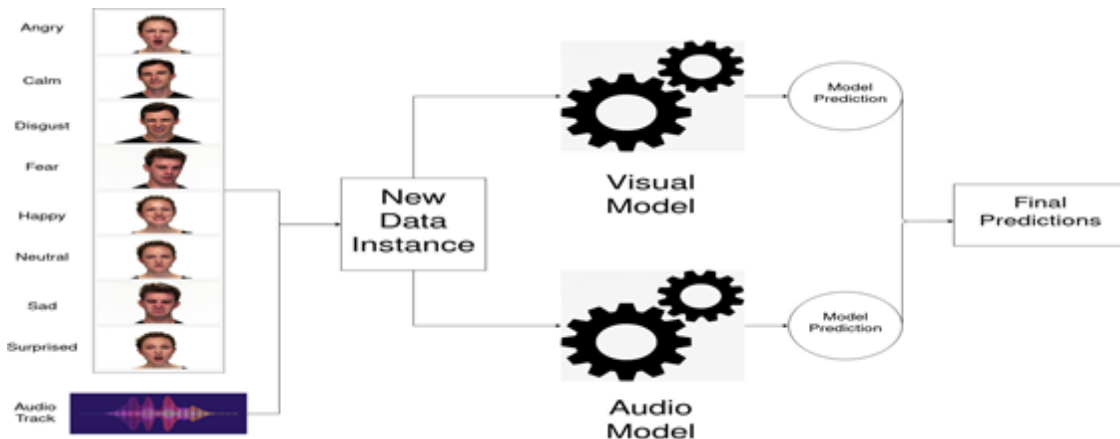


Figure 3 show the multi-modal architecture.

### APPLICATION OF AUDIO - VISUAL BASED EMOTIONS ON ENSEMBLE LEARNING

The ensemble Audio -visual based emotions framework provides blended learning as both emotions with speech and face expressions are recognized and studied that can improve the recognition performance of the above model. The research in this model had classified and trained each individual dataset separately from the videos each frame by frame and speaker independence.

The different domains that can be benefitted are briefly the student community where *Personality prediction* of a person can be deeply and indepth identified. The placement companies or online recruiters can be judged easily on this domain. *Virtual Education* oriented to virtual learning environments, if there are a large number of students that needs to be assessed, based on the scalability level to lightweight models can give good results.

### RESULTS AND DISCUSSION

The results under study based on this Deep Learning Model to train the model has been efficient enough understand the network that will be proposed in the future scope of this review paper. The Loss efficiency has been upto a maximum of high accuracy forboth Audio and Video as mentioned in our proposed Emsemble learning models.

Module	Dataset	Accuracy (Neural networks)	Accuracy_ Ensemble Learning
<b>Audio</b>	RAVDESS	<b>70%</b>	<b>88%</b>
<b>Video</b>	RAVDESS	<b>65%</b>	<b>71%</b>

```

... Epoch 0/2
*****
train Loss: 1.5124 Acc: 0.4106
val Loss: 0.5583 Acc: 0.8014

Epoch 1/2
*****
train Loss: 0.9431 Acc: 0.6507
val Loss: 0.3986 Acc: 0.8610

Epoch 2/2
*****
train Loss: 0.7573 Acc: 0.7138
val Loss: 0.3008 Acc: 0.8865

Training complete in 16m 42s

```

### CONCLUSIONS

With this approach we can leverage the power and accuracy of both the modalities that is audio and visual. As in this architecture both the tracks are running separately there will be a lot less computation power required and even after that we are using ensemble learning which is very light weight than other types of methodologies which implement combined loss functions. All together we can implement this model and can achieve great accuracy with much need of high computation powers.

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**CORPORATE SOCIAL RESPONSIBILITY: A TOOL FOR SUSTAINABLE DEVELOPMENT**

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*Corporate Social Responsibility (CSR) is an effective and indispensable tool for the sustainable development in India. Corporate Social Responsibility is a mandatory provision given in the Indian Companies Act, 2013. Corporate Social Responsibility can play important role in framing and implementing Environmental, Economic, Social and Socio-cultural policy by the Government. Under the present study researcher has tried to explain how CSR is an effective tool for sustainable development. Since we know that CSR provisions are mandatory to the companies/ corporates and organizations who are eligible as per the Indian Companies Act, 2013. Under the present study researcher has made extensive study on the contributions made by the companies/corporates on the CSR in different sectors which are allowed by the Indian Companies Act, 2013. Researcher has considered top 5 (five) companies/corporates as a sample for the study. After extensive study and analysis of the contributions of sampled corporates, conclusions have been drawn and presented in the study. It is found that the sampled companies have contributed significantly for the sustainable development by contributing for environment, society and many other sectors which are responsible for sustainable development. Under the study researcher has done descriptive and analytical study of the sampled companies/corporates to accomplish the objectives of the study. This study will be helpful to social strategist to have strong, effective and workable policy for the sustainable development.*

**Keywords:** Corporate Social Responsibility, Sustainable Development, Social Policy

**1. INTRODUCTION:**

Sustainable Development Goals are expected to be achieved by all the countries. India is trying their best to achieve in the accomplishment of SDG's. India frame its social policy to achieve SDG's. Under Indian Companies Act, 2013 Corporate Social Responsibility (CSR) has made mandatory provisions for selected companies. Under the provisions of companies Act, sectors are given in which eligible companies have to contribute for CSR activities. Sectors covered under the CSR provisions are social, environment, health, education, energy, pollution control, women empowerment, social equality, social discrimination etc. With the help of CSR contribution country can achieve SDG's in limited time frame. Therefore, SDG act as tool for sustainable development. In the present study researcher has tried to explain the statement " CSR IS A TOOL FOR SUSTAINABLE DEVELOPMENT". In order to prove the given statement researcher has taken sample of top 5 companies and their contribution in specific CSR sector on the basis of amount of expenditure. Researcher has tried to explain by the data related to amount of spending by corporates during the year 2014-15 to the year 2019-20. CSR can be act as a tool for sustainable development only if concern government has write policy to implement CSR on corporates. In India to implement CSR on corporates Government of India has made mandatory provision under the Indian Companies Act 2013. Under the CSR provision in Companies Act 2013 detailed provision about eligibility of the corporates amount of CSR to be contributed and the area or sectors in which corporates can go for making CSR expenditure has been given. Under the present study research has seen and find out that contribution to CSR activities is increasing year by year which shows that we are moving towards sustainable development achievement.

**2. REVIEW OF LITERATURE:**

**Hortensia Gorski, Mircea Fuciu, Natalia Croitor**, under this research paper researcher has identified how CSR spending are organized and planned in study area. in order to collect data questionnaire has been used and collected data are analyzed through SPSS. Studies shown that CSR programme are not understood clearly by the organizations where it is implemented. **Daniela Ebner**, under the study Clusters have been acknowledged which expect to clarify whether CSR associates with the social dimension of Sustainable development and the model of the triple-bottom-line; whether Corporate Social Responsibility signifies Sustainable Development on a corporate level; whether SD and CSR are used synonymously; or whether articles exist which emphasis especially on the social aspect of Sustainable Development but do not use terms such as CSR. An outline is obtainable in which the association between SD and CSR is defined to ease further research in SD and CSR, additionally, to augment the development of new methodologies and instruments in the direction of the execution of SD / CSR strategies into companies. **Sonia Riyat**, the study focuses on the significance of CSR for sustainable development. Sustainability Development has come to be the most imperative area of concern

for the world. UN MDG and Vision 2050 etc. are primarily presenting the concern for a safe prospect of human life. Corporate Social Responsibility (CSR) is an indispensable tool that imposes a corporation to pay attention in the direction of all the elements of the environment. By paying serious thoughtfulness towards CSR the companies can contribute in accomplishing the objectives of sustainability to a great extent. **Karoly Behringer**, the study is observing that how the theory of Sustainable Development and that of Corporate Social Responsibility are associated, by means of what method the two theories came near to each other and why is it that Corporate Social Responsibility is well thought-out to be the corporate concept of Sustainable Development. The main aims of this study are: to give a synthesized approach to both of Sustainable Development and Corporate Social Responsibility concepts, to find the relationship between Sustainable Development and Corporate Social Responsibility based on the content analysis of the main milestones of Sustainable Development process, and to highlight some practical relevance of the relationship of the two concepts which can be a basis of further empirical researches. **Víctor Meseguer-Sánchez**, in view of the existence of inadequate opportunities and access to resources in a global economy, researcher has studied the interrelations amongst the concepts of Sustainability and Corporate Social Responsibility (CSR). From global perspective, the study aims to investigate the associations between the concepts of Corporate Social Responsibility and Sustainability in order to understand the developments of current scientific production and prospect lines of research. **Ewa Stawicka**, the purpose of this research paper is to present a research model that scrutinizes dependencies of how aspects of corporate social responsibility (CSR) effect the building of a sustainable development model in enterprises. The collected data was analyzed by modeling the partial least squares structural equations using the least squares method. The results exhibited that all three constructs (CSR-communication with stakeholders, CSR-knowledge management, CSR-strategy) were positively and strongly associated with sustainable development model building in enterprises.

### 3. OBJECTIVES OF THE STUDY:

- a) To Study role of Corporate Social Responsibility in framing social policy for Sustainable Development.
- b) To Analyze contributions made by corporates as CSR in different sectors.
- c) To suggest measures to have effective social policy for the economy.

### 4. RESEARCH METHODOLOGY AND DATA ANALYSIS:

#### 4.1 Research Methodology:

Researcher has done extensive research on the CSR expenditure made by the corporates in different sectors which helps country for achieving sustainable goals. In order to do study on the topic researcher has taken top 5 companies who have made contribution in Health, Eradicating Hunger, Poverty and Malnutrition, Safe Drinking Water, Sanitation, Environment, Animal Welfare, Conservation of Resources. Top 5 companies on the basis of CSR spending has been analyzed under the study from the year 2014-15 to 2019-20 (6 years). Data for the purpose of study has been taken from the website of India CSR Portal ([csr.gov.in](http://csr.gov.in)). Sustainable Development has many elements and in order to analyze the contribution to these elements of sustainable growth and development researcher has analyzed the total amount spent by the corporates during the study period i.e. 2014-15 to 2019-20. In next subsection of this section data has been analyzed through statistical tool like, mean, percentages, graphs etc.

#### 4.2 Data Analysis:

##### Interpretations of Table no.01,02 and 03

- a) In the above table no.01 CSR spending by top 5 corporate houses has been given from the year 2014-15 to 2019-20.
- b) Under the study sectors are considered where CSR contribution has been made by corporates are Health, Eradicating Hunger, Poverty and Malnutrition, Safe Drinking Water, Sanitation, Environment, Animal Welfare and Conservation of Resources.
- c) Table no.02 shows comparative analysis of CSR spending by top 5 corporates by considering base year as 2014-15.
- d) Comparative analysis shows that Health sector shows that there is positive increase in the year 2015-16 and 2019-20 whereas from the year 2016-17 to 2018-19 it is in decreasing trend.
- e) Comparative analysis shows that Environment sector shows that there is negative increase from the year 2016-17 to 2018-19 whereas in the year 2015-16 and 2019-20 it is in increasing trend.

- f) Table no.03 depicts Percentages of CSR expenditure in selected sectors by top 5 Corporates during the study period.
- g) Table no.03 clearly shows that CSR spending in health sector is more than in environment from the year 2014-15 to 2019-20.

Table No.01 CSR spending in selected sectors by top 5 corporates

CSR spending by top 5 companies (Amount Spent in INR Lakh)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Health, Eradicating Hunger, Poverty And Malnutrition, Safe Drinking Water , Sanitation	89,139	119725	68122	62084	85717	111548	5,36,335
Environment, Animal Welfare, Conservation Of Resources	45433	29308	46157	54509	46367	43227	265001
<b>Total</b>	<b>1,34,572</b>	<b>149033</b>	<b>114279</b>	<b>116593</b>	<b>132085</b>	<b>154775</b>	<b>8,01,337</b>

Table No.02 Comparative Analysis of CSR spending in selected sector by top 5 corporates (Base Year: 2014-15)

CSR spending by top 5 companies (Amount Spent in INR Lakh)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Health, Eradicating Hunger, Poverty And Malnutrition, Safe Drinking Water , Sanitation	100	34%	-24%	-30%	-4%	25%
Environment, Animal Welfare, Conservation Of Resources	100	-35%	2%	20%	2%	-5%
<b>Total</b>	<b>100</b>	<b>11%</b>	<b>-15%</b>	<b>-13%</b>	<b>-2%</b>	<b>15%</b>

Table No.03 Percentages of CSR expenditure in selected sectors by top 5 Corporates

CSR spending by top 5 companies (Amount Spent in INR Lakh)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Health, Eradicating Hunger, Poverty And Malnutrition, Safe Drinking Water , Sanitation	66.24	80.33	59.61	53.25	64.90	72.07	66.93
Environment, Animal Welfare, Conservation Of Resources	33.76	19.67	40.39	46.75	35.10	27.93	33.07
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

## 5. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS:

### 5.1 Findings:

Under the present study researcher has analyzed the data collected from India CSR portal which comes under the Government of India. The data has been extensively analyzed by the researcher. Comparison is done between the years 2014-15 to the year 2019-20. During the study period that is 6 years it has been seen that corporate and many companies are contributing in different sectors of CSR their amount of spending goes on

increasing year by year. The total amount of spending on CSR activities from the year 2014-15 to the year 2019-20 has been increased which shows that there is no investment on CSR activities due to which the area under CSR activities like rural development education social inequality reduction in pollution social discrimination and many other needy area gets enough funds by which problems get solved. It is found that after detailed analysis that there are many corporates who are more interested to have more CSR spending because they feel that they are also having some social obligation apart from their business obligation. Since many corporates are coming under the purview of CSR provision of Indian Companies Act 2013 and due to stick control over these provisions of CSR Indian government is finding their policy as a successful policy for sustainable development of the country. Following are the gist of findings from the detailed analysis off the data covered under the study

### **5.2. Conclusions:**

It is concluded from the study that Corporate Social Responsibility is an indispensable tool for sustainable development. CSR helps economy in achieving SDG's and make the life easy and comfortable of the people of the country. It is also concluded that corporates are also trying to contribute more amount of money in social sector of the economy by way of CSR provisions.

### **5.3. Recommendations:**

From the study it is recommended that government and concerned authority has to consider CSR provisions while framing any kind of social policy for the development of country. Framing of workable strategies and effective implementation of strategies require proper attention by the strategist/government.

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**ENVIRONMENTAL SUSTAINABILITY - FOR A BETTER TOMORROW**

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**ABSTRACT**

*The moment has come to question ourselves, "Are we going to leave our descendants a burned earth of expanding deserts, destroyed landscapes, and sick environment?" If we want to reverse the havoc that we have caused to this planet, we must adhere to the principles of sustainable development.*

*The purpose of this article is to highlight several concerns of environmental sustainability. Furthermore, the researcher has succinctly highlighted a few actions imposed by the government to address environmental issues, along with practises that the common individual may adopt to preserve the environment and leave a better world to future generations.*

**KEYWORDS:** *Sustainable Development, Sustainability, Environmental Sustainability, Global Warming, Government Initiatives.*

**Information Sources:** *A comprehensive study of the literature on the subject and similar topics has been conducted. Secondary data was gathered for study purpose from a number of sources, including books, published papers, newspapers, journals, websites, blogs, and articles.*

**INTRODUCTION:**

What truly is sustainability? How has this issue acquired popularity in the last several years?

The concepts Sustainable and Sustainability are used to indicate a broad set of aspects for enhancing our living. It's about having what we really need to exist right now. Sustainability is a rigorous practice that takes into account ecological, social, and economic elements, realizing that all must be addressed together in order to have long success.

In recent years, there has been a surge of interest in the issue of sustainability. It has evolved as a result of society's concern for the economy and the environment. We are currently witnessing global warming, ozone depletion, and the greenhouse effect in our generation, and we must avoid it since we will be the ones who suffer because of these problems. Therefore, we should begin to tackle these concerns by reducing our use of natural resources or substituting them so that the coming generations has a resource to enjoy.

**Sustainability is comprised of three pillars: social, environmental, and economic.**

The environmental sustainability aspect is the most crucial of the three. If this is not fixed, regardless of how hard we strive, the other pillars cannot be strengthened since they are dependent on the larger system wherein, they survive, the environment.

Environmental protection, funding in green energy, water management, support for sustainable transportation, also innovation in smart construction and architecture together contribute to environmental sustainability on multiple fronts.

**Global Sustainable Development Goals (SDGs)**

The Sustainable Development Goals (SDGs) have built the 2030 agenda to secure well-being, economic progress, and protection of the environment. It puts forth a roadmap for people and the globe to live in peace and prosperity both now and in the future. The agenda urges for all member nations to take immediate action in order to attain all 17 goals (169 targets, 304 indicators, 93 of which are environment linked) by 2030.

The following goals elaborate the environmental aspects of sustainable development:

- SDG 6. Clean Water and Sanitation
- SDG 7. Affordable and Clean Energy
- SDG 11. Sustainable Cities and Communities
- SDG 12. Responsible Consumption and Production
- SDG 13. Climate Action
- SDG 14. Life Below Water
- SDG 15. Life on Land

The 17 SDGs came into effect by January 1, 2016. Though not legally obligatory, the SDGs have become genuine global responsibilities that have the ability to refocus governments' budget priorities in the next fifteen years. Countries are needed to take leadership of the Goals and create a global framework for accomplishing them.

### SDG Index India

The NITI Aayog launched its index in 2018 to track the country's progress towards achieving the SDG's goals, by employing data-driven assessments and to cultivate a spirit of competition among states and union territories in accomplishing them. The SDG India Index intends to provide a holistic overview of the country's social, economic, and environmental situation, of its states and union territories. The index is determined in coordination with the United Nations in India. It examines the development of all states and UTs on 115 indicators linked with the Ministry of Statistics and Programme Implementation's National Indicator Framework (NIF). It has also encouraged competitiveness among states and UTs by categorizing them based on universal goals. The SDG India Index values range from 0 to 100; the higher the score of state/UT's the closer it is to achieving the goal.

Based on their Index value, states and UTs are categorised:

Aspirant: 0–49.

Performer: 50–64.

Front-runner: 65–99.

Achiever: 100.

As of now, there are no states in the aspirant and achiever category.

### The most burning question for India today is... Development or Environment?

The climate tragedy is expanding at an astonishing pace, and we are unprepared. The underlying conditions emphasise the critical need for urgent action.

### High Temperature

Increased **greenhouse gas emissions** have caused temperatures to rise, giving upsurge in extreme events all over the world - Australia experienced one of the most devastating forest fires on record, an extreme heat in Antarctica that saw temperatures rise above 20°C. for the first time, growing deforestation in the Amazon rainforest, alerts of air pollution intensifying the spread of COVID-19 and these are only a few of the events.

The Arctic is warming twice as quickly as the rest of the world. The Greenland Ice Sheet offers the biggest threat to sea levels in the Arctic because melting ice mass is the key cause of increasing sea levels. Those who live in coastal areas will suffer greatly as **sea levels rise**, causing people to relocate to safer locations also adding to overpopulation and resource pressure in the areas they migrate to.

The spike in atmospheric heat has already seemed to have an impact on the land, and it's also the main factor of **ocean acidification**. Our oceans consume nearly 30% of the CO<sub>2</sub> emitted into the Earth's atmosphere. Acidification of the oceans can have a knock-on effect on marine ecosystems and biodiversity, along with food webs and habitat quality.

### Polluted Air & Impure Water

According to World Health Organization (WHO) research, air pollution killed nearly 4.2 to 7 million people globally yearly, and 90 percent of people breathe polluted air.

Air pollution is mostly caused by industrial emissions and automobiles, as well as pollutants from burning biomass and low air quality triggered by dust storms. Initial research has found a link between COVID-19-related deaths and air pollution, as well as a possible link between airborne particles and viral transmission.

Every year, more than 68 billion tonnes of **topsoil are eroded** nationwide. The soil (contaminated with biocides and fertiliser) finds up in streams, polluting freshwater and nature reserves below.

### Wrecked Land & flawed Agricultural Practices

Land degradation is an issue that affects not just soil quality but also the whole ecosystem, encompassing biodiversity, ecosystem functioning, even impacting food costs, and compelled migrations - harming all living forms. Climatic volatility is a vital contributor to farmland degradation and diminishes the yield and quality of farm areas.

Agricultural practises have been getting better since the Industrial Revolution, and much more so since the "green revolution." Many of the methods and innovations used by farmers to increase productivity are also harmful to the environment. Irrigation, livestock grazing, chemical fertiliser, and other practises are adding to the sustainability issues. Agriculture is the primary source of deforestation, which is yet another most serious environmental issue.

### **Plastic Poisons**

According to research published in the science journal Nature, around 11 million tonnes of plastic enter the oceans each year, damaging natural habitats and the species that dwell in them. According to the study, if nothing is done, the plastic issue would rise to 29 million metric tonnes per year by 2040. Strangely, National Geographic discovered that 91 percent of all plastic ever produced is not recycled, posing one of the most serious environmental issues of our era. Plastic takes 400 years to degrade, therefore it will be several generations before it is no longer present.

### **Population Power & Landfills**

Human population growth is one of the most challenging environmental issues, silently amplifying the factors driving rising temperatures, pollution, loss of habitat, rigorous farming techniques, and the swift consumption of limited natural resources such as fresh water, cropland, and fossil fuels.

Our environment has suffered greatly of the trash produced by us. Humans are producing an excessive amount of waste that is not decomposable and cannot be effectively recycled, which is overflowing our seas and landfills. Methane gas is released when garbage is deposited in landfills. Large, open heaps of waste burned in many areas of the world produce alarming quantities of carbon dioxide, a greenhouse gas that is warming our planet.

### **India has put words into action on Climate Change Commitments...**

On the day of the fifth year of the Paris Climate Agreement, environment minister Prakash Javadekar stated that although India has not typically been accused for climate change, the government is taking efforts to decrease emissions as a responsible country.

In word & deed, India is among the few countries that has met 21 percent of its commitment to cut GDP emissions intensity by 33-35 percent by 2030. Second, with 38% of non-fossil fuel capacity, India is only 2% behind of its 2030 objective of 40% installed non-fossil fuel power capacity. Furthermore, it is working hard to attain 2.5 to 3 billion tonnes of CO<sub>2</sub>-equivalent Forest cover by 2030.

### **The following are the key initiatives carried out by the government to deal with climate change:**

**International Solar Alliance (ISA):** The International Solar Alliance (ISA) is a multinational alliance founded and centred in India, with France as a partner country. Its objective is to foster research to create more efficient, low-cost solutions to the world's energy needs by utilising modern technologies, as well as to provide subsidies and govern solar power. Initially, its affiliation was limited to nations located in the tropics, often known as countries with significant solar resources. However, this has now been offered to all UN members.

### **Pradhan Mantri Ujjwala Yojana**

The Ministry of Petroleum and Natural Gas (MOPNG) inaugurated the Pradhan Mantri Ujjwala Yojana (PMUY) in May 2016 as a flagship scheme with the motive of achieving clean cooking fuel such as LPG accessible to rural and disadvantaged homes which were historically using traditional cooking fuel sources such as wood fuel, coal, cow-dung cakes, and so on. Traditional cooking fuels have a negative influence on both rural female's health and the environment.

As of 22nd August 2021, the total number of connections released under the Pradhan Mantri Ujjwala Yojana was 80,699,686.

### **ECO Niwas Samhita**

The Ministry of Power has announced the Energy Conservation-New Indian Way for Sustainable and Economically Homes (ECO Niwas) Samhita 2018, an Energy Conservation Building Code for Residential Buildings.

Rapid urbanisation in India is generating enormous demand for buildings, which currently account for almost 35% of overall power use in the country. As a result, the German and Indian governments have agreed to promote energy efficiency in India's fast developing economy in order to conserve energy and better the status of the environment. Incorporating sustainability in construction provides a chance to massively cut energy use while also saving money for upcoming generations.

**Unnat Jyoti by Affordable LEDs for All (UJALA)**

The government established UJALA, a zero-subsidy initiative, in 2015. Its goal is to encourage the effective use of energy for everyone, including usage, savings, and lighting. Under the Scheme, any domestic family with a metered connection from their individual Electricity Distribution Company is entitled to receive LED lights.

As of 30th August 2021, the total number of LEDs provided was 36,77,89,622.

**The National Electric Mobility Mission Plan 2020**

Its mission is to deliver national fuel security by encouraging hybrid and electric cars in the country while also reducing emissions from vehicles that operate on hydrocarbons. It plans to sell 6-7 million hybrid and electric vehicles per year beginning in 2020.

Total number of vehicles sold as of now (30th August 2021) is 1,08,506.

**National Green Highways Mission (NGHM)**

The policy's goal is to grow trees along the national highway by designating a 1% project cost. This green space would indeed serve as a green muffler for noise pollution, a CO<sub>2</sub> storage facility, and a source of income for towns near roads.

So far, almost 5,000 kilometres of avenue plantation work ₹ 650 crore has been completed.

Independently thereof, the government instituted **financial mechanisms** such as:

The **Polluter Pays Principle** states, a person or a corporation must pay for the harm done to the environment and the community as a consequence.

**Carbon tax:** a tax levied on users of fossil fuels such as coal.

The Bureau of Energy Efficiency (BEE) of India has established the '**Perform, Achieve, and Trade**' (PAT) initiative. The programme has established energy efficiency targets for industries; those that fail to meet these targets will face penalties.

**INDIA - A striking example of Sustainability.**

India is a country rich in differences and uniqueness. India is home to one-sixth of the world's population and has the highest population density. Sustainability is a difficulty due to the immense size and quick expansion. Despite these problems, India remains one of the least wasteful nations on the planet. Indian culture has long prioritised sustainability. Its ideology and principles have emphasised the need of living a sustainable lifestyle. For example, the yogic idea of "**Aparigraha**", which means holding just what is required at a given point in life. Humans and environment have a healthy connection, which has supported attempts to **protect biodiversity**.

It is not unusual in an Indian family to see an old cloth being utilised as a duster as a sustainable approach. Things with little monetary worth can be readily sold to scrap merchants to be **re-used or recycled**. There is also a cultural intolerance to throw away food. According to the Greendex report on living sustainably, India ranks first on this index, indicating that People in India are perhaps the most concerned about their environmental impact and adopt the most sustainable choices.

**SHARING RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT**

We must recognise that prosperity is more than just economic, and that sustainable development is a collective responsibility.

We, as children of mother earth, can save the planet by doing a few simple practises:

- ∞ When not in use, save electricity.
- ∞ Conserve water.
- ∞ Purchase from firms that manufacture eco-friendly products.
- ∞ Reduce, Reuse, and Recycle.
- ∞ Replacing inefficient appliances with more energy-efficient models.
- ∞ Walk or cycle or utilize Public Transport.
- ∞ Donate whatever we aren't using.
- ∞ Try educating more people on environmental sustainability.



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**SUMMATION**

The reasons for sustainability are often multifaceted, subjective, and varied. It is difficult to mention all of the reasons why so many people, organisations, and nations are striving toward this vision. However, for the majority of people, sustainability simply comes down to the sort of future we leave for the next generation.

To summarise, sustainable development strives to accomplish social and economic progress in methods that do not deplete the Earth's limited natural resources. As a result, we must all work together to find solutions, so that coming generations could embrace a healthier, greener earth.

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**INTRODUCING THE CONCEPT OF “STRATEGIC SUSTAINABLE DEVELOPMENT”: PEACE-BUILDING AND CONFLICT RESOLUTION THROUGH A SUSTAINABLE FOREIGN POLICY**

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## **1. ABSTRACT**

*The unbalanced dynamics between sustainable development goals (SDGs) and geopolitical goals is the basis of deeply unsustainable patterns of behaviour which are at the heart of international conflicts and other hindrances to world peace. Any unsustainable foreign policy can be both a threat, and an opportunity for global resolution towards positive social change. Thus, the research argues that strategic sustainable development (SSD) is necessary to strengthen world peace because it can be used as both a foreign policy as well as a global agenda to help bring nations together and build trust and relationships among them. The objective of this research is to help address and bridge the gaps between drafting foreign policies and the global movement towards sustainability. It proves that introducing a sustainability perspective to the process of framing foreign policies could also create a guidance note for introducing and incorporating SSD into conflict resolution processes as well.*

*Keywords: Conflict Resolution, Strategic Sustainable Development (SSD), Sustainable Development Goals (SDGs), Sustainable Foreign Policy, World Peace.*

## **2. INTRODUCTION**

Agenda 2030 and its 17 SDGs are the first comprehensive, global, and “silo-breaking” agenda for achieving the foundations of resilience and sustainable peace. At a time of increasing nationalism and populism, the SDGs are important symbols of the value of the transformational capabilities of multilateralism. It is a transformative agenda, beyond incremental change, and most importantly, it is a global agenda which is beyond development policy. This agenda resonates with fundamental foreign policy objectives such as improving international security, stability, and prosperity.

In other words, because not achieving the SDGs implies severe risks for these priorities, foreign policy makers have high concerns for the outcomes of the SDGs. The SDGs also have a significant impact on geopolitics. For example, if the world is to show a successful transition to decarbonised economies as envisaged under SDG 7 on energy, this will alter the power dynamics between oil producing and oil importing economies. Also, efforts to pursue SDG 6 on sustainable water for all will affect and be affected by highly strained relations between Iraq, Turkey, and Iran over the sharing of waters of the Euphrates and Tigris rivers.

The SDGs play an essential part in achieving foreign policy goals such as stability and peace. For example, achieving stability in countries affected by conflict and extremism requires livelihood security and strengthened governance – which are the core dimensions of sustainable development. However, it is in these very states that progress on the SDGs is the weakest. There are many reasons for this such as the challenges of operating in fragile contexts, the risk-averse and results-oriented nature of development funding and the concern about poor returns on development investments.

A foreign policy frame that is ready to embrace political risks in the interest of regional stability might help sidestep these negative incentives for development actors. Foreign policy can and must play an essential role in ensuring that these transitions are managed peacefully. And peace, in turn, is not only an SDG in itself but also an important precondition for the successful implementation of most other SDGs. This interdependence implies a need for greater engagement between the development community that has taken a leadership role in the SDG process until now and the foreign policy community that often has the mandate to ensure cross-governmental coherence in external relations.

Therefore, the case for foreign policy engagement does not only rest on the relevance of the applicable foreign policy that is supposed to ensure a proper implementation of the SDGs. The range of diplomatic tools that foreign policy-makers have at their disposal can help circumvent some of the challenges that SDG implementation is facing, especially in fragile states. Harnessing that potential depends on a deliberate and coherent foreign policy approach to the SDGs that builds on a systematic assessment of the trade-offs and interdependencies of the achievement or failures of specific SDGs.

This paper will analyse the SDGs under review, one by one, looking at their foreign policy relevance based on a list of six areas we identify as emblematic of contemporary foreign policy priorities, such as forced migration and conflict prevention. It does not attempt to offer a comprehensive review of the foreign policy relevance of the SDGs. Instead, it serves as a starting point in supporting foreign policy makers to address the links between the SDGs and foreign policy. By illustrating the foreign policy relevance of the SDGs, the research makes a case for foreign policy to contribute, through their diplomatic means, to the effective implementation of Agenda 2030. It will facilitate the usage of SDGs as an integrated framework for foreign policy action.

### 3. LITERATURE REVIEW, RESEARCH GAP AND RESEARCH PROBLEM

**3.1. Literature Review:** Relevant materials were reviewed in the fields of conflict, conflict resolution, peace studies, trans-boundary environmental research, basic human needs, sustainability, sustainable development, and strategic sustainable development (SSD). Two main areas were searched: academia based on universities and peer-reviewed journals, and organizations involved in empirical work. The following information searching resources were used: ELIN (Electronic Library Information Navigator – provided by Lund University Libraries), Libris (provided by the National Library of Sweden), Ebrary®, BTH Library Catalogue, Questia, and Google.

**3.2. Research Gap:** Relevant materials were reviewed in the fields of world peace, conflict resolution, peace studies, transboundary environmental research, basic human needs, sustainability, strategic sustainable development (SSD), and sustainable development goals (SDGs). Two main areas were searched: academia based on universities and peer-reviewed journals, and organizations involved in maintaining world peace. The following information searching resources were used: Electronic Library Information Navigator (ELIN) provided by Lund University Libraries, Libris (provided by the National Library of Sweden), Ebrary®, BTH Library Catalogue, and Google. After analysing the information from all these sources, it was discovered that strategic sustainable development (SSD) approach is not currently being used to develop foreign policies, so very less action research or evidences could be found for the proposed theories. Due to lack of pre-existing research work on this topic, it is very necessary to research on the contribution of a strategic sustainable development (SSD) approach in developing a nation's foreign policy.

**3.3. Research Problem:** There is an unbalanced dynamics between the development of foreign policies and the global movement towards sustainability. There is a common complaint, for example, that many outcomes of conflict resolution processes are neither satisfactory nor lasting, tending to be patchwork solutions that don't manage to solve the root issues of the conflict. At the same time, there is a general trend that issues of sustainable development and world peace are appropriately addressed only in post-conflict reconstruction phases. Examining these tendencies side by side, while looking for possible solutions, brings a new perspective to both areas.

**3.3.1. Unbalanced dynamics between the development of foreign policies and the global movement towards sustainability:** The absence of comprehension of the basic concepts and overarching nature of sustainability is very likely to impede progress and engagement towards its implementation in the development of foreign policies. A local, national and international strategy for education about sustainability is needed, as current government campaigns have not been effective. Growth and productivity are not currently considered within the constraints of socio-ecological sustainability, but rather with a mindset of 'either-or'. Thus, there is currently little coordination and cooperation between the development of foreign policies and the global movement towards sustainability. Targeted visions for sustainable development lack clarity. Moreover, there is a deficiency in strategic planning and leadership. This results in the inefficiency of monitoring and evaluating mechanisms and acts as a hindrance for implementing the principles of strategic sustainable development (SSD) in a nation's foreign policy (Royal Academy of Diplomats 2003).

**3.3.2. Current realities of Strategic Sustainable Development (SSD):** There are two basic fundamentals underpinning sustainability: a robust ecosystem and a sustainable social fabric (Robert et al. 2004). The dependence of social sustainability and ecological sustainability on the principles of strategic sustainable development (SSD) is becoming increasingly evident. As the capacity of the ecosystem to provide basic services (such as clean water) and resources (such as food and construction materials) is systematically degraded, people who are dependent on them and the relationships between them will both become strained. This will increase the potential for conflicts due to such negative factors such as poor health conditions, lack of safety, hunger and uneven allocation of resources. Ecological sustainability, however, is also dependent on social sustainability. When people are not able to meet their needs within the structures that were traditionally in

place, a vicious cycle develops, such that ecological threats lead to social unrest, which in turn results in greater ecological threats.

#### **4. RESEARCH METHODOLOGY**

The methodology for this research involved three phases. In Phase I, a literature review was conducted along with exploratory interviews with actors in the fields of strategic sustainable development and peace work. From this, both theory and real-world examples were investigated. In Phase II, the information gathered from both fields was linked to build a conceptual framework. The results are presented in Phase III. The results were developed based on the links built in the conceptual framework and hypothetical considerations in the field of peace work. The results include the preliminary set of guidelines for implementing a strategic sustainable development (SSD) approach in drafting a nation's foreign policy.

#### **5. FINDINGS OF THE STUDY**

The primary question of the research is answered mainly in these guidelines for implementing a strategic sustainable development (SSD) approach in drafting a nation's foreign policy.

- i. A nation's foreign policy should be drafted by attributing strategic sustainable development (SSD) as a geopolitical goal for parties in conflict. This will act as a neutrally shared mental model that is relevant to all sides and will provide a forum for developing relationships.
- ii. A nation's foreign policy should be drafted in such a way that it could help solve conflicts in an unbiased manner which would further enable the identification of the following elements:
  - root causes and drivers of conflicts and other hindrances to world peace,
  - socio-ecological sustainability issues that exist in the international community, and which of those are most relevant to the people involved and,
  - direct and indirect socio-economic concerns that are effects of the disturbances to world peace (and are undermining people's everyday livelihood).
- iii. Principles of strategic sustainable development (SSD) can be implemented in a nation's foreign policy by setting the stage to create the conditions that support a lasting world peace.
- iv. The foreign policy of any nation must be in line with the sustainable development goals (SDGs). This can be achieved only when the foreign policy of a nation starts acting as the vehicle that takes the nation from an unsustainable present to a desired sustainable future.
- v. In a world of internationalization and globalization, a nation's foreign policy should be framed by focusing on the principles of a sustainable society as these act as neutral tools for weighing and making decisions in the international arena.
- vi. The foreign policy of any nation should be framed by using an approach that provides a continuous management tool that both facilitates the solution and sustains the outcome of conflict resolution processes. By incorporating this approach in the early stages of conflict resolution and peace building rather than only in post-conflict peacebuilding would increase both the effectiveness of the process itself and the lasting of the outcome. The outcome is a sustainable social, economic, ecological, and political order which would ensure that the world peace is sustained.

#### **6. IMPLICATIONS OF THE STUDY**

Enough theoretical support has been found to show ways in which strategic sustainable development (SSD) can help in conflict resolution and sustain world peace. The core concepts of strategic sustainable development provide a new alternative to fill gaps in the process and outcome of peace building, and at the same time can bring lasting benefits for sustainability. The general conclusions regarding how SSD can help sustain world peace are as follows:

- i. The Framework for Strategic Sustainable Development (FSSD) can be implemented as a tool for making sense of the complexity of a conflict situation in a holistic way. It could serve as a way for discovering direct and indirect causes, drivers as well as consequences of conflicts and other hindrances to world peace. At the same time, this framework provides a systematic way to find strategies, actions and necessary tools for solving any issue disturbing the world peace.

- ii. The FSSD, guided by the four sustainability principles and the prioritization questions, could act as a neutral decision-making framework to help deal with contentious social, economic, political, and environmental issues without using violent means.
- iii. The unbiased perspective that the FSSD facilitates can be used in peace building to get a broader perspective of the issues disturbing world peace; understand how the violation of the sustainability principles can be the origin of such issues, in some cases and for others, how the conflict itself can cause the violation of those principles.
- iv. Cooperation amongst nations involved in conflict can be made possible by promoting sustainability as a superordinate goal; as a basis for common ground where all nations can come together and address shared challenges.
- v. Strategic sustainable development can contribute in restoring and sustaining world peace in the above-mentioned ways, and subsequently continue to influence the foreign policy necessary to initiate peace agreements and maintain the desired outcome. In this way SSD provides a consistent means to a desirable end, and offers benefits for both world peace and sustainability issues.
- vi. The implementation of strategic sustainable development (SSD) approach in early stages of peace building can make the process even more efficient and bring major long-term benefits supported by upstream solutions.

#### Some implications of Strategic Sustainable Development (SSD) in the contemporary world:

- i. **Europe:** This is a continent that has been beset by warfare and infighting from the fall of the Roman Empire to the last century. However, strategic sustainable development (SSD) goals have since allowed for the post-war reconstruction of a unified Europe and facilitated a regional peace that has lasted for over fifty years. According to EU Environment Commissioner Stavros Dimas (2007), the European Union has, by acting together, achieved far more on climate change, water quality and pollution than individual countries could have managed acting alone. Countries and regions cooperate across administrative and political frontiers in the framework of common river basins. The Rhine River for example, once known as the 'sewer of Europe', is once again home to salmon (Dimas 2007).
- ii. **Peru and Ecuador:** Peru and Ecuador were locked in a territorial conflict over a disputed area in the "El Condor" mountain range for over a hundred and seventy years. The conflict was finally resolved in 1998 by creating a Shared, Trans-Boundary Protected Area (TBPA): a 'peace park'. This is an area formally dedicated to the protection and maintenance of natural and cultural resources, and to the promotion of peace and cooperation (McNeely 2003). The creation of a protected area has benefited the high level of bio-diversity in the region and both nations now have the opportunity to carry out scientific studies there. Common criteria for the management of natural resources have been established, as well as for the sharing of information and expertise. The implications of using strategic sustainable development (SSD) approach in social development projects have resulted in promoting transboundary cooperation with poverty alleviation and have also helped in fulfilling the bi-national level target of strengthening economic, business and socio-cultural integration across the border through the exchange of products, technologies, experiences and local knowledge. It was found that cooperation among previously conflicting groups has brought a greater level of prosperity to the region (Catholic Relief Service 2007).
- iii. **Gaviotas, Colombia:** Colombia has been affected by violence; conflict has been raging between the army, guerrillas, paramilitaries and narcotics traffickers. Social and economic inequalities lie at the root of the conflict. Tragically, tens of thousands of civilians are the main victims of this war. In the community of Gaviotas, however, the solutions of conflict and the possibilities for a more sustainable existence were turned into an opportunity. A strategic sustainable development (SSD) approach has been followed since then. Through the planting of Caribbean pine trees, previously degraded soils were transformed, water quality and retention in the area improved, biodiversity flourished, as well as resin and renewable energy industries were established. This has brought income and meaning to a previously depressed and violent region, which has now been free of illegal crops, kidnappers and violence for the last 21 years (Pauli 2004).

#### 7. CONCLUSION AND FUTURE RECOMMENDATIONS

The author has found enough theoretical support to show ways in which SSD can assist in conflict resolution in areas of long-term intractable conflict with intermittent violence. The core concepts of strategic sustainable development provide a new alternative to fill gaps in the process and outcome of conflict resolution, and at the same time can bring lasting benefits for sustainability. The general conclusions regarding how each of these concepts can assist in conflict resolution are as follows:

- i. The Framework for Strategic Sustainable Development (FSSD) can be implemented as a tool for making sense of the complexity of a conflict situation in a holistic way. It could serve as a way for discovering direct and indirect causes, drivers as well as consequences of the conflict. At the same time, this framework provides a systematic way to find strategies, actions and necessary tools for solving the conflict.
- ii. The FSSD, guided by the four sustainability principles and the prioritization questions, could act as a neutral decision-making framework to help deal with contentious social, economic and environmental issues without using violent means.
- iii. The systems perspective that the FSSD facilitates can be used in conflict resolution to get a broader perspective of the conflict; understand how the violation of the four sustainability principles can be the origin of the conflict, in some cases and for others, how the conflict itself can cause the violation of those principles.
- iv. 'Back casting' is a very useful tool to help with conflict resolution, and complements the already-used method of creating a vision and working towards it. Many mediators already use the general idea of back casting.
- v. Cooperation amongst people involved in conflict can be made possible by promoting sustainability as a superordinate goal; as a basis for common ground where all parties can come together and address shared challenges.
- vi. Strategic sustainable development can assist in the resolution of conflict in the above-mentioned ways, and subsequently continue to inform the management plan necessary to implement peace agreements and maintain the desired outcome. In this way SSD provides a consistent means to a desirable end, and offers benefits for both conflict resolution and sustainability issues.
- vii. The implementation of strategic sustainable development in early stages of conflict resolution can make the process even more efficient and bring major long-term benefits supported by upstream solutions.
- viii. The guidance note created is the first document to offer a way of incorporating the concepts and applications of strategic sustainable development into the process of conflict resolution. It could be used by diverse actors as a complementary tool for the conflict resolution process.

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**LINEAR ALGEBRA & MATRIX IN MATHEMATICS**

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**I. INTRODUCTION**

Linear algebra had its beginnings in the study of vectors in Cartesian 2-space and 3-space. A vector, here, is a directed line segment, characterized by both its magnitude, represented by length, and its direction. Vectors can be used to represent physical entities such as forces, and they can be added to each other and multiplied with scalars, thus forming the first example of a real vector space. Modern linear algebra has been extended to consider spaces of arbitrary or infinite dimension. A vector space of dimension  $n$  is called an  $n$ -space. Most of the useful results from 2- and 3-space can be extended to these higher dimensional spaces. Although people cannot easily visualize vectors in  $n$ -space, such vectors or  $n$ -tuples are useful in representing data. Since vectors, as  $n$ -tuples, are ordered lists of  $n$  components, it is possible to summarize and manipulate data efficiently in this framework. For example, in economics, one can create and use, say, 8-dimensional vectors or 8-tuples to represent the Gross National Product of 8 countries. One can decide to display the GNP of 8 countries for a particular year, where the countries' order is specified, for example, (United States, United Kingdom, France, Germany, Spain, India, Japan, Australia), by using a vector  $(v_1, v_2, v_3, v_4, v_5, v_6, v_7, v_8)$  where each country's GNP is in its respective position. A vector space (or linear space), as a purely abstract concept about which theorems are proved, is part of abstract algebra, and is well integrated into this discipline. Some striking examples of this are the group of invertible linear maps or matrices, and the ring of linear maps of a vector space. Linear algebra also plays an important part in analysis, notably, in the description of higher order derivatives in vector analysis and the study of tensor products and alternating maps. In this abstract setting, the scalars with which an element of a vector space can be multiplied need not be numbers. The only requirement is that the scalars form a mathematical structure, called a field. In applications, this field is usually the field of real numbers or the field of complex numbers. Linear maps take elements from a linear space to another (or to itself), in a manner that is compatible with the addition and scalar multiplication given on the vector space(s). The set of all such transformations is itself a vector space. If a basis for a vector space is fixed, every linear transform can be represented by a table of numbers called a matrix. The detailed study of the properties of and algorithms acting on matrices, including determinants and eigenvectors, is considered to be part of linear algebra. One can say quite simply that the linear problems of mathematics - those that exhibit linearity in their behavior - are those most likely to be solved. For example differential calculus does a great deal with linear approximation to functions. The difference from nonlinear problems is very important in practice. The general method of finding a linear way to look at a problem, expressing this in terms of linear algebra, and solving it, if need be by matrix calculations, is one of the most generally applicable in mathematics.

**A. Linear Algebra**

A line passing through the origin (blue, thick) in  $\mathbb{R}^3$  is a linear subspace, a common object of study in linear algebra. Linear algebra is a branch of mathematics concerned with the study of vectors, vector spaces (also called linear spaces), linear maps (also called linear transformations), and systems of linear equations. Vector spaces are a central theme in modern mathematics; thus, linear algebra is widely used in International Journal of Modern Electronics and Communication Engineering. Linear algebra also has a concrete representation in analytic geometry and it is generalized in operator theory. It has extensive applications in the natural sciences and the social sciences, since nonlinear models can often be approximated by linear ones.

**II. ELEMENTARY INTRODUCTION**

Linear algebra had its beginnings in the study of vectors in cartesian 2-space and 3-space. A vector, here, is a directed line segment, characterized by both its magnitude (also called length or norm) and its direction. The zero vector is an exception; it has zero magnitude and no direction. Vectors can be used to represent physical entities such as forces, and they can be added to each other and multiplied by scalars, thus forming the first example of a real vector space, where a distinction is made between "scalars", in this case real numbers, and "vectors". Modern linear algebra has been extended to consider spaces of arbitrary or infinite dimension. A vector space of dimension  $n$  is called an  $n$ -space. Most of the useful results from 2- and 3-space can be extended to these higher dimensional spaces. Although people cannot easily visualize vectors in  $n$ -space, such vectors or  $n$ -tuples are useful in representing data. Since vectors, as  $n$ -tuples, consist of  $n$  ordered components, data can be efficiently summarized and manipulated in this framework. For example, in economics, one can create and use, say, 8-dimensional vectors or 8-tuples to represent the gross national product of 8 countries. One can decide to display the GNP of 8 countries for a particular year, where the countries' order is specified, for example,

(United States, United Kingdom, Armenia, Germany, Brazil, India, Japan, Bangladesh), by using a vector ( $v_1, v_2, v_3, v_4, v_5, v_6, v_7, v_8$ ) where each country's GNP is in its respective position.

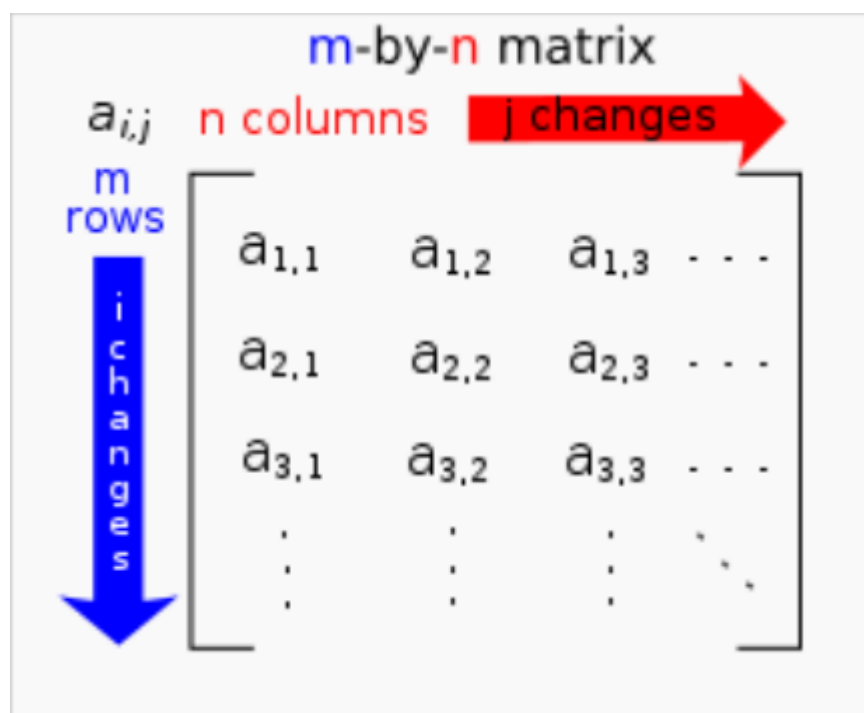
### III. SOME USEFUL THEOREMS

- Every vector space has a basis.
- Any two bases of the same vector space have the same.
- cardinality; equivalently, the dimension of a vector space is well-defined.
- A matrix is invertible if and only if its determinant is nonzero.
- A matrix is invertible if and only if the linear map represented by the matrix is an isomorphism.
- If a square matrix has a left inverse or a right inverse then it is invertible (see invertible matrix for other equivalent statements).
- A matrix is positive semidefinite if and only if each of its eigen values is greater than or equal to zero.
- A matrix is positive definite if and only if each of its eigen values is greater than zero.
- An  $n \times n$  matrix is diagonalizable (i.e. there exists an invertible matrix  $P$  and a diagonal matrix  $D$  such that  $A = PDP^{-1}$ ) if and only if it has  $n$  linearly independent eigenvectors.
- The spectral theorem states that a matrix is orthogonally diagonalizable if and only if it is symmetric. For more information regarding the invertability of a matrix, consult the invertable matrix article.

### IV. LINEAR EQUATION

A linear equation is an algebraic equation in which each term is either a constant or the product of a constant and (the first power of) a single variable. Linear equations can have one or more variables. Linear equations occur abundantly in most subareas of mathematics and especially in applied mathematics. While they arise quite naturally when modeling many phenomena, they are particularly useful since many nonlinear equations may be reduced to linear equations by assuming that quantities of interest vary to only a small extent from some "background" state. Linear equations do not include exponents. This article considers the case of a single equation for which one searches the real solutions. All its content applies for complex solutions and, more generally for linear equations with coefficients and solutions in any field.

### V. MATRIX

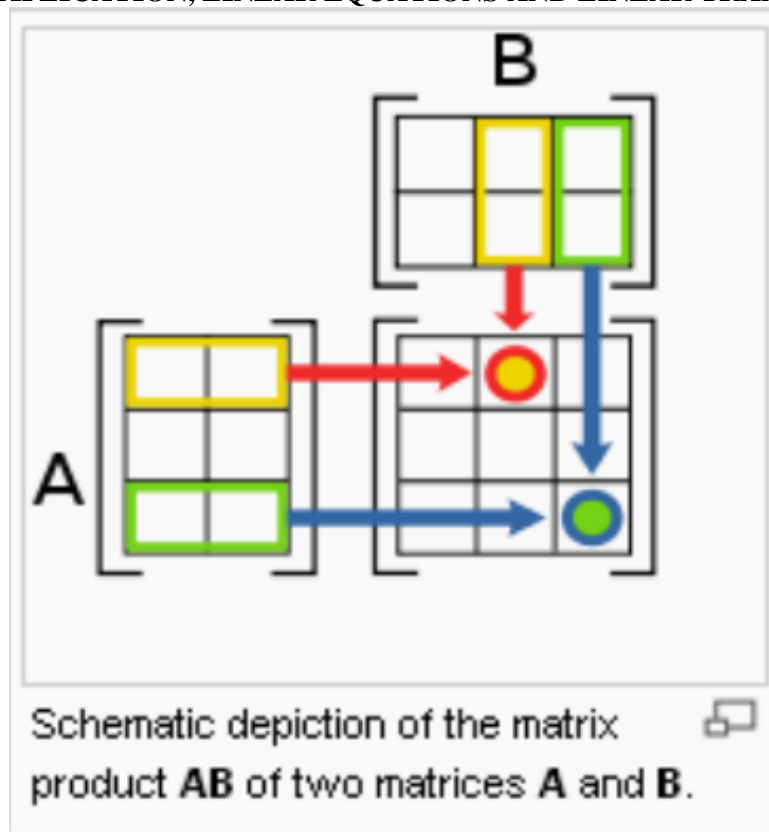


In mathematics, a matrix (plural matrices, or less commonly matrixes) is a rectangular array of numbers, as shown at the right. Matrices consisting of only one column or row are called vectors, while higher-dimensional, e.g. three-dimensional, arrays of numbers are called tensors. Matrices can be added and subtracted entrywise,



and multiplied according to a rule corresponding to composition of linear transformations. These operations satisfy the usual identities, except that matrix multiplication is not commutative: the identity  $AB=BA$  can fail. One use of matrices is to represent linear transformations, which are higher-dimensional analogs of linear functions of the form  $f(x) = cx$ , where  $c$  is a constant. Matrices can also keep track of the coefficients in a system of linear equations. For a square matrix, the determinant and inverse matrix (when it exists) govern the behavior of solutions to the corresponding system of linear equations, and eigen values and eigenvectors provide insight into the geometry of the associated linear transformation. Matrices find many applications. Physics makes use of them in various domains, for example in geometrical optics and matrix mechanics. The latter also led to studying in more detail matrices with an infinite number of rows and columns. Matrices encoding distances of knot points in a graph, such as cities connected by roads, are used in graph theory, and computer graphics use matrices to encode projections of three-dimensional space onto a two-dimensional screen. Matrix calculus generalizes classical analytical notions such as derivatives of functions or exponentials to matrices. The latter is a recurring need in solving ordinary differential equations. Serialism and dodecaphonism are musical movements of the 20th century that utilize a square mathematical matrix to determine the pattern of music intervals. Due to their widespread use, considerable effort has been made to develop efficient methods of matrix computing, particularly if the matrices are big. To this end, there are several matrix decomposition methods, which express matrices as products of other matrices with particular properties simplifying computations, both theoretically and practically. Sparse matrices, matrices consisting mostly of zeros, which occur, for example, in simulating mechanical experiments using the finite element method, often allow for more specifically tailored algorithms performing these tasks. The close relationship of matrices with linear transformations makes the former a key notion of linear algebra. Other types of entries, such as elements in more general mathematical fields or even rings are also used.

## VI. MATRIX MULTIPLICATION, LINEAR EQUATIONS AND LINEAR TRANSFORMATION



Multiplication of two matrices is defined only if the number of columns of the left matrix is the same as the number of rows of the right matrix. If  $A$  is an  $m$ -by- $n$  matrix and  $B$  is an  $n$ -by- $p$  matrix, then their matrix product  $AB$  is the  $m$ -by- $p$  matrix whose entries are given by:

$$[AB]_{i,j} = \sum_{r=1}^n A_{i,r}B_{r,j}; \quad \text{where } 1 \leq i \leq m \text{ and } 1 \leq j \leq p.$$

For example :

$$\begin{bmatrix} 1 & 0 & 2 \\ -1 & 3 & 1 \end{bmatrix} \times \begin{bmatrix} 3 & 1 \\ 2 & 1 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 5 & 1 \\ 4 & 2 \end{bmatrix}$$

Matrix multiplication satisfies the rules  $(AB)C = A(BC)$  (associativity), and  $(A+B)C = AC+BC$  as well as  $C(A+B) = CA+CB$  (left and right distributivity), whenever the size of the matrices is such that the various products are defined. The product  $AB$  may be defined without  $BA$  being defined, namely if  $A$  and  $B$  are  $m$ -by- $n$  and  $n$ -by- $k$  matrices, respectively, and  $m \neq k$ . Even if both products are defined, they need not be equal, i.e. generally one has  $AB \neq BA$ , i.e., matrix multiplication is not commutative, in marked contrast to (rational, real, or complex) numbers whose product is independent of the order of the factors.

### • Linear Equations

A particular case of matrix multiplication is tightly linked to linear equations: if  $x$  designates a column vector (i.e.  $n \times 1$ - matrix) of  $n$  variables  $x_1, x_2, \dots, x_n$ , and  $A$  is an  $m$ -by- $n$  matrix, then the matrix equation  $Ax = b$ , where  $b$  is some  $m \times 1$ -column vector, is equivalent to the system of linear equations

$$A_{1,1}x_1 + A_{1,2}x_2 + \dots + A_{1,n}x_n = b_1$$

$$\dots A_{m,1}x_1 + A_{m,2}x_2 + \dots + A_{m,n}x_n = b_m$$

This way, matrices can be used to compactly write and deal with multiple linear equations, i.e. systems of linear equations.

### • Linear Transformation

Matrices and matrix multiplication reveal their essential features when related to linear transformations, also known as linear maps. A real  $m$ -by- $n$  matrix  $A$  gives rise to a linear transformation  $R^n \rightarrow R^m$  mapping each vector  $x$  in  $R^n$  to the (matrix) product  $Ax$ , which is a vector in  $R^m$ . Conversely, each linear transformation  $f : R^n \rightarrow R^m$  arises from a unique  $m$ -by- $n$  matrix  $A$ : explicitly, the  $(i, j)$ -entry of  $A$  is the  $i$ th coordinate of  $f(e_j)$ , where  $e_j = (0, \dots, 0, 1, 0, \dots, 0)$  is the unit vector with 1 in the  $j$ th position and 0 elsewhere. The matrix  $A$  is said to represent the linear map  $f$ , and  $A$  is called the transformation matrix of  $f$ . The following table shows a number of 2-by-2 matrices with the associated linear maps of  $R^2$ . The blue original is mapped to the green grid and shapes, the origin  $(0,0)$  is marked with a black point.

## VII. CONCLUSIONS

Linear transformations and the associated symmetries play a key role in modern physics. Chemistry makes use of matrices in various ways, particularly since the use of quantum theory to discuss molecular bonding and spectroscopy. In this we are presenting a study on the linear algebra and matrix in mathematics. A linear equation is an algebraic equation in which each term is either a constant or the product of a constant and (the first power of) a single variable. Linear equations can have one or more variables. Linear algebra is the branch of mathematics concerned with the study of vectors, vector spaces (also called linear spaces), linear maps (also called linear transformations), and systems of linear equations.

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**CHALLENGES FACED BY STUDENTS IN DEALING WITH DIGITAL EDUCATION DURING THE COVID-19 PANDEMIC**

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**ABSTRACT**

*In the new normal, Adults and children have been quarantined at home due to the coronavirus as the World Health Organization(WHO) declared it as a pandemic. Schools, colleges, and universities are the first to close. We use the smartphones or the Internet to communicate. This situation posed a challenge to the education system, forcing educators to switch to an online style of instruction almost immediately. As a result of Covid19 pandemic, distance learning went dependent on digital resources, as well as ICT administration and the development of digital skills. This paper will mainly focus on the impact of pandemic situation on the students from UG and PG course. By using a structured questionnaire Students enrolled in various stages of higher education programmes were surveyed as part of this study. The results of the study showed that during the pandemic, an average of students had a positive attitude towards online courses in order to maintain their academic growth. However, they encountered various challenges in online courses. Therefore, the results of this research will encourage policy makers and educational institutions to better handle online courses, adopt the latest online course technology, and better train teachers and students. Continue to make teaching-during this ongoing pandemic, the learning process is more enjoyable and effective. In the study students have stated that learning using digital method is no more engaging than learning in a traditional classroom. This paper investigates Strengths, Weaknesses, Opportunities, & Challenges (SWOC) of e-learning platforms.*

*Keywords: Pandemic, Education, e-learning, Covid-19.*

**1. INTRODUCTION:**

COVID-19's unprecedented health crisis has had an impact on almost every aspect of life. It was first confirmed in Wuhan, China in December 2019. quickly spread to the world and became an economic and humanitarian crisis. This environmental virus is not the first, but it must be the first virus to go global at an incredible speed. The virus caused drastic changes from one region of the world to the entire globe, affecting healthcare, the economy, education, and even beliefs with no distinction between developed and developing countries. It just keeps all of us locked down for personal safety and makes all systems suspicious. In India, since the middle of March 2020, almost 3.74 crore higher education students were out of colleges because of the pandemic. More than 100 countries have implemented closures at the national level, affecting approximately 90% of students worldwide, threatening their future education rights. This disruption in education, combined with the expected slowing of global growth as a result of the economic downturn, has a far-reaching impact on the most disadvantaged students, many of whom come from low-income families. Not only did the school suspension stop learning new things, it also made students forget what they had learned before. Globally, 90 percent of the world's student population has been affected due to the pandemic, from which 800 million are girls, as per the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Due to the contagious nature of the disease, the long-term closure has turned traditional classrooms into online courses. The concept of e-learning emerged with the development of the Internet in the 1990s. Online learning, distance learning, e-learning, Internet-based learning, and computer-assisted learning are the terms, which can be used interchangeably and are not unfamiliar to us. During this pandemic, these were the only modes used in the ongoing learning process. The teaching and evaluation of students was carried out through information technology, which helped reduce the learning gap caused by the lockdown. However, before the pandemic, e-learning had never received attention because the effective learning outcomes are worth (at least as much as traditional education); However, the COVID19 outbreak encourages virtual learning as a solution to overcome the existing learning gaps in the country and world outline. During the pandemic, educational institutions and teachers are exploring and approaching numerous teaching software for students to facilitate online learning. On the other hand, the impact of the rapid transition to online courses is questionable. According to data from NSSO (National Sample Survey Organization of India) 2017-2018, only households in India have access to internet and computers. Approximately 90% of currently registered students are unable to obtain required materials, seriously affecting participation in online courses. There are obvious socioeconomic differences in Internet accessibility. Between the poorest 20% and the richest 20%, computer ownership ranges from 2% to 28% [4]. Due to the huge digital divide, the pandemic has caused new crises in the education system, which has caused short-term learning losses and increased the chances of dropping out of school/college.

In this context, it's vital to grasp the opinions of students (positive and negative) and therefore the challenges they face in on-line courses. During this sense, this analysis tries to look at the perceptions and challenges of students concerning e-learning in order that their expertise helps instructional establishments and policy manufacturers to style higher learning ways and information structures once the COVID19 pandemic, as a result of social distancing might become the new normal.

## **2. LITERATURE REVIEW:**

The current Covid-19 crisis seems to present us with a challenging paradox. The 'digital' and 'digitalization' seems more important than ever, but we were much too slow with digitalizing our education, work, and other fields. Coeckelbergh argues that risk is neither an objective feature of the world or external state of affairs, nor something that we construct in our mind. Technology shapes our vulnerabilities and risks as real risks that are neither purely subjective nor purely objective. In *Human Being at Risk*, he offers an existential-phenomenological approach to risk. Covid-19 is not only a 'thing' but also reveals power relations in their full significance, argues Andrew Keen. Foucault's 'technologies of the self' affect people's 'bodies and souls, thoughts, conduct, and way of being' This gives teachers an important responsibility when using 'digital' and other media and technologies in times of crisis and at other times [5].

The pandemic was accompanied by quarantine measures, resulting in students and teachers restricting themselves to homes. Affected by the epidemic, teachers and students are under great pressure to study and teach in the isolation environment. Male students are even more dissatisfied with current online learning, while female students are even more dissatisfied with the current home environment, has a negative impact on their education [6].

Due to the COVID19 pandemic, the world closed all schools and universities to prevent the spread of the virus. In 2020, traditional classrooms will be transformed into virtual classrooms, and distance education will be everywhere. Online education is a process conducted via the Internet. It has advantages and limitations. online courses reduce travel expenses and other expenses. Later teachers and students have technical knowledge to access online courses and use computers [8].

Online education changed the relationship between teachers and students because teachers were unable to provide extra care and attention to students who needed more attention and were physically exhausted. The students also felt that online courses were not enough for them. Due to the need to produce videos, PowerPoint presentations and notes for students, the workload of teachers for online teaching increased by . Mobile phone data is not enough; a strong bandwidth connection is required. In the online class, teachers and students felt tired and missed the classroom environment [9].

A study using content analysis to analyse the views of university agricultural students on online education during the pandemic found that the flexibility and convenience of online courses make it an attractive option, while 60% of received interviewer said that compared with , its effect was worse than face-to-face courses. It also highlighted the issue of the digital divide and the inequality in access to the Internet, which created issues for several students [10].

During the COVID19 pandemic, it was discovered that there is a significant relationship between ICT and the integration of digital skills, as they allow students to learn and master the technical tools that make them compatible with virtual education. The inability to use technological tools is a barrier to integrating ICT into teaching and learning; infrastructure must be provided in the communities most affected by the digital divide. The analysis of the results obtained is . Teachers and students should realize that they have enough digital skills for this especially true in this pandemic, when digital literacy is needed [11].

Another study used interpretive phenomenological analysis (API) to understand the barriers that university professors face when teaching and evaluating online at home. They divided the obstacles into four categories: 1. Family environment obstacles, including lack of basic facilities, family breakdown in the teaching process, and evaluation; 2. Support institutions obstacles, including lack of training, lack of clarity and direction, and budget for purchasing advanced technology Insufficiency; 3. The technical difficulties faced by teachers, including lack of technical infrastructure, low awareness of online teaching platforms, and security issues; four. Negative attitudes of teachers, low enthusiasm for teaching, lack of technical knowledge and other personal problems have become limitations for online teaching and assessment [12].

The unprecedented global COVID19 crisis has caused the education sector to face many challenges. When so many children had to stay at home, the education sector in India was hit hard. The department has been using technology to find several possible solutions. Various state and central government came up with different

initiatives. These initiatives ensure that the platform has access to various educational resources and guidance tools so that can continue their learning virtually. The availability of various platforms and digital resources has helped the country to take an active approach to finding solutions during the pandemic. The pandemic has helped realize the potential of blended learning, allowing to reach the most remote places. It also helped teachers and students explore options for them to learn [13].

### 3. RESEARCH METHODOLOGY:

This study explored the views and challenges of college students on the online courses in Mumbai. The research is based on quantitative and sample survey methods. A quantitative case study approach was adopted because the purpose of this work is to find out the limitations faced by students when using e-learning platforms. This study's respondents were college students who were chosen using simple random sampling. To collect primary data, a structured Google Forms questionnaire was used. The questionnaire assesses students' perceptions and challenges with online learning during the COVID-19 pandemic. During the months of July and August 2021, 321 students from various Mumbai colleges responded. Data was collected and data were classified into different tools, such as demographic analysis, including gender, grade (class), ICT equipment and tools used by students, perception and challenges faced by students.

### 4. DATA ANALYSIS AND INTERPRETATION:

#### 4.1 Gender of participants

Table 1 illustrates the gender of the respondent students. It shows that there were 55.45% males, respondents, while 44.55% were female.

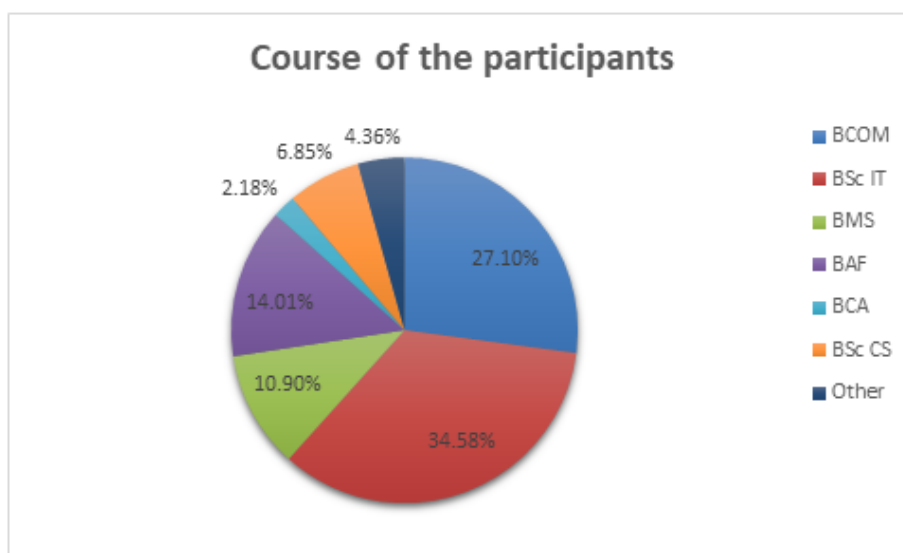
**Table 1:**

Gender	Data in numbers
Male	178
Female	143

#### 4.2. Course of the participants

The respondents from various courses have responded to the survey. Figure 1 illustrate the same in percentage.

**Figure 1:**



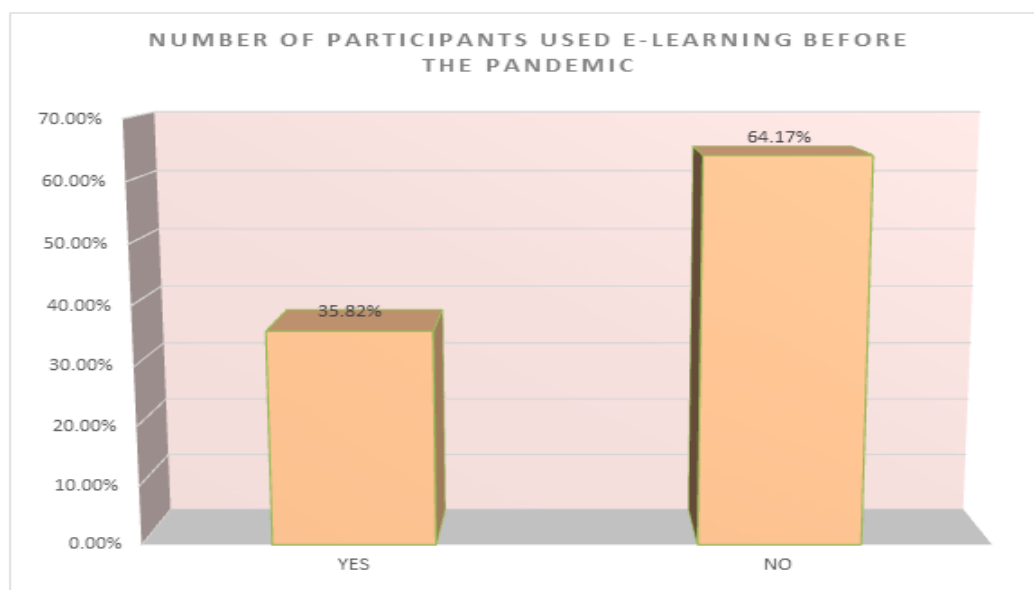
#### 4.3 Previous Experience with Distance Education

The respondents were asked about their experience with digital education provided entirely online. The question was, "Have you ever done any kind of e-learning before the pandemic?" The result shows that 64.17% had not used any kind of e-learning platforms before pandemic where as 35.82% have used it before.

**Table 2: Number of participants used e-learning before the pandemic.**

Answer	Data in numbers
YES	115
NO	206

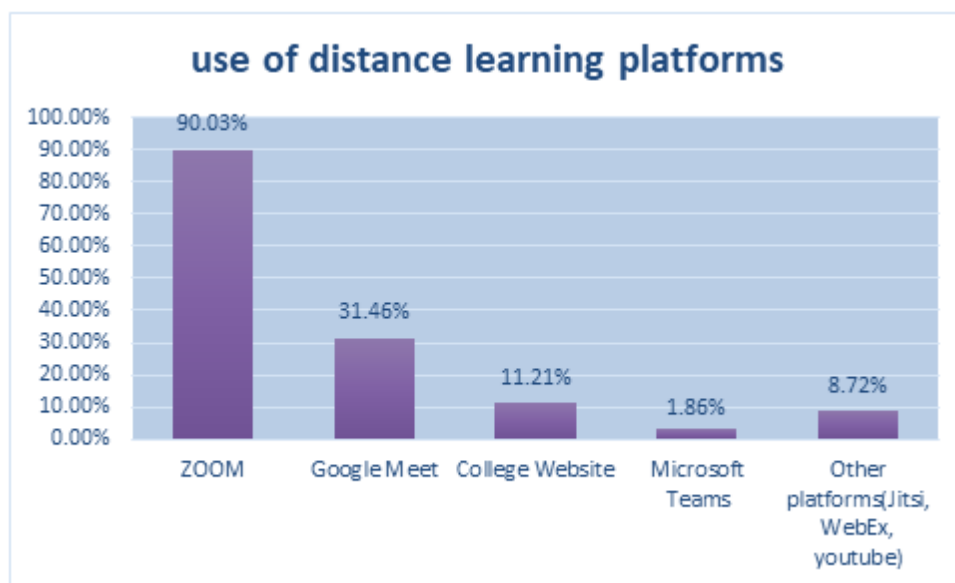
Figure 2:



#### 4.4 Distance Learning Platforms used during pandemic:

The respondents were asked about the different platform used by them for e-learning. It is observed that many of the students are using multiple platforms but ZOOM is used by most of the participants.

Figure 3:



#### 4.5 Adopting of E-learning during the pandemic:

The respondents were asked to rate the liking of e-learning on the scale of 1 to 5 (less to more). 28.97% students liked it very less, 39.25% gave moderate response, 31.77% liked it on high scale.

#### 4.6 Internet Connectivity and its Quality:

Then respondents were asked to rate internet connection quality during their online classes. The question was "How often connection disconnected during Online Classes?" The answer shows that many students are sometime facing problem and very few of them are rarely have connection loss.

#### 4.7 Learning subject through online mode:

The respondents were asked about whether they are able to understand the content delivered during the online lectures. The answer shows that many time students are facing problem in understanding the content as most of them responded as sometimes and no.

**Table 3:**

Answer	Data in numbers	Percentage
YES	133	41.43%
NO	33	10.28%
Sometimes	155	48.28%

#### 4.8 Motivation received by students during E-learning:

The respondents were asked about the motivation they got during the online education. Almost 34% of them are not at all motivated and 33% of them are sometimes got motivated. 34% of them are felt motivated.

#### 4.9 Trouble in submitting assignments online:

When the respondents were asked about the trouble faced by them while submitting the assignment, 118 out of 321 respondents didn't have any problem in submitting the assignment online rest all sometimes or always had problem in submitting the assignment.

#### 4.10 Turning the camera on during demos, presentations, or exams:

The respondents were asked whether they feel safe revealing their face to camera for the purpose of identifying themselves during demos, presentations, or exams. The answer shows that 51% of the students find it comfortable to turn on their cameras and others are sometimes or not at all comfortable.

#### 4.11 Student's negative and positive attitudes toward online classes:

Suddenly, due to the COVID19 pandemic, the education system switched to large-scale online courses. Therefore, it is necessary to understand the views of students on online courses. With the long-term suspension of colleges, unless students do not accept it, online education will become inevitable in the future. As a result, respondents questioned the positive and negative views and challenges of students about online courses.

##### 4.11.1 challenges faced by students during online education:

The respondents were given 8 options to select from. The answer shows that many of the students don't have high speed internet access, they don't have quiet space to study and because of that they feel there is lack of communication. The result also shows that students find difficulty in managing their time. Rest all the factors shows moderate to low response.

**Table 4:**

Factors	Number of responses	Percentage
I don't have access to a computer/mobile	47	14.64%
I don't have access to a PC with a webcam or a camera.	79	24.61%
Don't have internet access	55	17.13%
There isn't any reliable/high-speed internet access	133	41.43%
Working to support myself or my family, therefore not enough time to study	91	28.34%
Time management, Lack of motivation	125	38.94%
Don't have private/quiet space to study	150	46.73%
Lack of communication	144	44.86%

##### 4.11.2 Disadvantages of online learning:

When the respondents were asked about the disadvantages of online learning the highest response rate was 68.22% it shows that students faced technical problems during the online studies. 50% of them did not find proper environment at home to study. They find that there was lack of interaction with the teachers.

**Table 5:**

Factors	Number of responses	Percentage
Lack of self-discipline	135	42.05%
Technical problems	219	68.22%
Poor learning conditions at home	163	50.77%
Reduced interaction with the teacher	148	46.10%
Social isolation	100	31.15%
Lack of interactions with teachers	148	46.10%



## 4.11.3 Advantages of online learning:

When the respondents were asked about the disadvantages of online learning the highest response rate was 66.04% it shows that students find it good to stay at home. Access to online materials, learning on your own pace, ability to record a meeting these options shows almost equal response as students find them as advantages.

**Table 6:**

Factors	Number of responses	Percentage
Comfortable surrounding	111	34.57%
Access to online materials	137	42.67%
Classes interactivity	79	24.61%
Learning on your own pace	143	44.54%
Ability to record a meeting	140	43.61%
Ability to stay at home	212	66.04%

## 4.12 Experience of attending online classes:

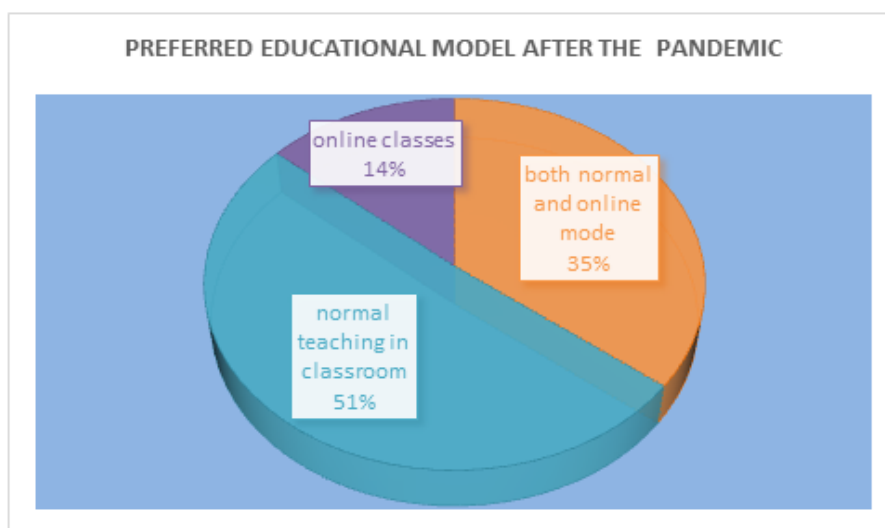
The respondents were asked about their satisfaction about online classes, the results shows that 47.66% of students are satisfied with online education and almost 16% are not satisfied. Rest all are neither satisfied nor dissatisfied.

**Table 7:**

Factor	Percentage
Dissatisfied	15.57%
Satisfied	47.66%
Neutral	36.76%

## 4.13 Preferred educational model after the pandemic:

When the students asked about their preferable mode of education after pandemic, 51% of them want complete classroom teaching and 35% are comfortable with both normal and online mode of education.

**Figure 4:**

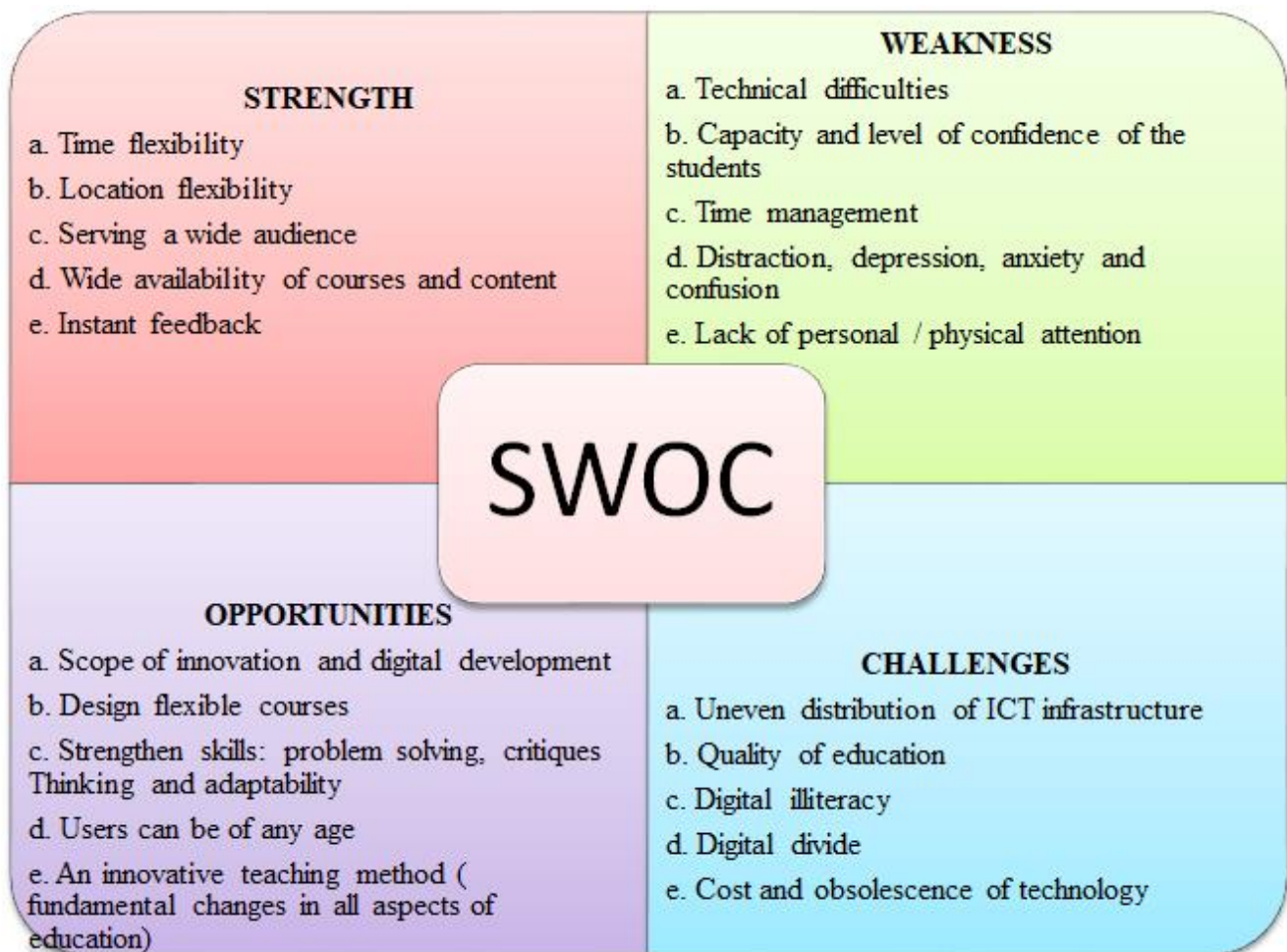
## 4.14 Suggestions from students:

Respondents were asked about their suggestion on the online education during the pandemic. Many of them want classroom teaching back, few of them faced technical problems while attending online class. Some students feel there is lack of motivation. Students faced problem in practical subjects as many of them are not equipped with the devices. Students have suggested use some innovative ideas while teaching using online mode.

**5. SWOC ANALYSIS OF ONLINE LEARNING:**

Figure 5 illustrate the SWOC (Strength, Weakness, Opportunities, Challenges) analysis of online learning during the pandemic.

Figure 5:



## 6. CONCLUSION:

This study looks at student perceptions of online education and the challenges they face during the ongoing COVID19 pandemic. The research reveals the opinions and perceptions of UG students on e-learning because it improves students' technical competence. online courses can save travel time, are more flexible in time and space, and are more convenient than offline courses. Most of the respondents said that there is a lack of interaction with teachers in online courses and a lack of motivation to learn due to too much distraction at home. Due to restrictions on outdoor activities and group projects to prevent the spread of the virus, some students feel socially isolated. On average, students have positive opinions about e-learning during the COVID19 pandemic, because the composite average of their opinions is higher than the negative opinions to maintain their academic growth.

Despite this, students still face obstacles and problems in online classes, including problems with submitting assignments and taking courses online, because most of the students use mobile phones to take classes online, which is not a device suitable for virtual classrooms. Many of them couldn't able to attend classes properly because of technical issues. After the outbreak of the epidemic, most students prefer to take classes at college instead of online courses, and some respondents prefer to adopt a combination of regular and online courses in college education. Several students felt that the teachers did not deliver better in online classes.

Therefore, the policy implications of the research are that the results of the study encourage policy makers and educational institutions to adopt the latest online classroom technology and train teachers and students use this new technology to manage this online learning in a better way, to make the teaching and learning process more enjoyable and effective during this ongoing COVID19 pandemic.

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## PREDICTION OF FACIAL EXPRESSION AND MOOD RECOGNITION ON INDIAN VIDEOS

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## ABSTRACT

*Affective computing using smart phones as everyday objects to detect, analyze, process and replay to people's emotional states and moods — from happiness and like to fear and shame. This technology may be accustomed create more personalized user experiences, emotions in verbal and facial expressions of the users. There in we analysis the face that recognizes how the people react in meeting or any social interactions. Nowadays the social media is that the major platform for communication, interaction and data exchange so we analyze the image of that person to classify the moods as Happy, Sad, Angry, Disgust, Surprised, Neutral.*

*Prediction of emotions on student communities has been a challenging task supported on the situations and scenarios. This paper initially trains the emotions of someone supported images of Indian origin particularly student community. Feature classification of the image of the Indian face dataset is taken at willy-nilly and trained to detect the face. The feature selection then expands to using a video to know the similar emotions. Machine learning algorithms together with Convolutional Neural Networks (CNN) makes the prediction of the Moods to classify as Happy, Sad, Angry, Disgust, Surprised, Neutral.*

*Keywords: Facial emotion recognition; conventional FER; deep learning-based FER; convolutional neural networks;*

## INTRODUCTION

Emotion sensing systems and affective computing allow smartphones to detect, analysis, process and answer to the people's emotional states, moods and behaviors. Is driving the necessity to feature emotional intelligence for better context and an enhanced service experience. Computer Vision could be a portion of Artificial Intelligence (AI) that deals with visual data. With the appearance use of machine learning and deep learning models, we will work with digital images and videos to grasp and emotionally identify the characteristics of the video's contents.

The main aim of this paper is Prediction of Facial Features and Mood Recognition on Indian Videos understanding the nonverbal behavior. The nonverbal behavior analysis is knowing social signal interaction. Emotional Signal Processing (SSP) is that the new research that aims at providing computers with the flexibility to know human social signals. Social interactions during which actually or virtually present agents exchange an array of social actions meaning communicative and informative social signals performed by one agent in reference to one or more other agents. Science is answerable for examining the functions of cognition, namely, perception of thoughts, languages, memory of the brain, reasoning, and processing received information and knowledge of the data in the social signal.

The social signal processing domain aim at a modelling analysis and social signal in human to human and human to machine interaction. Now a days the social media is that the major platform for communication, interaction and knowledge exchange so we are analysis the image on the social signal network and in this we analysis the that person is Happy, Sad, Angry, Disgust, Surprised, Neural. The analysis of this community we are using emotions which is store within the dataset.

## LITERATURE REVIEW

Author & Date of Published	Title	Overview	Methodology followed
Pau Rodríguez, Diego Velazquez, Guillem Cucurull, Josep M. Gonfau  Published on 18 November 2020	Personality Trait Analysis in Social Networks Based on Weakly Supervised Learning of Shared Images	In this paper the author has represent the train a deep neural network that extracts personality representations from images posted in social networks thus building on previous findings of the association between the big five personality traits used in social networks and social media.	Defines the identification of personality in the image and analysis on how to train the data.
<b>Link:</b> ( <a href="https://www.researchgate.net/publication/347027351_Personality_Trait_Analysis_in_Social_Networks_Based_on_Weakly_Supervised_Learning_of_Shared_Images">https://www.researchgate.net/publication/347027351_Personality_Trait_Analysis_in_Social_Networks_Based_on_Weakly_Supervised_Learning_of_Shared_Images</a> )			

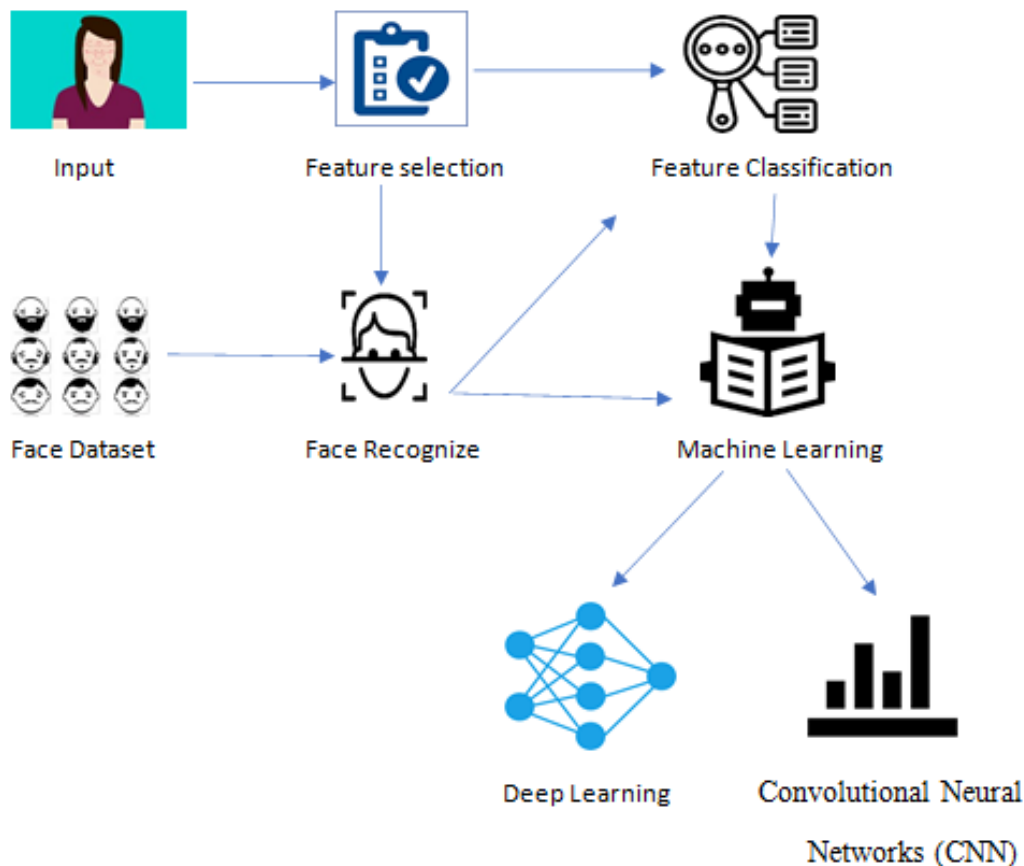
Maja Pantic and Alessandro Vinciarelli  Published on 2012	Social Signal Processing	Research paper focuses on the representation the SSP streams into three major research areas, namely human behavior understanding social psychology and computer science. The former provides methodologies for dealing with non-verbal behavior as a physical phenomenon. Social psychology provides quantitative analysis of the relationship between nonverbal behavior and social phenomena.	Defines the social emotions in the image between individual or social signal processing. social signal network and in that we analysis the that person is Happy, Sad, Angry, Disgust, Surprised, Neutral
<b>Link:</b> PDF( <a href="http://www.dcs.gla.ac.uk/~vincia/papers/sspfinal.pdf">http://www.dcs.gla.ac.uk/~vincia/papers/sspfinal.pdf</a> )			
T. Abdelzaher, S. Wang, P. Giridhar, T.A. Amin  Published on 2017	Social Network Signal Processing for Cyber Physical System	Author of the book mentions on the social modality of sensing like other sensing modalities such as magnetic, acoustic, seismic, or proximity sensing. It also represents the signal emitted on the social medium by distributions in a lexical frequency domain.	Define and helps to do analysis on the social media text and images used in Twitter and Instagram.

<b>Link:</b> <a href="https://books.google.co.in/books?id=KgbpCgAAQBAJ&amp;pg=PA172&amp;lpg">https://books.google.co.in/books?id=KgbpCgAAQBAJ&amp;pg=PA172&amp;lpg</a>			
W. M. K. S. Ilmini, T. G. I. Fernando Published on 2017	Computational Personality Traits Assessment	In this paper the author represent the different feature sets such as face images, videos, speech, handwriting.	The machine learning algorithms and how to use Deep learning is the key focus area of the methodology.
<b>Link:</b> <a href="https://www.academia.edu/37758110/Computational_Personality_Traits_Assessment_A_Review">https://www.academia.edu/37758110/Computational_Personality_Traits_Assessment_A_Review</a>			
Author & Date of Published	Title	Overview	Idea
A. Vinciarelli and H. Salamin, M. Pantic. Published on 2013	Social Signal Processing Understanding Social Interactions through Nonverbal Behaviour Analysis	In this paper the author has introduce the important aspect in none verbal communication and analysis the social signal processing.	Behavioural aspects of social signals connected with head, face and other body movements are discussed.
<b>Link:</b> PDF( <a href="http://www.dcs.gla.ac.uk/~vincia/papers/cvprhb.pdf">http://www.dcs.gla.ac.uk/~vincia/papers/cvprhb.pdf</a> )			
Alessandro Vinciarelli  and Alex "Sandy"  Pentland  Published on 16 September 2015	New Social Signals in  a New Interaction  World The Next Frontier for Social Signal Processing.	In this paper the social signal processing is the aim at a modelling analysis and social signal in human to human and human to machine interaction and without any obstacle allowing the people and understanding the behavior of the people and interaction to each other in social signal.	Here I get the idea how the analysis and modelling the machine to understanding the human behaviour.
<b>Link:</b> PDF ( <a href="http://www.dcs.gla.ac.uk/~vincia/papers/nextfrontier.pdf">http://www.dcs.gla.ac.uk/~vincia/papers/nextfrontier.pdf</a> )			

Alessandro Vinciarelli  Published on 23 October 2017	Body Language Without a Body: Nonverbal Communication in Technology Mediated Settings.	In this paper represent the some peoples are worried to face to face communication or iteration so the author find out nonverbal communication using SSP.	So in this nonverbal communication we see the facial expression, gestures etc. roles in human to human and human to machine interaction.
<b>Link:</b> ( <a href="https://www.researchgate.net/publication/320885215_Body_language_without_a_body_nonverbal_communication_in_technology_mediated_settings">https://www.researchgate.net/publication/320885215_Body_language_without_a_body_nonverbal_communication_in_technology_mediated_settings</a> )			
Prajwal S., Shahid Afridi, Patel Sana Riyaj  Published on 4 <sup>th</sup> April 2020	Traits And Learning Models For Personality Prediction Using Social Media – A Survey	This paper author talk about Big-Five model. There are OCEAN trait is explaining.	So we get idea what is the Big-Five model and what is there in that model and what is the characteristic in the OCEAN trait.
<b>Link:</b> PDF( <a href="http://www.ijstrorg.wwsg1-ss17.a2hosted.com/final-print/apr2020/Traits-And-Learning-Models-For-Personality-Prediction-Using-Social-Media-A-Survey.pdf">http://www.ijstrorg.wwsg1-ss17.a2hosted.com/final-print/apr2020/Traits-And-Learning-Models-For-Personality-Prediction-Using-Social-Media-A-Survey.pdf</a> )			

## RELATED METHODOLOGY

**1. Face Detection and Emotion recognition using image:** In the Face detection first take one input as a image because we are using image to detect the face and emotion recognition to get the personality and behaviors of human that the human is happy or sad like that we recognize through image. After feeding the input feature selection of the face is detected using the Open-source Python Library FER for sentiment analysis of images and videos.



### Face Detection and emotion recognition using Image

The research paper for mood recognition in images is implemented using MTCNN (multi cascade convolutional network) as a parameter of the constructors that can help to detect faces. When it's set to 'True' the MTCNN model is using to detect faces, and when it's set to 'False' the function uses the default OpenCV Haarcascade classifier.

```
[ ] test_image_one = plt.imread("/content/happy2.jpg")
emo_detector = FER(mtcnn=True)
# Capture all the emotions on the image
captured_emotions = emo_detector.detect_emotions(test_image_one)
# Print all captured emotions with the image
print(captured_emotions)
plt.imshow(test_image_one)
```

The function of detect\_emotions() is used in the program that can classify the detection of emotion and it registers the output into six categories namely 'fear', 'neutral', 'happy', 'sad', 'anger', and 'disgust'. Every emotion is calculated, and therefore the output is placed on a scale of 0 to 1.

### Image Output:

#### Happy

```
'emotions': {'angry': 0.0, 'disgust': 0.0, 'fear': 0.0, 'happy': 1.0, 'sad': 0.0,
'surprise': 0.0, 'neutral': 0.0}
```



#### Angry

```
'emotions': {'angry': 0.99, 'disgust': 0.0, 'fear': 0.01, 'happy': 0.0, 'sad': 0.0,
'surprise': 0.0, 'neutral': 0.0}
```



#### Fear

```
'emotions': {'angry': 0.36, 'disgust': 0.0, 'fear': 0.05, 'happy': 0.03, 'sad': 0.04,
'surprise': 0.01, 'neutral': 0.5}
```



#### Neutral

```
'emotions': {'angry': 0.09, 'disgust': 0.0, 'fear': 0.03, 'happy': 0.0, 'sad': 0.44,
'surprise': 0.01, 'neutral': 0.44}
```





## Sad

```
'emotions': {'angry': 0.04, 'disgust': 0.0, 'fear': 0.12, 'happy': 0.0, 'sad': 0.45,
'surprise': 0.0, 'neutral': 0.38}
```



## Surprise

```
'emotions': {'angry': 0.0, 'disgust': 0.0, 'fear': 0.01, 'happy': 0.01, 'sad': 0.0,
'surprise': 0.98, 'neutral': 0.0}
```

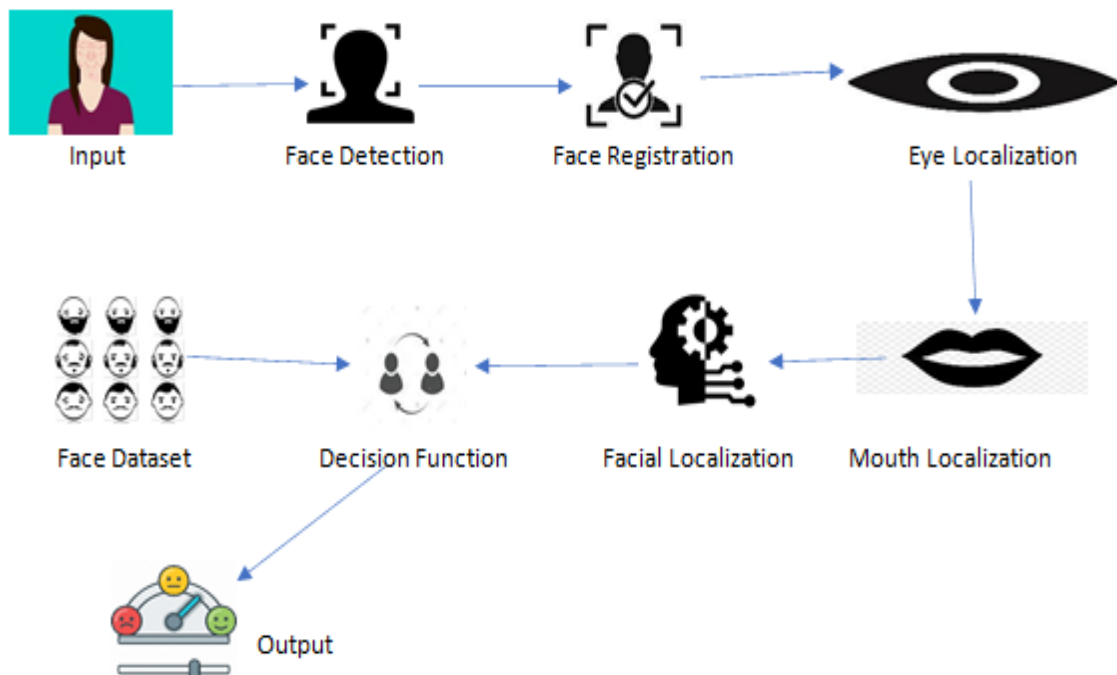


## Disgust

```
[{'box': (16, 12, 217, 217), 'emotions': {'angry': 0.32, 'disgust': 0.0,
'fear': 0.12, 'happy': 0.0, 'sad': 0.29, 'surprise': 0.0, 'neutral': 0.27}}]
```



**2. Face Detection and Emotion recognition using video:** In the face detection and emotions recognition using the video follows similar steps of image recognition. It starts with the face detection to register the face properly. After the face registration, it follows to check the eye localization, mouth localization and face localization to see the different categories of moods later they compare with dataset for the decision making function to classify the percentage of moods as happy or sad based on the description of the seven emotions.



## Face Detection and emotion recognition using Video

The research paper for mood recognition in images is done on the basis of the following steps:

1. **Video\_analyze():** This function is responsible for extracting the individual image frames from a video and then we analysis those independently.



```
[ ] # Put in the location of the video file that has to be processed
location_videofile = "/content/drive/MyDrive/Mscit Project/WhatsApp Video 2021-08-27 at 7.36.47 PM.mp4"

[ ] # Build the Face detection detector
face_detector = FER(mtcnn=True)
# Input the video for processing
input_video = Video(location_videofile)
```

2. The all frame analyzed by this function is stored as a separate image by the algorithm in the root directory folder where the code is running. Also, this is the function later creates a replaced of the original video by placing a box around the face and showing live emotions within the videos.

3. We then create a Pandas DataFrame from this analysis the values and plot this dataframe using matplotlib. In this plot, we also see every emotion plotted against the time.

```
vid_df = input_video.to_pandas(processing_data)
vid_df = input_video.get_first_face(vid_df)
vid_df = input_video.get_emotions(vid_df)

# Plotting the emotions against time in the video
pltfig = vid_df.plot(figsize=(20, 8), fontsize=16).get_figure()
```

4. We can further analysis this dataframe by taking individual emotion values that they were recognizing by the model and finding which sentiment was dominant into the entire video to analysis the emotion and behavior.

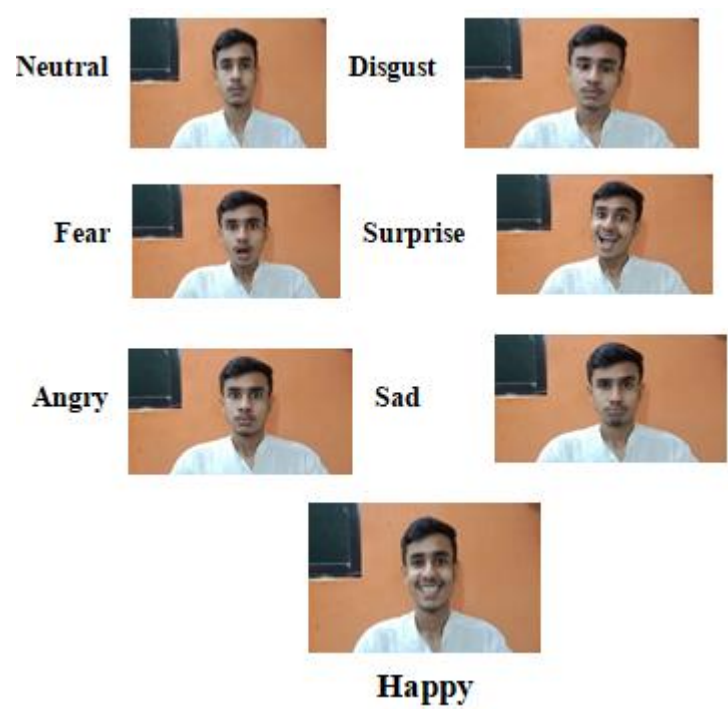
This way, we can work on videos by extracting individual image and video frames and analyzing them. In this paper this process is displayed in the diagram below that shows how an additional step gets added for processing videos. Now we will be seeing this implementation or what output is getting in the section below

```
angry = sum(vid_df.angry)
disgust = sum(vid_df.disgust)
fear = sum(vid_df.fear)
happy = sum(vid_df.happy)
sad = sum(vid_df.sad)
surprise = sum(vid_df.surprise)
neutral = sum(vid_df.neutral)

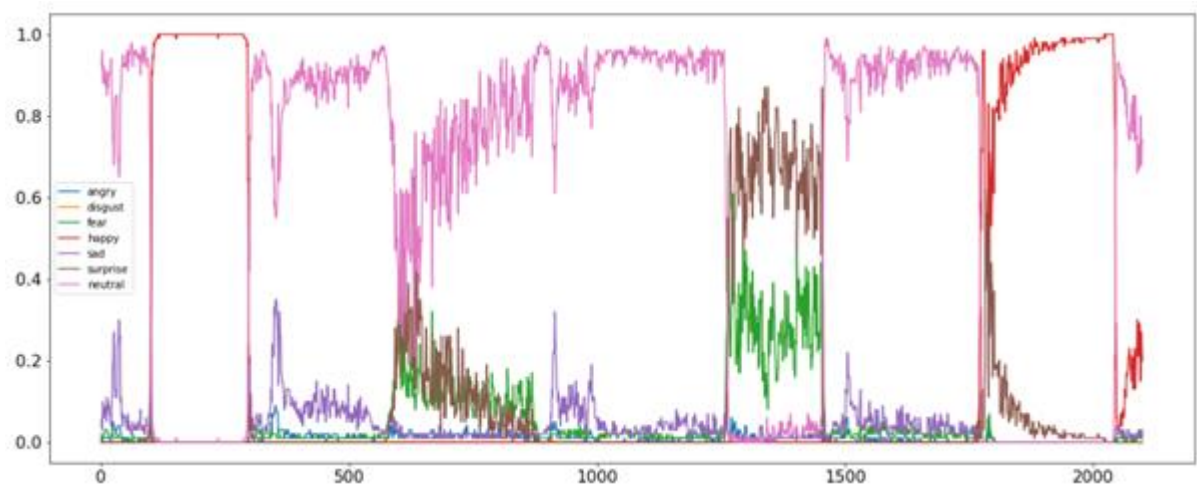
emotions = ['Angry', 'Disgust', 'Fear', 'Happy', 'Sad', 'Surprise', 'Neutral']
emotions_values = [angry, disgust, fear, happy, sad, surprise, neutral]

score_comparisons = pd.DataFrame(emotions, columns = ['Human Emotions'])
score_comparisons['Emotion Value from the Video'] = emotions_values
score_comparisons
```

Video Output:



	Human Emotions	Emotion Value from the Video
0	Angry	19.97
1	Disgust	0.00
2	Fear	112.11
3	Happy	457.56
4	Sad	75.74
5	Surprise	185.99
6	Neutral	1247.67



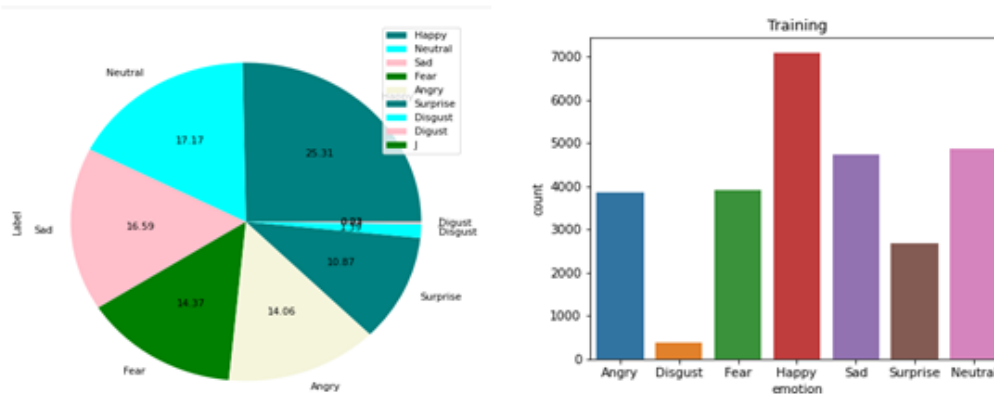
RESULTS AND ANALYSIS

The dataset considered intially for the research is trained using FER dataset from Kaggle that consists of 48x48 pixel grayscale images of faces. The images of the faces considered of Indian origin have been automatically registered so that the face is more or less centred and occupies about the same amount of space in each image.The task is to categorize each face based on the emotion shown in the facial expression into one of

seven categories (0=Angry, 1=Disgust, 2=Fear, 3=Happy, 4=Sad, 5=Surprise, 6=Neutral). The training set consists of 10,199 examples and the public test set consists of 3,589 examples.

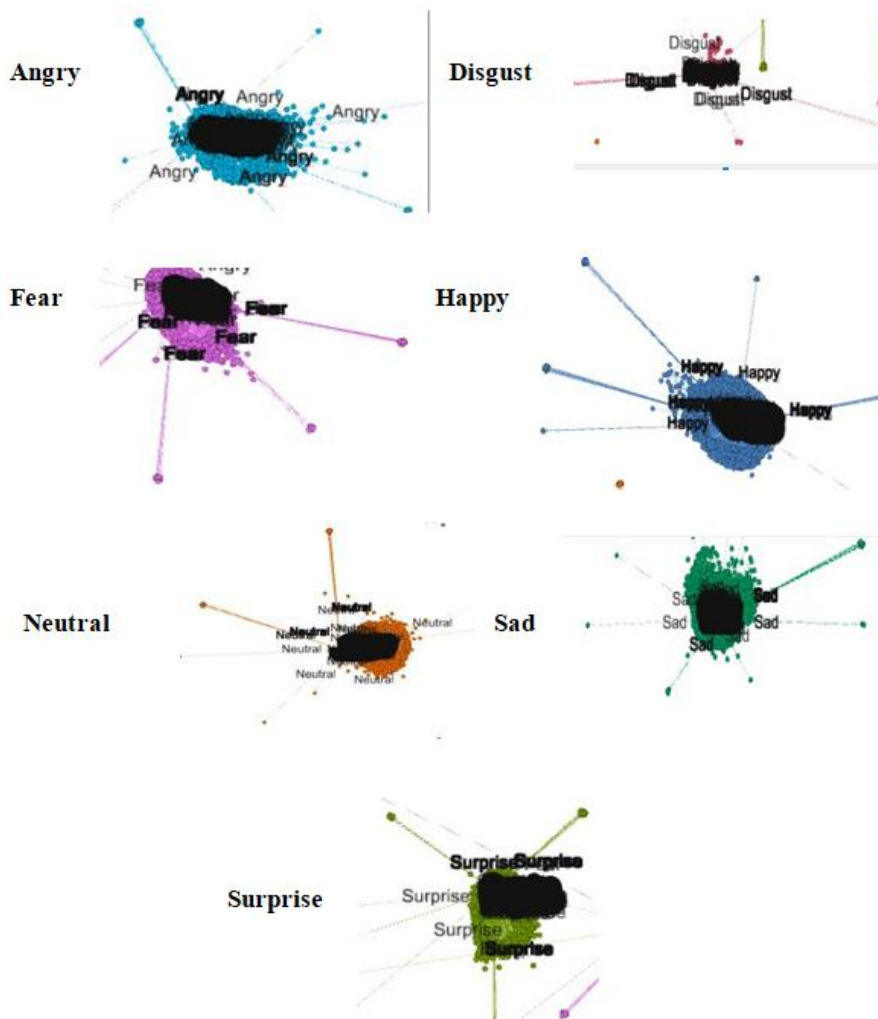
A graph is being plotted to identify the number of Images that was being analysed, the moods of the people among the different images.

The research showed that Happy people is 25.31%, Disgust people is 1.39%, Surprise people is 10.87%, Angry people is 14.06%, Fear people 14.37%, Sad people is 16.59%, Neural people is 17.17%. we used to defined the percentage and community.



## DISCUSSION:

The results and analysis is validated by a graphical analysis of the dataset plotted against the graph of seven moods in the following Figure below. Different color codes represent Different Moods in the Images where Blue color is Angry, Green color is Sad, Dark blue color is Happy, Orange color is Neutral, Pink color is Disgust, Purple color is fear so like that we calculate the emotions.



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**CONCLUSION**

Affective computing through Images and Video analytics for prediction of moods using machine learning can be scaled for many applications. It is the interaction between human to human and human to machine through social media application to exchange the communication through social distance. In this paper we show how the people interact with each other in the social media and how they feel in the social media, what is the vocalization in the social distance all this thing we research and analysis through using images and videos. All this we can see in the interview, communication between doctor and patient etc. The main aim of this paper is to understand the moods and behavior of a person through the analysis the nonverbal behavior. This research also opens up for new and innovative ideas of research related to different mindsets and classification of people in the Online medium that can be seen among various age groups.

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**IMPACT OF AGRICULTURAL MARKETING COOPERATIVE SOCIETIES IN EMPOWERMENT OF RURAL LIVELIHOOD IN PUNE DIVISION OF MAHARASHTRA**

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**Ms Supriya Gaikwad**

### **1. INTRODUCTION**

The cooperative sector in India is the largest in the world and it plays a pivotal role in employment generation, poverty alleviation and food security. The role of cooperative sector is extremely important in agriculture sector, as it supplies agricultural credit and funds and has the potential to deliver goods and services in vital areas where state and private sectors have not been able to do very much. India has basically an agrarian economy with 72% of its total population residing in rural areas. The rural people need lot of services in daily life which are met by village cooperative societies. The seeds of cooperation in India were sown in 1904 when the first Cooperative Societies Act was passed. Since then, the cooperative movement has made significant progress. Cooperatives have extended across the entire country and there are currently an estimated 230 million members nationwide. The cooperative credit system of India has the largest network in the world and cooperatives have advanced more credit in the Indian agricultural sector than commercial banks. The village cooperative societies provide strategic inputs for the agricultural sector, consumer societies meet their consumption requirements at concessional rates; marketing societies help the farmer to get remunerative prices and co-operative processing units help in value additions to the raw products etc. In addition, co-operative societies are helping in building up of storage go-downs including cold storages, rural roads and in providing facilities like irrigation, electricity, transport and health. Cooperation in a vast country like India is of great significance because: It is an organization for the poor, illiterate and unskilled people.

- It is an institution of mutual help and sharing.
- It softens the class conflicts and reduces the social cleavages.
- It reduces the bureaucratic evils and follies of political factions.
- It overcomes the constraints of agricultural development.
- It creates conducive environment for small and cottage industries.
- Co-operative movement is basically an activities with a common goal,

Co-operation refers to the formation of non-profit economic enterprises for the benefit of there members. Indian government launched the movement with the enactment of the co-operative societies Act1904. According to the Act of 1904, the co-operative societies were to be established in every district and were required to be managed by members on democratic lines. The supreme authority was vested in the general meeting, which consisted of all the members. All decisions as to liabilities, loans, investments, interests, etc. were to be adopted at the general meeting. The basic nature of the co-operative societies is to encourage the 'values of self-help, democracy, equality, and solidarity. Co-operative members believe in the ethical values of honesty, openness, and social responsibility and caring for others. The movement was welcomed with great enthusiasm, the movement teaches the ordinary farmers, downtrodden community and landless laborers to live with prestige and self-confidence. Co-operative movement helps in all round development of the rural areas, which is possible through unity, trustworthiness and consistency of membership. Despite rapid growth, the overall progress of cooperative movement during 110 years of its existence is not very impressive. It is therefore necessary to know the causes of poor performance of the movement and on that basis take such steps as would promote a faster growth of cooperative movement in India.

Cooperative is an important tool of economic development in rural India, when it comes to cooperative marketing in India, it gives an idea of collective efforts to achieve specific objective to carry out marketing strategy for agricultural products. The cooperative marketing arises due to the prevalence of many defects in the private and open marketing system. This concept was first introduced in the European countries. It is defined as form of organization, where in person voluntarily associate together as human beings, on the basis of equality for the promotion if economic interests of themselves.

- ✓ **Benefits of cooperative marketing in India:** The advantages that cooperative marketing can confer on the farmer are multifarious, some of which are listed below:

- **Increases bargaining strength of the farmers:** If the farmers join hands and form a cooperative society, they will be able to increase their bargaining strength because their produce will now be marketed by single agency.
- **Direct dealings with final buyers:** It outcast an intermediaries which eliminates the exploiters and ensures fair prices to both, the producers and the consumers.
- **Provision of credit:** The marketing cooperative societies provide credit to the farmers to save them from the necessity of selling their produce immediately after harvesting. This ensures better returns to the farmers.
- **Easier and cheaper transport:** This reduces the cost and botheration of transporting produce to the market.
- **Storage facilities:** The cooperative marketing societies generally have storage facilities. Thus, the farmers can wait for better prices; also there is no danger to their crop from rains, rodents and thefts.
- **Grading and standardization:** This task can be done more easily for a cooperative agency than for an individual farmer. For this purpose they can seek assistance from the government or can even evolve their own grading arrangements.
- **Market intelligence:** The cooperatives can arrange to obtain data on market prices, demand and supply and other related information from the markets on a regular basis and can plan their activities accordingly.
- **Influencing market prices:** While previously the market prices were determined by the intermediaries and merchants and the helpless farmers were mere spectators forced to accept whatever was offered to them, the cooperative societies have changed the entire complexion of the game.
- **Provision of inputs and consumer goods:** The Cooperative marketing societies can easily arrange for bulk purchase of agricultural inputs like seeds, manures, fertilisers, pesticides, etc., and consumer goods at relatively lower prices and can then distribute them to the members.
- **Processing of agricultural produce:** The Cooperative societies can undertake processing activities like crushing oil seeds, ginning and pressing of cotton, etc.

#### ✓ **Progress of Cooperative Marketing in India**

**Two types of cooperative marketing structures are found in India.** Under the first type, there is a two-tier system with primary societies at the base and the State society at the apex. Under the second type, there is a three- tier system with primary societies at the village level, Central marketing societies at the district level, and the State marketing society at the apex.

At present, the cooperative marketing structure comprises 2,633 general purpose primary cooperative marketing societies at the Mandi level, covering all the important mandies in the country, 3,290 specialised primary marketing societies for oilseeds, etc., 172 district Central Federations and the National Agricultural Cooperative Marketing Federation of India Ltd., (NAFED) at the national level. NAFED is the apex cooperative marketing organization dealing in procurement, distribution, export and import of selected agricultural commodities.

## **2. REVIEW OF LITERATURE:**

Prakash, (2003) indicates that although there is a large number of agricultural co-operatives, their main functions largely remain confined to the distribution of credit, fertilizers and procurement of farm produce for national food stocks. Marketing, agro-processing, warehousing activities are still weak, but they assist members to boost production and incomes by pooling their resources to support collective provisions of services and economic empowerment. The agricultural marketing co-operatives are potential for socio-economic development at both local and national levels as they help in transforming the lives of people. In a given location, people with similar interests, common bond and shared vision form a co-operative organization to achieve such objectives.

SudarsanNayak (2007) in his articles titled, "Empowerment of the poor through SHG & Micro finance." explains the empowerment of rural & poor farmers through the SHG.

BalasahebVikhePatil (2008), The present paper studied the rural indebtedness in India. It is found that it has remained an important issue and an obstacle for development. For the sound economic and social development it requires in-depth analysis so as to address the problem in all its dimensions. Despite tremendous expansion of

the branch network particularly in rural areas after nationalization of private sector banks and the growth of institutional credit for agriculture, the severity of agricultural indebtedness has persisted.

Kavitha M. (2008) – The present study is the comprehensive study on the „Cooperative Movement in India-with Future Perspective“, as the paper discussed the all aspects of the co-operative movement likemeaning, origin of the co-operative movement, cooperative movement in India, types (housing, building, retailers“, consumers“, etc.) with the co-operative approach as a model of sustainable development. In conclusion of the paper author stated that, co-operatives have not really helped members to improve their position for fight against those who exploit the farmers and restrained their development. There are however several drawbacks i.e. poor infrastructure, lack of quality management, over-dependence on government, dormant membership, non-conduct of elections, lack of strong human resources policy, neglect of professionalism, etc. are the limiting factors. Co-operatives are also unable to evolve strong communication and public relations strategies which can promote the concept of cooperation among the masses.

Das Banshree, Dr. Palai N.K. and Dr. Das Kumar (2006) - The paper discussed the problems and prospects of cooperative sector in India. India is basically an agrarian economy with 72 per cent of its total population residing in rural areas. The rural people need lot of services in daily life which are met with by village co-operative societies. Author explained that cooperative system in India has the capacity and potentiality to neutralize the adverse effects emerging from the process of globalization.

### **3. RATIONALE OF THE STUDY:**

Agriculture is our main sector which contributes highest amount to the national GDP and on the other hand, agricultural sector is helping our manufacturing sector to develop and to create value addition to our national GDP. If farmers are becoming more efficient to produce their products at lower cost and to sell them at a fair price through Cooperative Society Marketing system, then it would be possible to achieve higher economic growth. It is pertinent to mention here, that it would not be possible to ensure better living standard of our farmers without bringing farming within Cooperative Society throughout the country. If we go through the history of Economic Development of Denmark, Sweden and Germany then we see that these counties achieved highest level of economic development by utilizing Cooperative philosophy in their Development strategy. On the other hand, Cooperative Society in Agriculture Marketing can utilize synergy effect. Synergy this term refers in Management that joint efforts' output is much greater than that of individual effort in economic activity.

### **4. STATEMENT OF PROBLEM**

Farmers are illiterate and poor for that reason they do not have capacity to run farming activities effectively and efficiently. As farmers, do not have educational qualifications and financial ability to store their products and the transport them to the market place for better price. As a result, they are bound to sell their products to the Fouria and middlemen at lower price which is below their production cost in maximum cases. Under these circumstances, co-operative marketing strategy can solve this problem. Hence researcher will study “IMPACT OF AGRICULTURAL MARKETING COOPERATIVE SOCIETIES IN EMPOWERMENT OF RURAL LIVELIHOOD IN PUNE DIVISION OF MAHARASHTRA”

### **5. SELECTION OF THE GEOGRAPHICAL AREA FOR THE STUDY**

The objective of the research necessitates selection of an area where agricultural marketing cooperative societies are in abundance. Pune Division is comparatively endowed with infrastructural facilities. So, a reasonable number of farmers are expected to be organized to form a producer marketing group which is known as marketing cooperative societies. This also served a great deal of convenience for the research worker in terms of accessibility, ease of rapport building, time, money and efforts.

### **6. OBJECTIVES OF THE STUDY**

1. The present study will undertake with the following objectives:
2. To study the socio economic impact of agricultural marketing cooperatives society's
3. To examine the impact of agricultural marketing cooperative societies on rural livelihood empowerment.
4. To examine the empowerment benefits of agricultural marketing cooperative societies
5. To find out the determinants of agricultural marketing cooperative societies
6. The main aim of this research work is to determine the impact of agricultural marketing cooperative societies **on** rural livelihood empowerment.



7. To analyze the present marketing system of Agricultural products in Pune Division.
8. To study the functioning, organization and management of agricultural marketing co-operative societies in Maharashtra state is especially in Pune division.

**7. SIGNIFICANCE OF THE STUDY:**

This study will be relevant in the following areas;

- 1) Help in educating the government, interested organization to consider cooperative as a principle agent for development of the rural people.
- 2) The study will also be useful to the Government, International Organization and Nongovernmental Organization (NGOS) to create policies that will bring about positive development of the rural livelihood, as they are the greatest assets that any nation can have.
- 3) Also at the end of the research work, the general public would have gained a lot of knowledge on the benefit of co-operative societies as well as serve as a good motivator to the members and non members to enable them pool their resources together, hence helping them out instead of causing problem to the society.
- 4) The study will also be significant to future researchers on the facts of rural livelihood development
- 5) Also helps to discover problems of co-operative societies and provide recommendation to the problem identified.
- 6) Finally it would also be of benefit to students who wish to go into agricultural business in the near future to take advantage of cooperative societies in order to excel and compete in the international markets across the globe.

**8. LOCALE OF THE STUDY:**

The study will be conducted in the Pune Division of Maharashtra, which consist of Kolhapur, Sangli, Satara, Solapur and Pune Districts. As the study demanding an in-depth analysis of farmers strategies use for product marketing groups, the selection of the region will be based based on the premises that organized marketing is practiced in the region for long period of time and poor marketing system highly affected farm profitability in the study region, yet the area has high productivity potential. Diversification from food grain crops to horticultural and commercial crops have also seen in recent years in a big way in the area. Keeping in mind, the large extent of farming practiced for cash crop with uncertainties of marketing problems faced by of Kolhapur, Sangli, Satara, Solapur and Pune Districts hence the researcher will be purposively selected the region.

**9. METHODOLOGY OF THE STUDY:****A. POPULATION OF THE STUDY:**

This study aimed at assessing the contribution of cooperative societies in the development of the rural livelihood within Pune Division of Maharashtra state. The population of registered cooperative societies in Pune Division of Maharashtra state is about 7000. However around 4000 are active during the study of CO-OPERATIVE SOCIETIES IN MAHARASHTRA STATE. The membership of the 4000 active cooperative societies is approx. 20000. These constitute the population of the study.

**SOURCES OF DATA**

This study is exploratory in nature. It consists of both qualitative and quantitative data and information. In order to achieve the objectives of the study; data will be collected from both primary and secondary sources.

Primary data: Primary data will be collected through a questionnaire method from Kolhapur, Satara, Sangli, Solapur and Pune districts. A sample of 750 farmer's (members) will interview to get practical data. Out of 750 farmers 150 respondents will be selected from Kolhapur, Satara, Sangli, Solapur and Pune districts.

Secondary Source: Secondary data will be collected from text books of agriculture marketing, Annual Report of Co-operative Department, Economic Survey Report of Maharashtra and Co-operative Policy of 2012, Co-operative Act of 2001 (Amended in 2002) Sampling technique

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**PHYSO-CHEMICAL ANALYSIS OF WATER SAMPLE FROM SELOO TAHSIL OF DISTRICT  
WARDHA MAHARASHTRA****W. A. Khan<sup>1</sup> and A.B. Jadhao<sup>2</sup>**<sup>1</sup>Department of Chemistry, Vidyabharti College Seloo, Wardha (442104 M.S.)<sup>2</sup>Department of Botany, Art and Science College Pulgaon Wardha**ABSTRACT**

*The water quality is determined in various area of seloo city of wardha district. The water samples taken from Various area from house well, Borewell water. In Physico-chemical analysis, various quality parameter are measured including pH, Specific conductivity (SP), total dissolved solids (TDS), total hardness, compared with WHO standards of water quality; also in present research paper classification of water samples of various sites was investigation on the basis of TDS, anions, cations and TH. All Parameters were within the permissible limits. The results indicated and discussed.*

*Keywords- physico-chemical analysis, TDS, COD, BOD, Nutrients and Total Hardness.*

**INTRODUCTION-**

Water plays an essential role in human life. Although statistics, the WHO reports that approximately 36% of urban and 65% of rural Indian were without access to safe drinking water. Fresh water is one of the most important resources crucial for the survival of all the living beings. It is even more important for the human being as they depend upon it for food production, industrial and waste disposal, as well as cultural requirement. Human and ecological use of ground water depends upon ambient water quality. Human alteration of the landscape has an extensive influence on watershed hydrology. Ground water plays a vital role in human life. The consequences of urbanization and industrialization leads to spoil the water for agricultural purposes ground water is explored in rural especially in those areas where other sources of water like dam and river or a canal is not considerable. During last decade, this is observed that ground water get polluted drastically because of increased human activities. Consequently number of cases of water borne diseases has been seen which a cause of health hazards. An understanding of water chemistry is the bases of the knowledge of the multidimensional aspect of aquatic environmental chemistry which involves the source, composition, reactions and transportation of water. The quality of water is of vital concern for the mankind since it is directly linked with human welfare. It is a matter of history that facial pollution of drinking water caused water-borne diseases

**METHODOLOGY-**

The Water Samples were collected from various sites in the Morning Hours between 9 to 11am, in Polythene Bottles. The Water samples were immediately brought in to Laboratory for the Estimation of various Physico-chemical Parameters like Water Temperature, pH were recorded by using Thermometer and Digital pH Meter. (Systronics). Specific conductivities were measured by using digital conductivity meter. The TDS values were measured by using TDS meter. While other Parameters Such as Hardness, Sodium, and potassium by Flame

photometry. Manganese, Calcium & Magnesium Chloride, Sulphate and Nitrate were Estimated in the Laboratory By using Standard laboratory methods. Present Study involves the Analysis of Water Quality in Terms of Physico-chemical methods. (Trivedy and Goel, 1986) increased in the similar direction, i.e., from Sample 1 to Sample 4. Concentration of nutrients like Chloride, Sulphate was within the permissible limits for Sample- 3 & 4. BOD remained less than 3 in all cases, showing normal microbial activity. Physicochemical parameters affected the primary production in different Areas. The physicochemical of chemical characteristics of water samples in the study area suggested that there was no harmful chemical contamination. The sample 3 & 4 were found to be more free from various micro gram positive bacterial activities. The sample - 4 is more healthier in the long run.

**Parameter Included In Water Quality Assessment**

Following different physico-chemical parameter are tested regularly for monitoring quality of water.

- 1) **Temperature:** Temperature is the most importance environment factor with effect on plants and animals. Water has several unique thermal properties which combine to minimize temperature change. The Water temperature depends on the depth of the water column, climatic and topographic changes.
- 2) **pH:** pH, one of the most common analyses in soil and water testing, is the standard measure of how acidic or alkaline a solution is. It is measured a scale from 0 -14. pH of 7 is neutral, pH is less than 7 is acidic and

pH greater than 7 is basic. Aquatic organisms need the pH of their water body to be a certain range optimal growth and survival. The presence of acid rain can lower the pH in lakes making them more acidic

- 3) **Electrical conductivity:** Electrical conductivity (EC) a measure of the electric current that solution carries. Electrical conductivity used to quickly estimate the ionic or soluble salt concentration in soils, water supplies, fertilizer solution and chemical solution. It is measured with the help of EC meter which measures the resistance offered by the water between two platinized electrodes. The instrument is standardized with known values of conductance observed with a standard KCl solution.
- 4) **Alkalinity:** Alkalinity is a chemical measurement of water's ability to neutralize acid. Alkalinity is also a measure of a water buffering capacity or its ability to resist changes in pH upon the addition of acids or bases. Alkalinity of natural water is due to primarily to the presence of weak acid salts, although strong bases may also contribute (i.e. OH<sup>-</sup>) in the extreme environment. Bicarbonate represents the major form of alkalinity in natural water, so its source being the partitioning of CO<sub>2</sub> from the atmosphere and the weathering of carbonate minerals in rocks and soil. Other salts of weak acids, such as borate, silicates, ammonia, phosphate, and organic bases from natural organic matter may be present in small amounts.
- 5) **Dissolved Oxygen:** The amount of oxygen dissolved in water, such as a lake, river or stream. Dissolved oxygen is the most important indicator of the health of water bodies and its capacity to support a balanced aquatic ecosystem of plants and animals. Warm water released from industrial outlets, flowages or storm sewers can also reduce dissolved oxygen levels. Dissolved oxygen may play a large role in the survival of aquatic life in temperature lakes and reservoirs during summer months.
- 6) **Total Hardness:** Total hardness is defined as the sum of calcium and magnesium hardness in mg/L as CaCO<sub>3</sub>. Total hardness in fresh water is usually in the range of 15 to 375 mg/L as CaCO<sub>3</sub>. Calcium hardness in freshwater is in the range of 10 to 250 mg/L, often double that of magnesium hardness (5 to 125 mg/L) and total hardness of 6630 mg/L as CaCO<sub>3</sub>. A high concentration of hardness may be due to leaching from the soils or due to the high background concentration of the waters. WHO permissible limit for total hardness of water is 150 mg L<sup>-1</sup> and ISI desirable limit was 300 mg L<sup>-1</sup>. Suggested that the values between 150 and 300 mg L<sup>-1</sup> of TH means the water was hard, and TH greater than 300 mg L<sup>-1</sup> means the water is very hard. High concentration of hardness may cause the problem of heart disease and kidney stones.
- 7) **Total dissolved solid:** Total dissolved solids are the total amount of mobile charged ions, including minerals, salts or metal dissolved in a given volume of water in mg/L. TDS is directly related to the purity of water and the quality of water purification system and affects everything that consumes, lives in, or uses water, whether organic or inorganic, whether for better or for worse. Common inorganic salts that can be found ~ 27 ~in water include calcium, magnesium, potassium and sodium, which are cations and carbonates, nitrates, bicarbonates, chlorides and sulphates which are anions.
- 8) **Chemical oxygen demand:** The standard method for indirect measurement of the amount of pollution in a sample of water. The chemical oxygen demand test procedure is based on the chemical decomposition of organic and inorganic contaminants, dissolved or suspended in water. In the present investigation the recorded low value of DO and higher values of BOD and COD can be described to the discharge of effluents and non-point source of pollution in the coastal area and mangrove station (P. Maheshkumar 2012)
- 9) **Biochemical oxygen demand:** Biochemical oxygen measures the amount of oxygen that microorganisms consume while decomposing organic matter, it also measures the chemical oxidation of inorganic matter BOD is a measure of organic material contamination in water, specified in mg/L. BOD is the amount of dissolved oxygen required for the biochemical decomposition of organic compounds and the oxidation of certain inorganic materials (e.g., iron, sulphites). Typically the test for BOD is conducted over a five-day period (Milacron Marketing Co.).
- 10) **Carbonates:** Whenever the pH touches 8.3, the presence of carbonates is indicated. It is measured by titration with standardized hydrochloric acid using phenolphthalein as indicator. Below pH 8.3, the carbonates are converted into the equivalent amount of bicarbonates. The titration can also be done pH metrically or potentiometrically.
- 11) **Bicarbonates:** It is also measured by titration with standardized hydrochloric acid using methyl orange as indicator. Methyl orange turns yellow below pH 4.0. At this pH, the carbonic acid decomposes to give carbon dioxide and water.

- 12) **Nitrate:** Nitrate is naturally occurring inorganic ions present in our environment. The decomposition of organic materials in soils, releases ammonia. This ammonia oxidizes to form nitrate. Drinking water containing nitrates. Wells with high levels of nitrate can contribute to significant exposure. Eating foods containing nitrates preservative, such as processed meats. Nitrates can change normal hemoglobin to methemoglobin. Nitrate test can be detected through urine and blood test.
- 13) **Chloride:** Chloride, the ionized form of chlorine, is one of the most abundant inorganic ions in natural water and wastewater. Though most prevalent in sea water at concentration averaging 35000ppm, Chloride permits rivers, lakes, and other freshwater systems. In normal fresh water, chloride concentration is usually less than 10 ppm, but quite often less than 1 ppm. The potentiometric method of chloride analysis by silver nitrate titration is an effective technique of chloride level determination. The effect of chloride on stomach discomfort, Eye/nose irritation.
- 14) **Sulphates:** It is measured by the nephelometric method in which the concentration of turbidity is measured against known concentration of synthetically prepared sulphate solution. Barium chloride is used for producing turbidity due to barium sulphate and mixture of organic substances (Glycerol or Gum acacia) and sodium chloride is used to prevent the settling of turbidity.
- 15) **Calcium:** It is measured by complexometric titration with a standard solution of EDTA using Patton's and Reader indicator under the pH condition of more than 12.0
- 16) **Iron:** Iron is one of the most important constituent of blood in human and other living organism. Iron is an essential element for human nutrition and metabolism, but in excess quantities results in toxic effect like hemochromatosis in tissues. The maximum permissible limit of iron in drinking water is 0.3 ppm. (P.Tambekar 2013)

#### 4. CONCLUSION

Amounts of minerals such as Na, Ca, and Mg were present below than WHO recommended level but water from seloo regions of Wardha contain more amounts of these minerals.. The amounts of various elements in this study characterization of the physiochemical parameters of water from different.

Further research can be carried out for detailed mapping and hydrological studies for existing water sources to show flow lines and hydrogeochemical survey in that area. It is also necessary to find out the source of contaminants which is due to soil types, industrialization, water chemistry and other human activities.

S. No.	Parameters	Sample 1	Sample 2	Sample 3	Sample 4	SD
1.	pH	7.2	7.3	7.5	6.9	±0.3
2.	Conductivity	180	240	230	290	±45.1
3.	TDS	58	65	70	75	±7.3
4.	Odour	0	0	0	0	±0.0
5.	Temperature	29	29	30	29	±0.5

**Table 1:** Physical parameters of water samples.

Chemical property (mg/L)	WHO	Sample 1	Sample 2	Sample 3	Sample 4	SD
Chloride	200	120	140	160	190	±33.47
Sulphate	200	74	120	140	180	±49.79
Calcium	100	80	73	75	90	±11.28
Magnesium	150	70	90	120	140	±33.62
Nitrate	45	28	35	38	42	±6.58
Sodium	130	30	42	58	65	±38.82
Potassium	100	35	47	56	67	±24.77
Iron	1.0	0.75	0.83	0.85	0.97	±0.10
Zinc	15	5	7	7.5	9.5	±3.82

**Table 2:** Chemical properties (mg/L) of water samples,

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**SUSTAINABLE DEVELOPMENT: ENVIRONMENTAL, ECONOMIC AND SOCIO-CULTURAL ISSUES & CHALLENGES**

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**ABSTRACT**

*The human race has rapidly been heading towards an age where socio-economic development has become synonymous with the sustainability of resources and their well thought out use. We as a generation are heavily burdened with the responsibility of using our resources rationally so that the future generations can be saved from the ravages caused by scarcity of resources especially those which are non-reproducible types. The damage caused by the irrational behaviour of people in general and governments, in particular, has wreaked havoc on the existence of millions of species inevitable for maintaining a balance of the ecosystem we are a part of. The flora and fauna of regions across the globe have faced the brunt of the irrational political decisions taken by the governments to appease their industrialists and manufacturers who are coincidentally the most potential sources of revenue for them. Apart from this, the excessive use of plastic articles and chemical products in our daily lives, too, has pushed us on the brink of a crisis-like situation that has led to disruptive changes in the rainfall patterns and erratic climatic conditions of the regions across the globe. The melting of glaciers and thus the rising of the sea levels are currently challenging humanity in an unprecedented manner.*

*The current article focuses on the potential threats of lack of humane approach towards solving the problem of inappropriate exploitation of the resources, its potential threats, and negative repercussions. The article also throws light on strategies and policies that can help solve the problem.*

**Keywords:** *sustainable development, reproducible and non-reproducible resources, political ideologies, green hydrogen, bio-fuels, innovation, preservation of resources, research & development*

**INTRODUCTION:**

The scenario across the globe is fast changing in terms of development and so is the approach of the political setups to acquire this ever so enchanting goal ensuring a better quality of life to their citizens. There used to be times when industrialization was regarded as equivalent to development and countries had fast spearheaded in the direction of industrializing themselves without giving much thought to the environmental hazards the process entailed. It is only when the rapidly spreading industrialization started resulting in the fast depletion of resources of limited availability that the people realized the heavy cost industrial development brought along. The story did not end here. Over a period of time, the industrial processes started causing environmental pollution resulting in health-related issues and other hazardous situations for society. The most vulnerable groups being the infants and elderly people got affected the worst. The living testimony to the situation lies in the fact that (according to a health estimate), approximately 28% of children are born with respiratory disorders owing to the severity of environmental pollution in the world. Every day around 93% of the world's children under the age of 15 years (1.8 billion children) breathe air that is so polluted it puts their health and development at serious risk. This in the long term leads to efficiency issues amongst the sufferers and thus affects their general productivity. The problem could have been manageable if the stakeholders i.e., the political leaders, policymakers, international environment agencies would have carved policies that would have checked the problem and would have stopped its further occurrence. The situation instead deteriorated with political systems and governments having conflicting opinions and approaches towards the problem. The political and ideological differences amongst the political leaders have added fuel to the fire of lack of unanimity concerning reaching a consensus on making the development sustainable through mutual support and cooperation. Withdrawal of the USA from the Paris agreement is a living testimony of such conflicting ideologies wherein the Trump government isolated the USA from the accord on the grounds of it being discriminatory for his country. There had been a deep sense of disgruntlement amongst the Trump administration for the agreement being favourable and overwhelmingly supportive for nations like India and China despite them being responsible for maximum emission of greenhouse gases like carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O).

The severity of the problem can be judged from the fact that the World Bank added the issue of sustainability in its agenda in the late 80s and reinforced the inevitability of taking conscious measures to stop the damage industrialization had been causing to the environment and resources endowed by nature. Being a representative

organization, it decided to shoulder the responsibility of spreading information and awareness amongst the member nations focussing on sustainable development of the socio-economic systems. The simple message sent by the organization to the nation concerned was to use their resources in a way that their future generations too can avail of them. The agency also emphasized exploring substitutes in case of resources that cannot be reproduced and whose availability is essential for the growth of the countries.

The gravity of the situation can be understood by citing the example of fossil fuels formed by the decay of the dead animals and creatures deep down the sea, a process that takes hundreds of years to complete as well as natural gas and coal. The availability of such energy resources with us is scarce and their reservoirs are confined to a few countries that are working in collusion-forming cartels and thus charging prices of their choice. The world did not have an answer to this problem till recently. However, the emergence of electronic vehicles is perceived to be a silver lining for the nation's worst stricken by the skyrocketing prices of fossil fuels causing an adverse balance of payment situation for them. The arrival of the world-renowned e-vehicles manufacturing company Tesla gave a ray of hope to the countries across the globe who had desperately been looking for the solution to the problem posed by the monopoly of the oil supplying nations. India as a nation too did its bit in this regard where efforts are being undertaken to replace the use of fossil fuels with biofuels that are reproducible in nature and do not cause any serious threat to the environment. The pilot project undertaken by the government of India to mix the regular jet fuel with bio fuel extracted from a plant called *jatropha* found in abundance in the state of Chhattisgarh was a quantum leap in the direction of finding alternatives substantiating the cause of making the development sustainable and long-lasting. The recent project of mixing 13 percent of mustard oil with the regular fuels in motor vehicles, too, met with exceedingly encouraging results. The government is bound to increase the percentage to 25 in a few years from now. The option of e- vehicles, too, needs a special mention here. The government in India has seriously been contemplating replacing the conventional fuel-driven vehicles with electronically chargeable vehicles in a few years from now. The time is not far where the automobile sector will be swept away by the arrival of the e-vehicles in a phased way and problems like environment pollution or sustainable use of the very limited non-reproducible energy resources will be answered effectively.

Another area that requires immediate attention in current times to achieve the goal of sustainability and clean environment is that of the safe disposal of the garbage coming out of the household as well the manufacturing units. The right approach in this regard is three-tiered. The first tier involves effective policy formation and its systematic implementation. Here the role played by the government both central and the state becomes increasingly crucial. The first and the foremost requisite condition in this regard is that there should be complete compatibility between the centre and the state when it comes to policy execution. The government instead of being guided by the vote bank politics should pay heed to the larger national interest. Unifying with the international environment protecting agencies, governments should contribute their bit in correcting the public health scenario caused by the deteriorating environmental conditions. Sustainable development goals (SDGs) so as to ensure socio-economic development minimising environment related problems, completing the needs of the existing population without compromising the quality of the life of future generations, too, should be set by the policymakers. There should be an agenda of transforming the world by tackling multiple challenges humankind is facing in this regard so that material well-being, economic prosperity, and environmental protection can be reinforced. In contrast to conventional development goals focusing on a restricted set of dimensions, the SDGs provide a holistic and multidimensional view of development. The second tier involves creating a sense of responsibility amongst the people so that they do their bit with a sense of solidarity and conformity. It's only if the governments, especially the municipal corporations and gram panchayats take the responsibility in spreading the process of spreading general awareness on how the domestic, as well as the industry-borne waste, can be disposed of in the best and the safest possible manner that the issue can be addressed manageably. The government of India's 'Swachh Bharat Abhiyaan' is a welcome step in this regard which was started with a mission to set the country free from the problem of people defecating in the open. The mission led to the construction of thousands of systematic toilets which helped people overcome the curse and embarrassment of using the open spaces for the purpose.

Another praiseworthy step of the government and some non-government agencies in this regard was to help the general public understand the importance of segregating wet from dry garbage. Initiative in this regard has been taken by the municipal corporations and the gram panchayat samitis in association with various self-help groups wherein awareness campaigns were launched to distribute trash cans for disposing of wet and dry garbage separately. Door-to-door surveys were carried out to ensure that the people do the needful and comply with the government guidelines laid down for the safe disposal of the waste.

There was also a provision for moderate fines for those who defy the rules. Conservation and preservation of resources is not an option any longer. It's a matter of survival for the human race. We can no longer turn a blind eye to the irrational use of the fundamental resources. Jungles, minerals, wildlife and other such areas should be treated with utmost care and a sense of responsibility. Careful use of the available resources, finding substitutes to the factors that once depleted cannot be reproduced, and exploring their economically viable and environment-friendly alternatives has become inevitable in the present-day situation so that the future generation can inherit an ecosystem they can thrive on.

Technology has an important role to play in this regard. Better technologies that require heavy investments in the research and development sector can potentially safeguard us from the dilemma. Another paradox to be understood in this regard is that most of the underdeveloped countries in the world have been richly endowed with minerals and other natural resources required for rapid industrialization. However, lack of access to sophisticated technology becomes a stumbling block in their optimum utilization thus either subjecting the existing reservoirs to unproductive use or causing a great deal of wastage of the natural stock.

The probable cure to this problem is that international organizations such as the world bank, UNDP, etc. should assist these countries with grants and funds so that not only their R&D sector strengthens but also their dependence on the developed world concerning exploring and utilising their indigenous resources ends.

### **RESEARCH FINDINGS:**

1. Sustainable development requires setting up of Sustainable Development Goals by the governments, policymakers, and international agencies.
2. Mutual understanding among nations about forming a consensus about environment preservation should be formed with immediate effect.
3. Research and development opportunities should be explored by the mineral and resources-rich nations for the better conservation and exploitation of the reservoirs
4. Innovative technologies for the better use of resources should be developed in close collaboration with the international agencies

### **CONCLUSION:**

The most alarming situation threatening us currently is an ever-expanding population and an acute scarcity and paucity of resources, human beings survive on. This imbalance breeds poverty, unemployment, illiteracy, malnutrition, an unproductive workforce, and many more evils of the sort. Corruption and lawlessness in society do not let us settle for the best and make the situation even worse. What is needed today is to have a more humane approach towards the generations to come. The governments must make policy reforms that lead to the restoration of the existing resources in a way that future generations too can benefit from those. We as a society should side-line our trivial interests and work towards a larger goal of contributing to the best interest of our descendants. It's time for us to get back to our roots and live our lives the natural way creating minimal waste, recycling the objects, and thus making the planet earth a worthwhile place to live. It will not only help us regain our lost vitality as a planet but also, we will be remembered as a generation sensitive to the needs of the future in the annals of history.

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**THE STUDY ON ROLE OF RENEWABLE ENERGY SOURCES AND ITS CHALLENGES ON ENVIRONMENTAL PROTECTION**

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Powai Vihar, Powai, Mumbai – 400 076**ABSTRACT**

*Sustainable development is a proposal to grow and develop by using resources which allow to renew and continue to exist for others. When renewable resources and materials are used, they help in sustainable development. Due to increasing in the population day by day, there is more demand of the energy. Fuels for the kitchen, to run the vehicles, powers for cities etc. require energy. Thus if there are renewable energy which emits clean energy, there will be less pollution and it will assist to improve the environmental protection. In this paper, we discuss alternative technologies for enhancing renewable energy deployment, energy use efficiency and challenges.*

*Key words: Energy, Renewable energy, technologies.*

**• INTRODUCTION:**

*It is the time for a sustainable energy policy which puts consumers, the environment, human health and peace first. Dennis Kucinich.*

The energy collected from the sources which will not be depleted when used such as wind, solar energy, waste materials (eligible biomass), earth's heat (geothermal) and rain etc. is renewable energy. It has important role in the sustainable development. As the world population is increasing day by day, we require high amount of renewable energy in energy sector in both developing and industrialized countries. These energies are clean and do not harm the environment in terms of waste emissions, resource extraction, or other environmental disruptions. Day by day the demand for fossil fuels are increasing which creates the energy crisis. Global warming is caused by excessive use of fossil fuels which emit CO<sub>2</sub>. Renewable energy technologies provide an excellent opportunity for reducing the harmful effect of greenhouse gas emission and reducing global warming through substituting conventional energy sources. The government should play important role to promote such energies.

**• OBJECTIVES OF THE STUDY:**

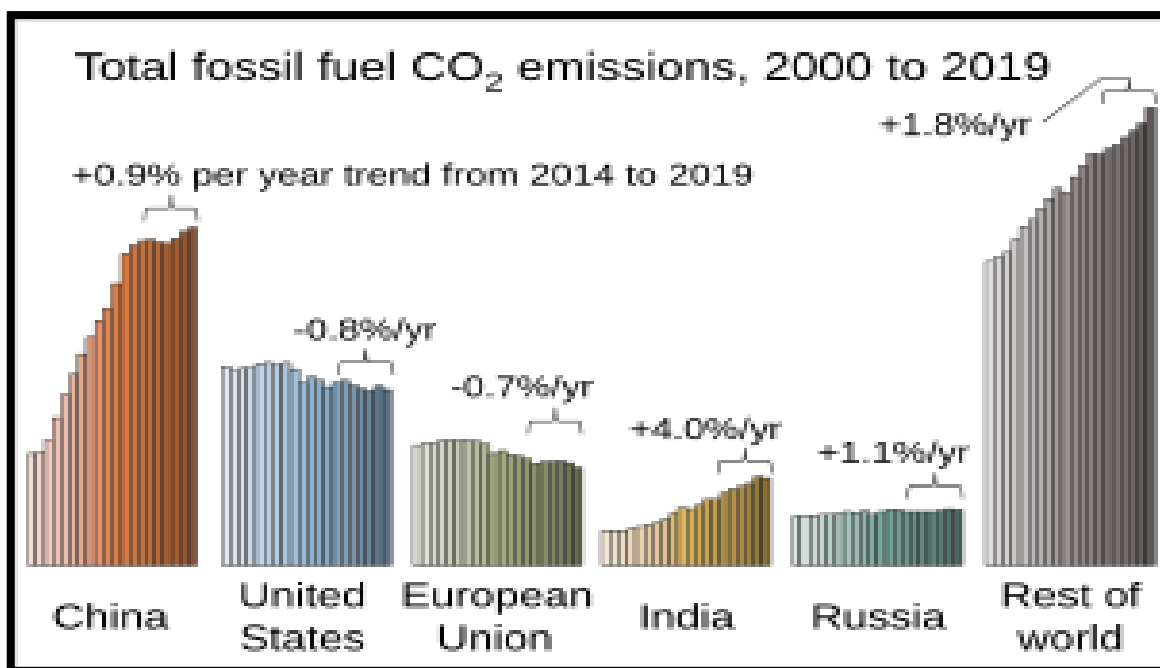
The objective of the study is to find out different scopes of renewable energy technology to meet our daily energy needs along with the environmental protection.

**• RESEARCH METHODOLOGY:**

The secondary data are used for the study which were collected from different journals and websites.

**• NEED OF RENEWABLE ENERGY:**

Increased use of fossil fuels, deforestation, and greenhouse gas emission results in warming of the planet and thus the temperature is increasing day by day. This warming isn't the same everywhere. The areas around the poles are warmer than the To keep warming below 1.5°C, we need to make the switch from fossil fuels to 100% renewable energy and bring our carbon pollution down to net zero.



- **SOURCES OF RENEWABLE ENERGY:**

The sources which can be used to produce energy again and again are sources of renewable energy.

- **RENEWABLE ENERGY TECHNOLOGIES:**

- **WIND ENERGY TURBINES:**



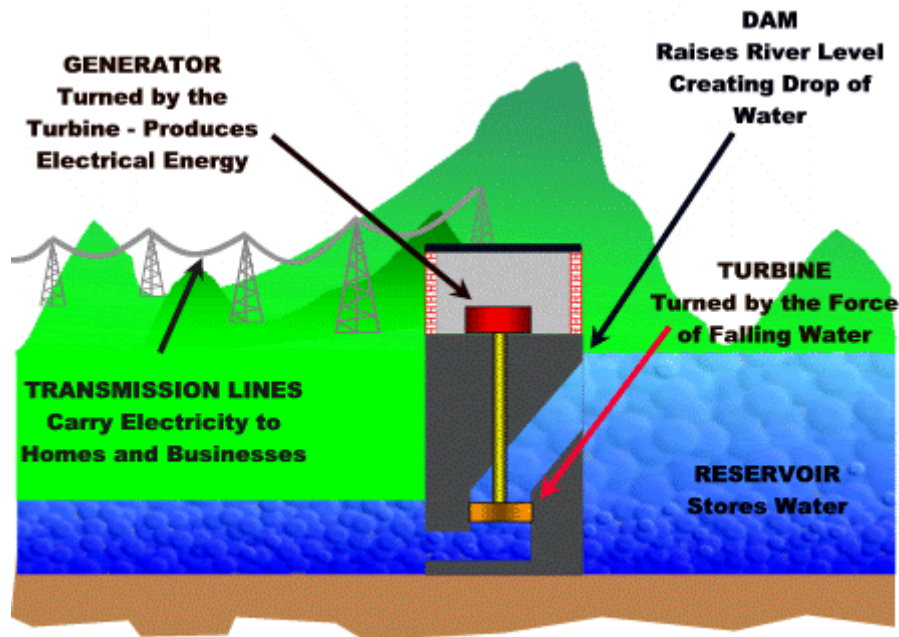
Wind turbines capture the wind energy and turns in to electricity. Wind energy is a clean source of energy which in comparison to other forms of energy does not pollute the air. It does not produce carbon dioxide or any harmful product that can have negative impact on the environment or human health like acid rain, smog or other trapping gasses. For the maintenance and servicing of turbines there can be need of the people which can open up new opportunities for job.

**Challenges:**

Since these turbines are set up in rural or outer areas which are far from cities where electricity is needed most. So it leads to higher cost in transportation of wind energy via transition lines. Also these turbines generate noise and the transition wires go through skylines, many cities oppose this energy. Wind turbines also disturbs the flight of local wildlife birds, which are sometimes killed by hitting the arms of the turbines while flying.

- **HYDROELECTRIC POWER:**

At hydroelectric power plant, the energy of flowing water is converted into mechanical energy by using turbines and then turbines converts this mechanical energy into electricity. Hydroelectric power plant is environmental friendly as it does not generate pollution.

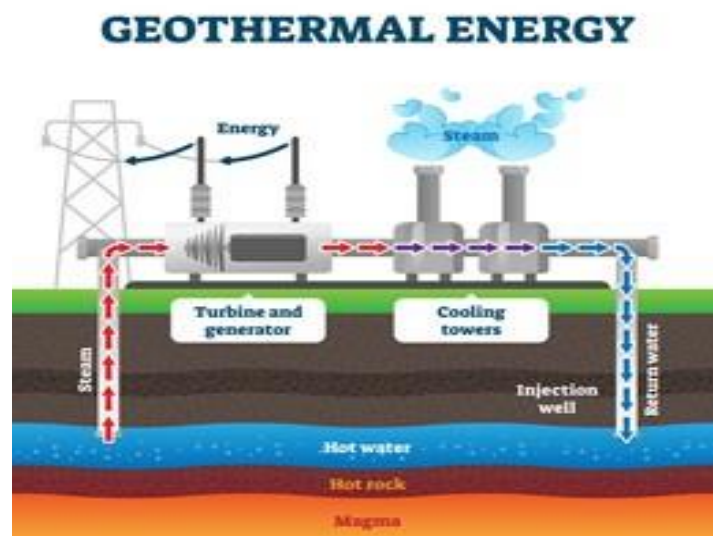


### Challenges:

Hydroelectric power plant is expensive to set up. Although it does not pollute the environment like other power plants that burn fossil fuels such as coal or natural gas, it negatively effects the animals living in the water. To build dam, environment is disrupted. As dams are reservoirs that flood large areas and displace the natural habitat which disturbs the environment. The oxygen level behind the dam is low as it limits the flow of water. So it becomes difficult for some species of fishes to survive, which affects river habitats. It also cause draught condition in downstream if sufficient water is not allowed to pass through. To set up hydroelectric power plant, it not only displaces the animals but also people. The people living in nearby area are forced to move to other places.

### ○ GEOTHERMAL ENERGY PLANT:

Heat is continuously produced inside the earth due to slow decay of radioactive particles. At geothermal power plant the wells are dig deep inside the earth to pump steam or hot water to the surface. The reservoirs of hot water inside the earth produces steam which rotates the turbine. These turbines are connected to the generators which produce electricity.

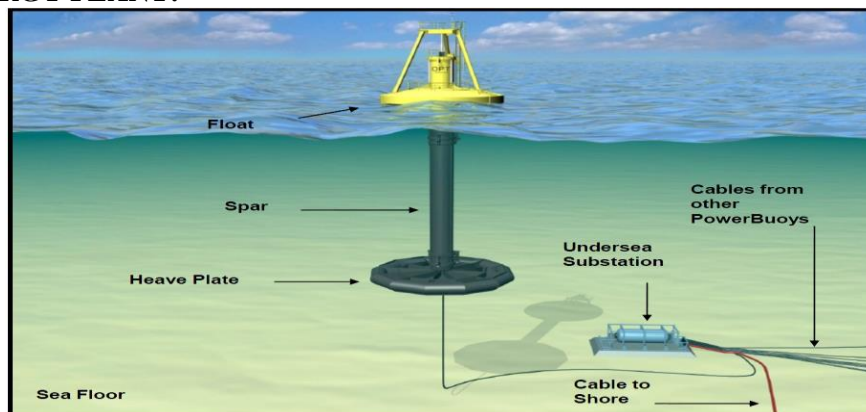


Geothermal power plants can be built underground so it leaves very little foot prints on the land. This energy can be refilled naturally and cannot diminish easily.

### Challenges:

Geothermal power plants are very expensive to install. It emits harmful gasses. It can also cause earthquakes.

### ○ WAVE ENERGY PLANT:

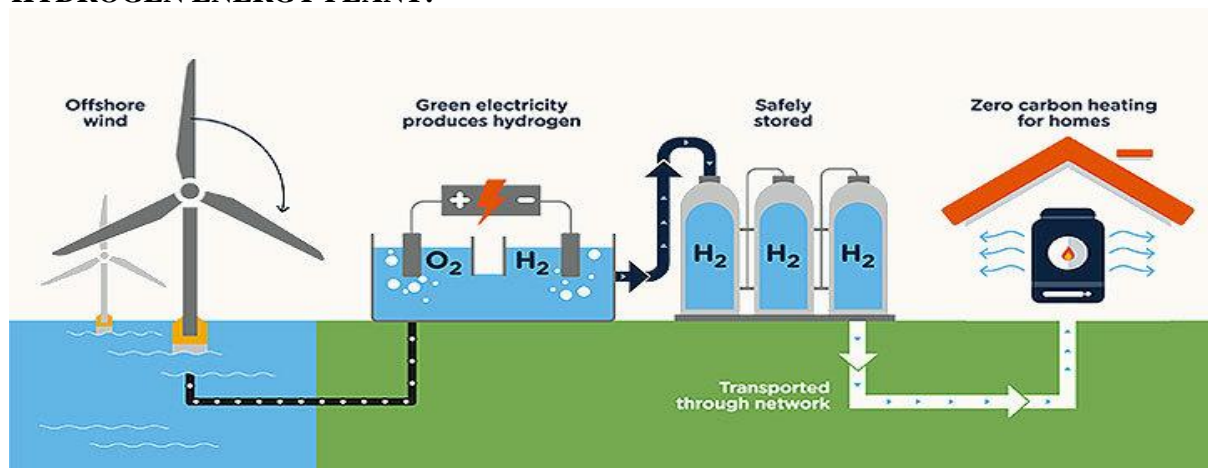


Sea surface have tremendous energy. When wind blows across the sea surface it transfers the energy to the waves. The wind power plants are placed on the surface of the ocean which captures the energy produced by wave movement and converts this mechanical energy into electrical power. It is renewable energy. It is used to generate electricity, desalinating water and pumping of water.

#### Challenges:

It is beneficial to those who are living near to the ocean. Also it can disturb the ocean's ecosystem. When there is rough weather, it will be difficult to produce the consistent wave. Also it is expensive to install.

### ○ HYDROGEN ENERGY PLANT:

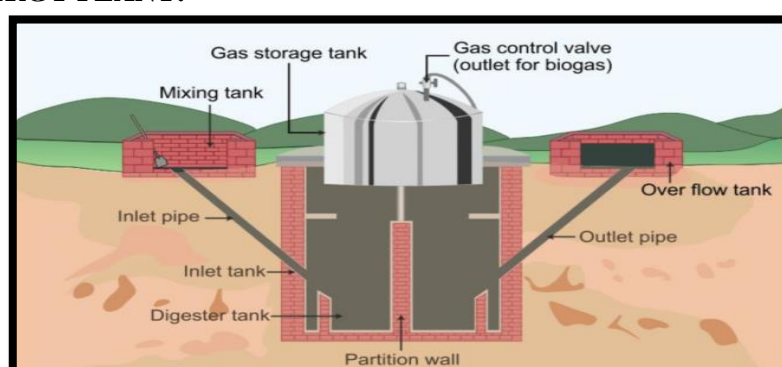


Hydrogen and oxygen atoms are combined in the hydrogen fuel cells and produce electricity. Hydrogen is a clean fuel. When it is consumed in a fuel cell, it produces only water. Large tank of liquid hydrogen provides thousands of hydrogen fuel cells. Hydrogen fuel leads to less pollution and a cleaner environment. It is a clean source of energy with no adverse impact on environment.

#### Challenges:

Hydrogen is highly flammable fuel source which brings safety concern. Since energy is required to produce hydrogen. So it can lead to pollution. Also initial cost of fuel cells can be high.

### ○ BIOMASS ENERGY PLANT:



Biomass is a renewable source of energy developed from organic based material or carbon based compound like wood, Manures, leaves etc. Trees and plants absorb carbon dioxide from the air by using photosynthesis and separate the carbon. These carbons are used to build tree trunks, bark and leaves. But when the plant dies, these parts of plants decay and release so much carbon in the atmosphere as carbon dioxide. Thus biomass is used to recycle these carbons. Liquid transportable fluid like gasoline, jet and diesel fuel are obtained from biomass.

### Challenges:

Biomass energy plant requires a big area to operate. So it cannot be possible to install it in cities. The main source of biomass energy is wood which may cause deforestation. Also it is not completely clean. Burning biomass creates air pollution which can have bad impact on health.

- **CONCLUSION:**

The consumption of renewable energy is required for the economic development of a country. Renewable energy can help in reducing import of energy and use of fossil fuel. It also helps to conserve the natural resources of the country. As the energies are used in almost all the energy sectors like industries, transport etc so there is need of renewable energy. This energy can also be used by developing countries if it is cost effective. Hence we hope that with the advancement in the technology these renewable energy resources will be in the reach of developing countries also.

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**VIRTUAL REALITY: A REVIEW**

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**ABSTRACT**

*Reality refers to the actual existence of things in a physical world that may be experienced by the senses of the human body. The definition of the term reality has been changed by technology. As technology has evolved, various types of realities come into existence that have altered the meaning of the term reality. Virtual reality refers to creating an immersive simulated environment through technology which a person can experience. Depending on the degree of user isolation from a physical world the types of virtual reality such as non-immersive, fully immersive, semi – immersive came into existence. Virtual environments in which virtual objects appear to be real are perceived through effective 3D graphics systems, large displays, interactive videos, haptic feedback, wearing gadgets such as head mounted displays, goggles that support virtual reality. Due to Covid19 pandemic, social isolation has promoted the need of virtual reality to support daily life, career oriented and entertainment activities. The devices such as television sets, computers, and game consoles support non-immersive virtual reality technology used for education and entertainment. Semi- immersive virtual reality in the field of medicine and manufacturing makes it possible to give training in a safe environment for things with safety issues in the physical environment. Collaborative virtual reality is semi - immersive technology facilitated by the platforms such as Google meet, Zoom, Microsoft teams to support virtual interactive communication between the geographically distributed people. Psychological disorders such as phobia can be treated with virtual reality therapies. Through Fully immersive virtual reality users can virtually feel physical world actions such as an accident and bullet penetration. The aim of this review paper is to study the various types and application areas of virtual reality.*

*Keywords: Reality, Virtual Reality, Simulated Environment, Immersion*

**INTRODUCTION TO REALITY AND THE TYPES OF REALITY INTRODUCED BY TECHNOLOGY**

Reality refers to the actual existence of things in a physical world that may be experienced by touch, smell, hearing, vision and taste which are the senses of the human body. With evolution of technology various types of realities come into existence. In virtual reality a simulated environment is created with the help of a computer and the user gets immersed into that environment. Virtual environments in which virtual objects appear to be real are perceived by wearing gadgets such as head mounted displays, goggles that support virtual reality. Augmented reality is a combination of the actual physical world and computer generated virtual things. Augmented reality found the application in the area of games such as Pokemon Go, Marketing, Medicine and advertisement. Mediated reality is where digital objects can be interacting in a physical world. Mediated reality can be considered as a mixture of virtual reality and augmented reality.

**The types of virtual reality**

Virtual reality immerses users in a virtual world by isolating the user from a physical world. Depending on the degree of user isolation from a physical world the types of virtual reality came into existence.

**Non- immersive virtual reality**

In non- immersive virtual reality, the user is aware of the physical condition and the virtual environment. The devices such as television sets, computers, and game consoles support non- immersive virtual reality technology. While watching a particular television show or particular place on a television set, a person gets a virtual feeling of presence at that place. Computers provide virtual documents, virtual objects which can be accessed through keyboard, mouse or trackball. Video games players interact with virtual game objects and characters. Video games change the state of mind of a player based on the state of a game being played. Non-immersive virtual reality doesn't require a high level of graphics performance or special hardware. Sense of immersion is very low in non- immersive virtual reality.

**Semi- immersive virtual reality**

In semi- immersive virtual reality users can feel a simulated environment, still aware of physical conditions. The semi- immersive virtual reality provides realism through detailed 3D graphics, hard simulators, shutter glasses and high resolution display systems by simulating user senses such as hearing and vision. Semi-immersive virtual reality makes it possible to give training in a safe environment for things with safety issues in the physical environment. Flight simulator enables training of pilots without taking the risk of flying real



airplanes. Formula 1 simulator gives virtual experience of driving a car to a user by replicating the real world driving challenges. In the field of education semi- immersive virtual reality assists students in the learning process by visualization of concepts through virtual components. Semi- immersive virtual reality found applications in the area of aviation, training, education and entertainment.

### **Collaborative virtual reality**

Collaborative virtual reality is semi - immersive technology that supports virtual interactive communication between geographically distributed people. Collaborative virtual reality enables employees to work together to achieve a common goal by facilitating face to face communication. Collaborative virtual reality has assisted the teaching learning process where teachers can interact with students and share study material with them. Applications of collaborative virtual reality include distance learning, consumer interaction in marketing, social entertainment. Online platforms such as Zoom, Google meet; MS Teams supports collaborative virtual reality.

### **Medical virtual reality**

Medical virtual reality is semi – immersive in nature, enabling the training of doctors and nurses in a virtual environment. Computer Graphics is an effective tool that can be used to design virtual views of internal organs of the body used for training purposes. Psychological disorders such as phobia can be treated with virtual reality therapies.

### **Manufacturing Virtual reality**

Semi – immersive virtual reality in the field of manufacturing enables workers to work in a simulated environment with tools which ensures safety before stepping into a factory. It helps in increasing productivity, designing customized products that fulfills user requirements and reduces the training cost.

### **Fully immersive virtual reality**

Fully immersive virtual reality enables user to experience virtual environment as the real world by simulating human senses such as vision, hearing, touch and smell through gadgets such as glasses, headphones, gloves and head mounted displays. Vision simulation plays important role of immersion in virtual reality technology. Effective 3 D graphics, High resolution videos facilitates virtual experience of the world that may be imaginary or physically exists. Auditory effects created through the technology provide more realistic view of virtual world. Haptic feedback enables user to interact with the virtual objects of simulated environment. Force feedback enables user to feel the physical weight while manipulating virtual objects to get the sense of realism. With vibration feedback actions in a physical world are reflected in virtual world for manipulating virtual objects. Changes in the temperature can be sensed by the user through thermal feedback supported by thermoelectric devices. Electro stimulation supports a deep level of body simulation through artificial sense of touch, force and temperature. Through electro stimulation users can virtually feel physical world actions such as an accident and bullet penetration. Fully immersive virtual reality can be used for entertainment purpose.

## **CONCLUSION**

Virtual reality refers to creating an immersive simulated environment through technology which a person can experience. Depending on the degree of user isolation from a physical world the types of virtual reality such as non- immersive, fully immersive, semi – immersive came into existence. Due to Covid19 pandemic, social isolation has promoted the need of virtual reality to support daily life, career oriented and entertainment activities. Virtual reality has a broad range of applications including entertainment, education, training, manufacturing, medicine, psychological therapies etc.

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**A SURVEY ON AWARENESS AND ATTITUDE OF PEOPLE TOWARDS HOUSEHOLD SOLID WASTE DISPOSAL**

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*The topic of environmental protection has attained importance in the present era globally but the simple practices like proper waste disposal are often neglected, as a result of which today one of the most important concerns and worries of community is the disposal of solid waste. Public participation has a direct bearing on effective and efficient solid waste management. People all round the globe are aware of the impact of improper waste disposal practices, but the improper techniques of implementation give rise to chaotic situations. The Solid Waste Management Rules (SWM), 2016 states that the waste generator has to segregate the waste at source into three bins as wet waste, dry waste and domestic waste and then hand it over to the waste collector. To find out the practicality about implementation of the waste segregation from households, the present survey work was carried out to obtain information on awareness on waste management practices and their attitude towards household waste disposal. The survey analysis showed that among 109 households, most of the responders are aware about problems related to solid waste disposal but the severity of the problem is not considered by them. It is evident from this study that there is difference between awareness and attitude. Further, since waste collector mixes different types of waste at their end, some people have stopped taking efforts to segregate waste. The study reveals the necessity of giving mass awareness regarding the segregation of household waste and managing them properly.*

*Keywords- Household waste, Segregation, Survey, Awareness, Solid waste disposal.*

**INTRODUCTION**

The word waste means any substance which is no more usable or unwanted material. Over the decades, solid waste which has been categorized as unwanted material has caused varied environmental problems especially land and soil pollution. According to the Organization for Economic Co-operation and Development, the cities generate 50 % of global waste. The World Economic Forum's white paper on the Circular Economy estimates that, more than 70% of global population will be living in cities and will generate over 1.3 billion tons of solid waste annually by 2050.

Today, as we are developing towards more industrialization and commercialization, the problem of the solid waste is also magnifying. Due to extensive environmental pollution to Mother Earth, lots of concern has been raised to protect our earth from this anthropogenic source of environmental nuisance. Today, globally, various attempts are being made towards Solid Waste Management. As the entire world is aiming to meet Sustainable Development Goals by 2030, many efforts are also taken by environmentalists and scientists to tackle the problem of solid waste in a sustainable manner. Since 2000, the World Bank has committed over 4.7 billion dollars to more than 340 solid waste management programs in countries across the globe. Most of the countries whether developed or developing ones, are trying to convert waste into wealth.

Solid wastes are broadly classified into degradable and non-degradable substances. Solid waste is created from all the sectors like residential, commercial and industrial sectors. But the characteristics of these waste differs depending upon source. Non- degradable wastes like plastics, glasses, etc. have been managed by the principle of 4 R's (Reduce, Reuse, Recycle and Refuse) wherein lots of efforts are being made to take care of such wastes. But the problem of degradable waste like municipal solid wastes is more as it is more difficult to manage this waste.

Household solid waste is the waste generated from private homes and apartments comprising of garbage and rubbish. Such waste comprises of solid rubbish (vegetable peelings, leftover food, bottles, tetra packs) including biodegradable and non-biodegradable waste. These wastes are collected as huge municipal waste by concerned staff of local municipal corporations on daily basis. According to Swachh Bharat Abhiyan started by our Honorable Prime Minister Shri Narendra Modi, all household waste should be segregated at source before being disposed to waste collectors so as to reduce its impact on the environment and on public health ultimately.

Increasing population, urbanization, industrialization and changing consumption patterns are resulting in the generation of increasing amounts of solid waste and diversification of the type of the solid waste generated, which lead to problems of improper disposal of solid waste. One of the major causes of environmental degradation is improper disposal of solid waste. It is a major cause of environmental pollution and outbreak of various diseases. Proper management of the generated waste is important with this matter.

Solid Waste Management (SWM) has 3 basic components collection of waste, transportation of waste and its disposal. Comprehensive solid waste management incorporates a diverse range of activities including reduction, recycling, segregation, modification, treatment and disposal which have varying levels of sophistication (Zagozewski et al, 2011). The objective of SWM is to reduce the quantity of solid waste disposed off on land by recovery of materials and energy from solid waste in a cost effective and environmentally friendly manner (MF, 2009). It is now becoming essential to look for methods by which the garbage load on the land can be reduced. It is seen that at present segregation of waste at source seems to be the best method. This would help in reducing the waste and promoting effective waste management at the source i.e. where the waste is generated, segregation is vital. This study is restricted to households as the source of waste generation. It hardly takes any time for an individual to put biodegradable and non-biodegradable waste in two separate bins. Further the biodegradable can be converted into compost, from the non biodegradable items can be reused and only a small portion of remaining waste that is of no use can be discarded. This exercise not only saves a lot of effort at the dump site but also reduce the total amount of waste generated. Which ultimately reduces the need for new dumping grounds, which becomes breeding grounds for flies, rodents, pest and leachate polluting underground water and the reduction in the harmful gases which aggravates global warming.

There was no much effort taken in the past on creating community awareness, either on the likely perils due to poor waste management or any simple steps that a citizen can take.

The Solid Waste Management Rule, 2016 which states that it is the duty of the individual generating the waste to segregate and store the generated waste into separate bins as biodegradable waste collection bin known as wet waste, non-biodegradable waste collecting bin as dry waste and domestic waste collection bin and handing it over to the person collecting the waste in the segregated form. Also, the residential societies need to process, treat and dispose the biodegradable waste within the premises and the remaining waste should be handed over to the waste collecting authorities. As today we are experiencing the ill effects of inappropriately managed waste. Hence, this study is an attempt to find out awareness among the people and their attitude towards household waste disposal. The objectives of the present work include:

- To find the awareness among the people towards household waste management.
- To analyze the attitude of the people towards household waste disposal.
- To suggest some measures for household waste management.

### **Materials and Methods**

**Study area:** A survey was conducted for the housing societies located in Kandivali, Mumbai (MS). The study area is surrounded by many residential buildings.

**Survey:** To avoid one to one contact in this pandemic period due to the outbreak of Covid-19, a survey was conducted by creating google form bearing 10 questions excluding personal details. The link for the google form was circulated to the WhatsApp group of 12 housing societies. The google form consists of which is as follows:

1. Where do you store your daily garbage?
2. Where do you throw the garbage from your dustbin?
3. Do you segregate your waste into dry waste and wet waste?
4. If NO why?
5. Are you sometimes confused with the waste whether it's a dry waste or wet waste?
6. Are you aware about the 3 R's (reduce, reuse, recycle)?
7. Do you reuse items like plastic bags, parcel containers etc.?
8. Any other measures taken to reduce the amount of waste you generate?

9. Are you aware about the problems related to solid waste disposal?

10. Information related to segregating, reducing the waste is reaching you through.

**Data analysis:** The responses obtained were analyzed and graphical representation of the responses was reported in the form of pie-chart.

### Results and Discussion:

Open dumping grounds lead to the generation and release of Greenhouse Gases (GHGs). As we head into a climate conscious society, it is imperative that we plan to reduce the amount of potential GHG emissions through waste management. In the present work, the data obtained is a primary data. The google form link was circulated through WhatsApp in different groups. Total 109 people living in different housing societies of Kandivali (MS) area responded to the questionnaire. The questionnaire helped to assess their attitude and awareness towards household waste disposal.

The sample represented 60.6% females and remaining 39.4% of males between the age group of 22 to 45 years. More than around 79.8% families were having four and more than four family members. Figures 1-2 depict storage and disposal of household garbage. It was evident that most of them (87.2%) store their garbage in dustbin while remaining store household garbage in plastic bags, buckets, etc. Regarding garbage disposal, 78.9% of the respondents hand it over to the garbage collector to whom they pay to collect the waste at their door step and 19.3% throw in the community bin or the vehicle by themselves and remaining 1.8% of respondents are having some other method to throw their garbage. Figure 3 shows responses to the question whether they segregate their waste into dry or wet waste at their homes. 36.7% said no they are not segregating the waste into dry and wet and 63.3% said they do segregate their waste. But out of the 63.3% respondents who segregate their waste 47.8% are not sure whether they are segregating in a correct way and some are confused with the wet and dry waste itself. This indicates that there is a need to spread more awareness about necessity for segregating waste. Figure 4-6 reveals that considerable number (76.1%) are aware about the problems of solid waste disposal and 88.1% of respondents are aware about the reduce, reuse, recycling concept of solid waste management and 78% actually reusing some of the items like plastic bags, containers etc. and many respondents having their own ways of reducing their waste among which 10% are composting their wet waste as shown in Figure

7. Media as well as local municipal corporation are playing an important role in spreading awareness regarding the segregation and waste reduction at source as depicted in Figure 8.

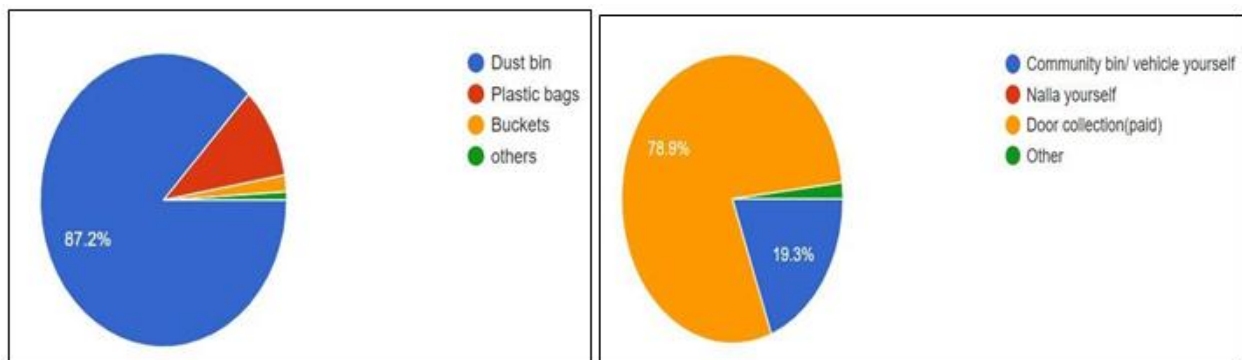


Fig 1 shows where garbage is stored at house Fig 2 shows where solid household garbage is disposed

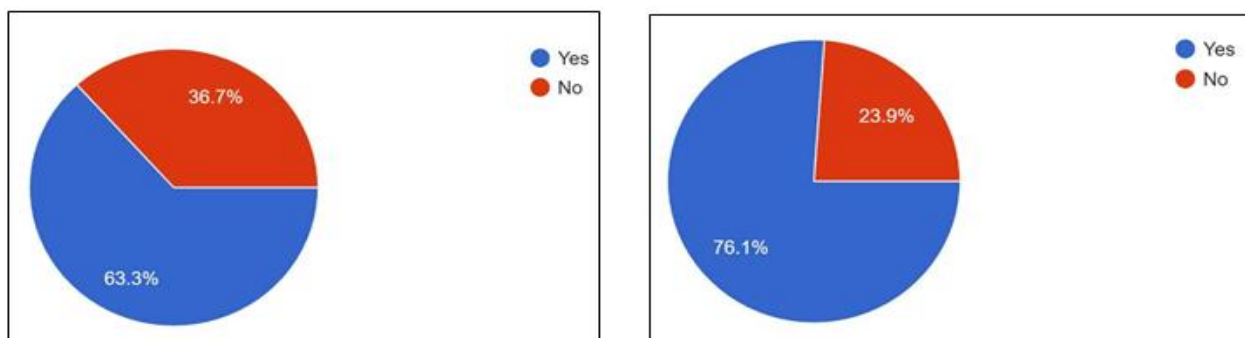


Fig 3 shows whether waste is segregated at source Fig 4 shows whether they are aware about problems associated with solid waste disposal

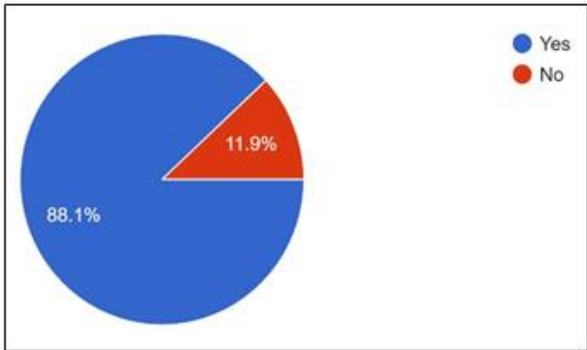


Fig 5 shows whether respondents are aware about 3R’s items

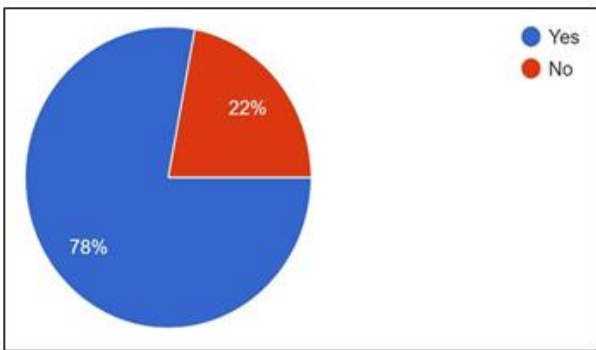


Fig 6 shows whether respondents reuse items

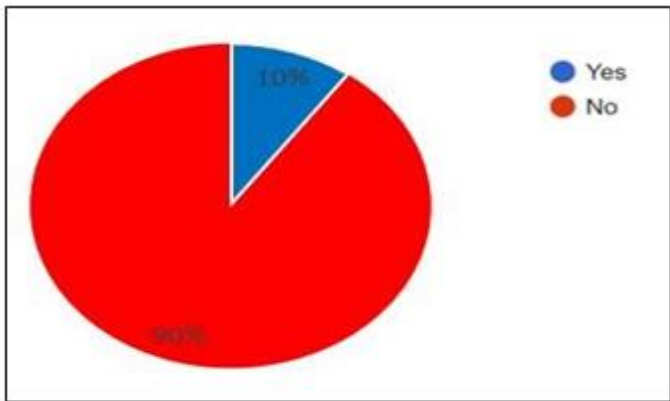


Fig 7. Shows whether respondents are composting their wet waste

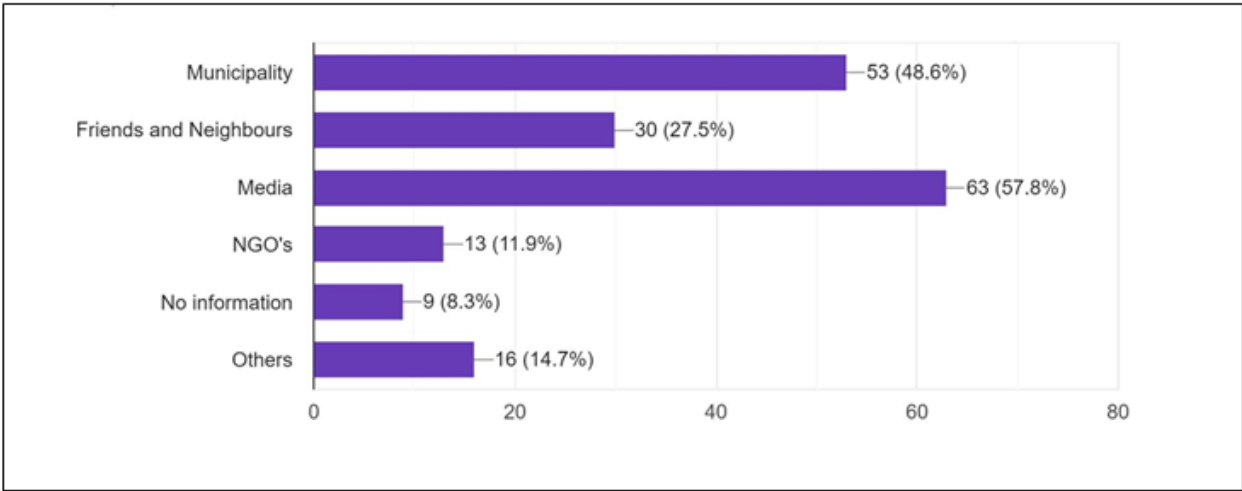


Figure 8 shows role of different sources to spread awareness about solid waste management

Presently, the situation of solid waste management has improved and local municipal corporators have encouraged people for waste segregation by providing 2 bins for free to every household to segregate wet waste with dry waste so that community is involved in waste segregation and effective solid waste management is achieved in every ward. Even though the situation has improved as compared to five years back, but to achieve the goal of zero waste disposal still lots of efforts are to be taken at different levels; individual, society and community level. Following are some suggestions which can be incorporated for enhancing solid waste management:

- 1) Municipal authorities shall organize awareness programme through various platforms about segregation of household waste and shall encourage reusing and recycling dry waste.
- 2) Corporators and local NGOs should organize various competitions related to waste management for societies to encourage solid waste management.

- 3) Reward system should be followed to encourage more and more communities, localities and societies to encourage active participations among people which can lead to clean city.
- 4) Any of family member particularly house wives can take a leading role in segregating and managing the wet waste to convert it into compost in their houses.
- 5) Provision for strong penalties and effective execution of law can be the important tool for reducing the problem of solid waste management.

### CONCLUSION

The study concludes that a considerable number of people are segregating the waste that shows the positive attitude of the people towards solid waste management and the rules laid down by the Municipal corporation but still the awareness regarding the type of waste is lacking where people are confused with what should go in the wet waste bin and what should go in the dry waste bin. NGOs, Municipal authorities should take more efforts to educate the people. Greater level of public participation in segregating waste and proper management of wet waste in scientific manner through campaigning is required. Once enforcement of effective segregation with the wet garbage going properly in wet waste bin and dry items collected in dry waste bin is gained, biodegradable waste can be collected for composting and from the remaining non-biodegradable items some can be reused. This would ensure that only less percent of waste goes to the so-called dump sites.

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**HORDE HURDLE MENTALITY IS HURTFUL CHALLENGE TO ENVIRONMENTAL, ECONOMIC AND SOCIO-CULTURAL FOR SUSTAINABLE DEVELOPMENT IN INDIA****Dr. Prashant M. Jadhao**

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**ABSTRACT:**

*Sustainable development is a phrase we hear thrown around from time to time in order to underline our ideal vision of the future – rid of all the problems that the inhabitants of the Earth tackle today. Depletion of natural resources. Gender inequality. An unequal distribution of wealth. These are just a few but they illustrate accurately the issues which we are striving to eliminate. However, due to the all-encompassing nature of the term Sustainable Development and the gravity of the situation which it looks to solve, many treat it as an abstract, unachievable concept usually taking into consideration the shocking images of over polluted oceans or the hopelessness of their life situation due to being born female. Nevertheless, a thorough understanding of this field and its challenges is quite necessary in our current environment and can help in living a more conscious and altruistic life.*

*Basically, sustainable development is a long-term solution to how we plan our indefinite progress in the future without causing damage to the environment so as to guarantee a safe habitat for the next generations, who will continue to develop their economies, societies, and care for the environment with a similar ideal in mind. It satisfies our needs without sabotaging the opportunities of others. The concept covers a broad scope of matters such as environmental, social, and economic development which continues to prove its importance in our lives as it affects all aspects of them. however, their achievability may not be feasible in our current environment of violence, corruption and wide gaps in the wealth of developed and less development But presently we have secure a problems of Horde hurdle mentality which comes from horde psychology to disturb the peace of development for own economical benefit and super cops overall popularity this is hazardous to development. Likely Horde mentality leaders to develop Herd immunity rather unlikely sustain Horde hurdle mentality.*

*Keywords: Horde hurdle mentality, Environmental, Economic and Socio-Culture, Natural resources. Habit, Sustainable Development.*

**INTRODUCTION:**

Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” –World Commission on Environment and Development, 1987. The word “sustainable” refers etymologically to something that can be sustained for a period of time. It refers also to something that can be supported, tolerated, or confirmed over time, and that can be stated with certainty. It concerns building on the present in such a way as not to put the future at risk. In politics, technology, the economy, and the ecology, sustainability is about balancing current aims with future aims without jeopardizing the latter. Owing to our rapidly growing population, in the future more resources will be needed in order to accommodate for it and, unfortunately, the resources that we take benefit of now are not all renewable. Taking this into consideration, the tech industry will have to adapt to future conditions as of now the rare metals and minerals used in the industry, such as Palladium – a metal widely used in the production of consumer electronics, are becoming increasingly scarce. upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities. The pollution of bodies of water with agricultural waste.

- The amount of fuel used in the transport of animal products and the livestock itself (high carbon emissions)
- Emissions of methane and other greenhouse gases by livestock which contributes to global warming
- Diseases associated with an excessive consumption of animal products, such as diabetes, cardiological diseases, and obesity

Metadata: National SUSTAINABLE DEVELOPMENT GOALS PROGRESS REPORT 2021

National Indicator Framework on 17 sustainable development processes

**1. Goal - End poverty in all its forms everywhere.**

Target- By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than US dollar 1.25 a day, reduce at least by half the proportion of men, women and children of all ages

living in poverty in all its dimensions according to national definitions, Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters, Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions, Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions.

**2. Goal-End hunger, achieve food security and improved nutrition and promote sustainable agriculture Target-**By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round, , end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets

and opportunities for value addition and non-farm employment, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed, Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries, Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

**3. Goal-Ensure healthy lives and promote well-being for all at all ages**

**Target-.By 2030,** reduce the global maternal mortality ratio to less than 70 per 1,00,000 live births, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births. end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being, Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol, halve the number of global deaths and injuries from road traffic accidents, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes, Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination, strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate, Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public

Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all, Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least

developed countries and small island developing States, Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

**4. Goal-Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**  
**Target-:** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary

education leading to relevant and effective learning outcomes, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education including university, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable

development, Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

**5. Goal-Achieve gender equality and empower all women and girls**

**Target-End** all forms of discrimination against all women and girls everywhere, Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation, Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation, Recognize and value unpaid care and domestic work through the provision of public services,

infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate, Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life, Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review Conferences, Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws, Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women, Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

**6. Goal-Ensure availability and sustainable management of water and sanitation for all**

**Target- By 2030,** achieve universal and equitable access to safe and affordable drinking water for all, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse globally, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

**7. Goal-Ensure access to affordable, reliable, sustainable and modern Energy for all**

**Target-By 2030,** ensure universal access to affordable, reliable and modern Energy Services, increase substantially the share of renewable energy in the global energy mix, double the global rate of improvement in energy efficiency, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support.

**8. Goal-Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**



Target- Sustain per capita economic growth in accordance with national circumstances and, in particular, at

least 7 per cent gross domestic product growth per annum in the least developed countries, Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors, Promote development -oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro- small - and medium-sized enterprises, including through access to financial services, Improve progressively, through 2030, global resource efficiency in consumption and production

and Endeavour to decouple economic growth from environmental degradation, in accordance with the 10Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value, substantially reduce the proportion of youth not in employment, education or training, Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms, Protect labour rights and promote safe and secure working environments for all workers, including

migrant workers, in particular women migrants, and those in precarious employment, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products, Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all, , develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization.

#### **9. Goal-Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**

Target- Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all, Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries, Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets, By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities, Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending, Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities, Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2021.

#### **10 Goal-Reduce inequality within and among countries**

Target-By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status, Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality. Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions, Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent.

#### **11. Goal-Make cities and human settlements inclusive, safe, resilient and sustainable**

Target- By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated

and sustainable human settlement planning and management in all countries, Strengthen efforts to protect and safeguard the world's cultural and natural heritage, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

**12. Goal-Ensure sustainable consumption and production patterns**

Target- By 2030, halve per capita global food waste at the retail and consumer levels and reduce food

losses along production and supply chains, including post-harvest losses, , achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment, substantially reduce waste generation through prevention, reduction, recycling and reuse, Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products, Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.

**13. Goal-Take urgent action to combat climate change and its impacts**

Target-Integrate climate change measures into national policies, strategies and planning.

**14. Goal-Conserve and sustainably use the oceans, seas and marine resources for sustainable development.**

Target- By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-

based activities, including marine debris and nutrient pollution, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans, Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution, Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the

Transfer of marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular Small Island developing States and least developed countries, Provide access for small-scale artisanal fishers to marine resources and markets.

**15. Goal- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss** Target-ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands, in line with obligations under international agreements, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase forestation and reforestation globally, By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation neutral world, ensure the conservation of mountain ecosystems including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development, Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed, Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products. Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation,.

**16. Goal-Promote peaceful and inclusive societies for sustainable development provide access to justice for all and build effective, accountable and inclusive institutions at all levels.**

Target-Significantly reduce all forms of violence and related death rates everywhere, End abuse, exploitation, trafficking and all forms of violence against and torture of children, Promote the rule of law at the national and international levels and ensure equal access to justice for all, By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime, Substantially reduce corruption and bribery in all their forms., Develop effective, accountable and transparent institutions at all levels, By 2030, provide legal identity for all, including birth registration, Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime,.

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**17. Goal-Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development**

Target-strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection, Mobilize additional financial resources for developing countries from multiple sources, Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress, Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge- sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism, Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2030, Enhance global macroeconomic stability, including through policy coordination and policy coherence, Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries. enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status ,disability, geographic location and other characteristics relevant in national contexts, , build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries.

The 2030 Agenda also underscored the fact that quality, reliable and disaggregated data would be needed for measurement of progress on the targets and for ensuring that “No One is Left Behind”. In above flexible report to give overall emerges to society to build a nation for future generation. “Corruption is conventionally understood, and referred to, as private wealth-seeking behavior of someone who represents the state and public authority. It is the misuse of public goods by public officials, for private gains. In simple terms, corruption may be described as “an act of bribery” or “the use of public power for private profits in a way that constitutes a breach of law or a deviation from the norms of society. Illustrate for this term relate Globalisation and its effects, which have traditionally been seen as an economic phenomenon associated with the development of the global market, have started to influence all aspects of community life, from culture to crime, and from finance to religion. This has entailed new problems and challenges for society. These challenges are implicit in the various political, institutional, cultural and economic options, which this report suggests employing in order to counter the negative effects of globalisation. One such idea, of a more human approach to change and organisation, is embodied in the concept of sustainable human development. Together with “solidarity economy” and other new patterns of consumption and production, it could offer a genuine freedom of choice which would help democratise the economy, based on citizen commitment to greater social responsibility, cohesion and justice. However, in recent years two opposing but equally restrictive tendencies have emerged in the understanding of the concept of sustainable development: for some, it has become the subject of an excessively economic bias, being often used as a justification for faster growth on the grounds that this will help to reduce poverty and achieve ecological sustainability, all the same serving the purpose of promoting the opening up of markets, financial deregulation, privatisation of natural resources and biopiracy. For others, sustainable development has undergone a form of ecological over-simplification in which the concept is restricted to environmental sustainability. These trends always need to be counter-balanced by a form of sustainable development that focuses on human beings, and is both more comprehensive and more radical. Sustainable human development may be defined as the capacity of all human communities, including the most deprived, to meet their fundamental needs – for accommodation, drinking water, food, satisfactory health and hygiene, participation in decision-making, social cohesion, a social fabric, cultural and spiritual expression, etc. This entails the adaptation of technologies and lifestyles to the social, economic and environmental potential of each region, internalising costs and establishing systems that are compatible with the biosphere. Such an approach makes sustainable human development a multifaceted process. It seeks a balance between the ecological, economic and social spheres, while also taking account of political (participation and democratisation), ethical (responsibility, solidarity, social justice and sufficiency) and cultural (local diversity and artistic expression) considerations. Sustainable human development also calls for a fundamental re-evaluation of our basic principles and lifestyles, and of the way our societies function, particularly regarding production and consumption. This implies significant changes to attitudes and behavior, in which an awareness

of living in a common space, individual responsibility for actions, learning to see long-term perspectives and partnership between players in different regions of the world, including governments, international institutions, business and the civil society, will take precedence over material factors. . Conceptual differences can undoubtedly be deduced from the two words' etymologies, since the French "mondialisation" comes from the noun "monde" (world), which denotes both a space, within which all reachable places are physically contained, and, metaphorically, a complex concept, covering all aspects of human experience on a given register ("the world of business", the "world of work", etc.). This connotation would tend to emphasise the spatio-temporal ambiguity of "mondialisation", whereas "globalisation" in English, derived from "global" and denoting something which applies to the whole planet, suggests a process. need to be countered by a form of sustainable development that focuses on human beings, and is both more comprehensive and more radical. Given the ever-greater complexity and interdependence of global phenomena, increasing disparities between North and South and within each society and the predominant - and growing - influence of economic arguments, sustainable human development offers a framework for responding to the challenges of globalisation. In particular, it offers a basis for collective action on a global scale and puts the economy back in its rightful place. The sustainable human development approach takes account of all aspects and forms of social wealth, which include not just material goods but also social cohesion, close links and mutual support between different strata of society and generations, the cultural heritage, quality of life, landscapes, cultural diversity and so on. In response to this excessive dependence on what can be measured in financial terms, so-called "economic" value, sustainable human development is concerned with alternative concepts and measures of wealth, assets and values, and developing new indicators. To offset the crushing political impact of such indicators as GDP, the ecological and economic spheres are becoming more and more closely interconnected. Firstly, economic operators pay increasing attention to environmental regulations - either in order to apply them (by setting up codes of ethics, the Global Compact, etc.) or to restrict their scope, as evidenced by the weight of industrial, financial and economic issues in the negotiation of treaties on climate change or biodiversity. Secondly, environmental regulation increasingly resorts to economic and commercial instruments such as taxes, quotas and emission permits, so that it frequently interferes with international trade rules.

#### CONCLUSIVE SUMMARY:

Greater organizational awareness of psychologically sustainable development is needed to facilitate positive narratives at the personal, teamwork, and organizational level. Organizational narratives, which are often complicated and negative, can be transformed through processes of reflexivity that can generate meaning, hope, new possibilities, success, and sustainable development According to the psychology of working, work can fulfill different needs such as power needs, relationship needs, and self-determination needs. Relationships can thus be considered a fundamental aspect of working. The relational theory of holds that work is an inherently relational act as relationships influence and shapes every decision, experience, and the interaction of individuals in the world of work. Work meets not only the need for survival but also the need for social connection. This underlines the importance of relationships that are built in the reality of each single moment and each day of working life in organizations. Relationships consist also of the meanings constructed and shared in organizational contexts.

The psychology of sustainability and sustainable development thus calls for managerial styles and leadership that recognize and respect the importance of relationships in organizational contexts for the well-being of workers. Leadership includes directing the actions of an organizational group to reach a goal , whereas management involves mainly organizing and coordinating projects and making projections

Now going to have to pretty much end violent conflict, experience a Damascene climate conversion, sustain high rates of economic growth, avoid any recession in poor countries and make sure nobody who is disabled or seriously ill sees their income drop

To conclude, sustainable development an issue which should be treated very seriously as it affects everyone, as illustrated by the scenarios above. If the world were to continue functioning as it is currently, many do not predict it a stable future. In order to secure a secure environment for our future generations, every single person and corporation needs to start reconsidering their own lifestyle choices and spreading awareness about the issues that plague this planet so that we can slowly begin to enforce actual changes. A new organizational sensibility is required to manage, promote, and ensure sustainable development in "liquid" organizations in uncertain and ever-changing environments. A managerial approach and new styles of leadership that show awareness of the importance of relationships and of constructing positive narratives in organizational contexts is the key to mobilizing energy, coping with challenges, and promoting sustainable development and the well-being of people in organizations.

The psychology of sustainability and sustainable development calls for new awareness of the need to achieve sustainable well-being from a primary prevention point of view. This involves designing and constructing organizational development and well-being through the promotion of relationships and positive narratives in organizational contexts in everyday life.

A lot of research and interventions based on positive psychology are available to improve leadership skills and human resources management for managers in 21st century organizations. For example, from emotional intelligence to empathy, compassion to intrapreneurial self-capital as a core of individual entrepreneurial resources to deal with frequent changes and transitions and to turn constraints into resources, to acceptance of change as positive for a person's well-being from positive relational to workplace relational as a relational style characterized by respect and concern for the self and others, and by interpersonal sensitivity (relational decency, relational culture, and relational readiness), to decent leadership from reflexivity in its dimensions of clarity/projectuality, authenticity, and acquiescence to the meaning of work and life. New research and intervention are needed to better explore and understand these issues. Furthermore future directions can also consider that healthy societies and healthy organizations can be enhanced by focusing on the well-being of individuals, groups, and organizations in a culturally diverse world. This can best be done from a cross-cultural point of view and on the basis of the psychology of sustainability and sustainable development. Cross-level interactions are needed that combine individual approaches and collective approaches, and short-term and long-term objectives and results, thereby providing for timeouts interventions from a primary prevention perspective, reducing personal and contextual threats, and increasing health and well-being (Challenges are essentially opportunities. Hence we can manage or crush horde mentality.

The Agenda 2030 intends incorporating every aspects of society, taking everyone and leaving no one behind. In order to understand the important role of all stakeholders and stressing the need of localizing awareness programs assume added significance. It will also help policy makers in identifying thrust areas where interventions need to be focused. The report shows that, while significant progress has been made in some areas, challenges remain in some other areas too. Hence horde mentality leaders avoid disturbing the nation building work make obstacle in front of system think heart fully on these horde mentality left and give support help to sustainable development. The psychology of sustainability and sustainable development can be seen as an adaptive response to the need to develop well-being in organizations that have to cope with the challenging and unpredictable environments of the 21st century.

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**ROLE OF STOCK MARKET IN THE ECONOMIC DEVELOPMENT OF INDIA**

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**INTRODUCTION**

India being one the largest economy in Asia in terms of purchasing power can never ignore the crucial role of financial market, especially talking about Share/Stock Market. Share market is the market in which shares are issued & traded either through exchanges or over the counter markets. Share market plays crucial role in the capital formation by effective mobilization of savings from economy. The economic activity of country is influenced by share markets which are the great contributors for the development of an economy. Globalization has led to the development of stock markets & providing a better platform for investors as well as industrialists. The stock markets helps in accelerating the development of an economy the topic attracts attention to study.

**Rational behind the study:**

In spite of growing importance of Stock market in economic development of country, very small number of investors are attracted in this area for investment. This is a real motivational factor for researcher to actually study the proportion of Indian investors in Stock market. As we know world economy is connected to share market, in India NSE & BSE are playing leading role of engine in developing economy. Very less proportion of the India's population is involved in the Stock Market, it is necessary to create more awareness amongst the people about the leading role of safe investments with minimum risks.

**Limitations of the study:**

For the study all areas of stock market are not covered due to time constraints. Secondary data is used by researcher for study, so limitations of secondary data are applicable. Also due to time constraint Primary data is not collected.

**Objectives of the research:**

- 1) To study contribution of Stock market in economic development of India.
- 2) To study the impact of recent pandemic Covid 19 on Stock Market.
- 3) To study state wise investors of share market in India.
- 4) To place suggestions for investors before investing in stock market.

**Hypothesis of the research:**

- Contribution of stock market in GDP is negligible.
- Covid pandemic negatively affected on stock market.
- Indian investor's are not contributing much in stock market.

**METHODOLOGY:**

Researcher used Primary & Secondary data for study. For secondary data news papers & websites are accessed.

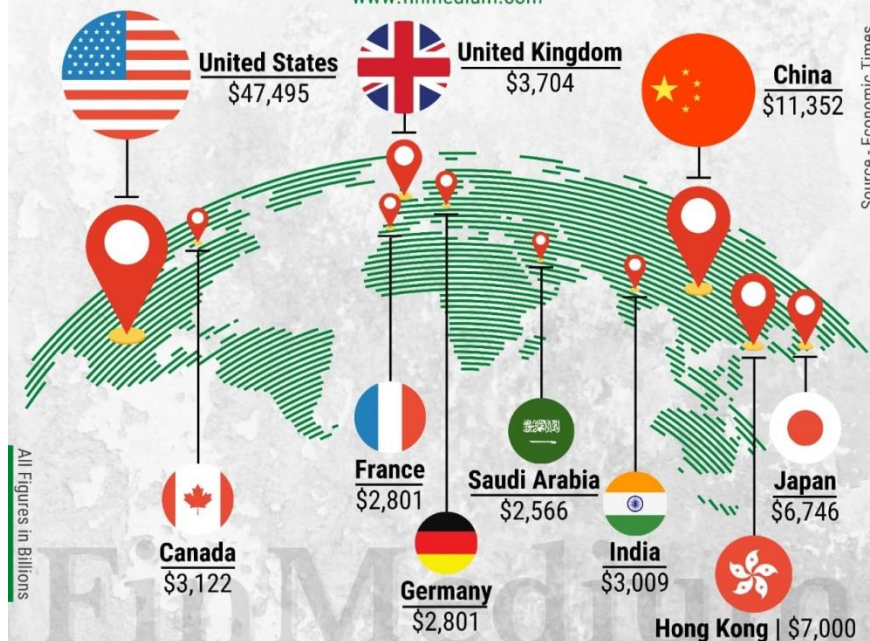
**Contribution Of Stock Market in Economic Development of India:**

India's Market Capitalisation to GDP ratio at 115% ; highest since 2008. The Indian equity market continues to pave ahead in a situation where economy recorded worst performance in 70 years in last fiscal but the market capitalization of listed equities has grown to all time high. This has resulted in India's market cap to gross domestic product (GDP) ratio touching a 13 year high of 115%. This is highest level of ratio since December 2008, when it reached a record high of 150%. (As per the article in Business standard by Krishna kant 4<sup>th</sup> June 2021)



## TOP 10 COUNTRIES WITH LARGEST MARKET CAP

www.finmedium.com



(8<sup>th</sup> June 2021)

Above figure clears that India is amongst the top 10 countries with largest market capitalization, even in this pandemic situation of covid stock markets are really functioning high to attract investors.

Following figures clears the FDI attracted in India upto June 18 2021:

## Foreign Direct Investments in India





It is clear from above data provided in True Beacon on 18<sup>th</sup> June 2021 India is receiving good foreign direct investments even in this pandemic, showing a ray of hope for better revival in near future.

The following figure clears that Indian investors contribution in stock market is very less i.e only 3% population is doing investment in this area, this shows that investors are still not very much inclined

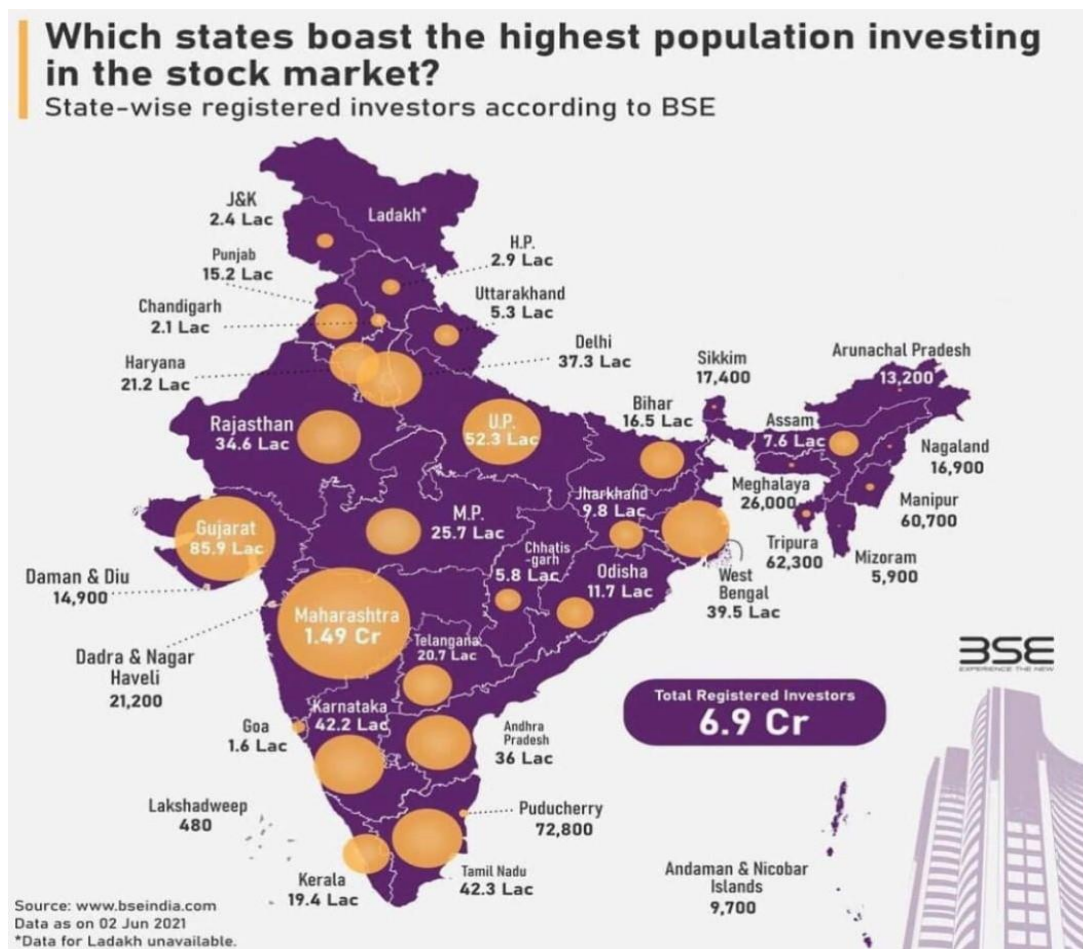
towards this sector. This situation may ultimately hurt the developing economy like India.

### Percentage Of Population Investing In Stock Market By Country



(Source: statista.com, Distribution of countries with largest stock markets worldwide as of January 2021)

The above information clears that India is investing very less in stock market as compare to China, U.K & USA. Indonesia & Brazil having less percentage of investing population in the Stock Market.



In Above figure it is clear that Maharashtra state is having highest number of investors approximately 1.5 crore investors, Gujrat app. 86 lakh investors, UP 52 Lakh investors, T,N 42.3 lakh investors, Karnataka 42 .2 lakh investors, W.B 39.5 lakh investors. It clears that only app. 5% of the population is involved in the stock market.

As per the newspaper Gujrat samachar dated 25 june 21 there is an increase in number of investors. In last 6 months 1.75 crore demat accounts are opened. According to Gujrat samachar as compare to 2019-20 in 2020-21 demat accounts are increased by 26.25% & this year since January 21 till 25<sup>th</sup> june 21 33.98% increase is shown.

**FINDINGS:**

- Stock market has a very good contribution is growth of Indian economy. India's market cap to gross domestic product (GDP) ratio touching a 13 year high of 115%.
- India is one amongst the top 10 countries of the world in terms of market capitalization.
- As per BSE official data in January 20, 2020 the BSE SENSEX touched all time high of 42,273 with FII (Foreign Institutional Investors) investing Rs.12000 crore in Jan 2020.
- Maharashtra state is having highest number of investors approximately 1.5 crore investors, Gujrat app. 86 lakh investors, UP 52 Lakh investors, T,N 42.3 lakh investors, Karnataka 42 .2 lakh investors, W.B 39.5 lakh investors. It clears that only app. 5% of the population is involved in the stock market.
- Inspite of corona pandemic in last 6 months 1.75 crore demat accounts are opened. In last 6 months 1.75 crore demat accounts are opened. It clearly proves that more investors are now attracted towards stock market.

**CONCLUSION:**

Development of the stock market is considered crucial to national economic growth as it provides additional encouraging environment to mobilise saving habits amongst nationals. Stock market is the indicator of a growing economy. The need is to create more awareness amongst the large segment of people. It is necessary to build confidence amongst the Indian investors who are not finding Stock Market as trust worthy, so that the percentage of investors of Indian Stock market grow from 5% . Asset Allocation will differ from person to person as per risk taking capability. No matter how slow the acceleration takes place but its necessary to improve the public participation in the growing stock market. The percentage of USA , UK, & China 55% ,33% & 27% respectively proves that India at a participation of 3% is lagging far behind , that may prove dangerous for economic growth. Hence through this study researcher concludes that Stock market is a great tool for acceleration of economy to a great height.

**SUGGESTIONS:**

- After talking with stock broker it is suggested that an investor must have knowledge about world & Indian economy.
- Mutual Funds are best option for those who do not have sufficient time, knowledge about India & world market observation. Best way to invest is through Systematic Investment Plan.
- Ideal portfolio strategy should be used by investors. As per expert's talk ideal number of stock is 15 to 20.
- Preferably portfolio should have large cap stock. One can have mid cap & small cap based on one's risk taking ability.
- Fundamental analysis is must to be done to find out good companies for long term investment. This analysis does 3 tier analysis 1) Economic analysis 2) Industry analysis & 3) Company analysis.
- Assistance of expert financial planners better help investors through Diversified Asset Allocation, by putting investment in various assets like Equity, Mutual Funds, Gold & Insurance.

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## MICROFINANCE AND FINANCIAL INCLUSION IN INDIA

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**ABSTRACT**

*In a country like India where 70 percent of its population lives in rural area and 60 percent depend on agriculture (according to the World Bank reports), micro-finance can play a vital role in providing financial services to the poor and low income individuals. Micro-finance is regarded as a useful tool for socio-economic up-liftment in a developing country like India. It is expected to play a significant role in poverty alleviation and development. The emphasis of present paper is to study the performance and role of microfinance institutions in the development of India. Around two thirds of the world population is cut off from the conventional financial market. Low-income people typically have no collateral and therefore no chance to take out a loan, to save money or to invest for the future. Women especially are often considered as not credit-worthy by banks. The purchase of a small plot of land, a sewing machine or a market stand for example would help many people to put their ideas into practice and to escape poverty. Often, the only alternative are local moneylenders, so called "loan sharks", who charge extortionate interest rates of up to several hundred per cent a month. This is where microfinance comes into its own.*

*Keywords: Microfinance, MFI's, Growth of Microfinance, Poverty*

**➤ INTRODUCTION:**

Microfinance is defined as , financial services such as savings account, insurance funds , and credit provided to poor and low income clients so as to help them increase their income , thereby improving their standard of living. The basic feature of the microfinance is that these are the loans given without security.

**➤ Micro finance includes the following products:****1. Micro loans:**

Microfinance loans are significant as these are provided to borrowers with no collateral. The end result of microloans should be to have its recipient outgrow smaller loans and be ready for traditional bank loans. The importance of Micro loans is that it is provided with no collateral. The borrower is not bound to pledge something as a security for repayment of the loans. It offers a better overall loan repayment rate than traditional banking product. It enhance the possibility of future investments as it is a sustainable process. Most importantly it gives people a soothing and non-stressful life.

**2. Microsavings:**

Micro savings accounts allow entrepreneurs operate savings account with no minimum balance. These accounts help users inculcate financial discipline and develop an interest in saving for future. The importance of micro savings are that the poor people and small businessman with low income can operate their account with no minimum balance. These accounts do not bound people to maintain their accounts with certain amount of money in it.

**3. Microinsurance:**

Micro insurance is a type of coverage provided to borrowers of microloans. These insurance plans have lower premiums than traditional insurance policies. The importance of micro insurance is that it is the machinery to protect the poor people from all the mishap that might take place in future, example : Accidents, chronic disease etc. It addresses to all kind of risks that people of low income group or poor people face globally.

**➤ Features of the MFIs in India:**

- MFIs offer loans to individuals who belong to the low-income group. The loans that are offered by these institutions are of small amount; this is why these loans are known as micro loans.
- MFIs provide loans to borrowers for a short period. After they repay the loan they can again opt for another one.
- MFIs give loans to people who want to start up a business of their own without any security or collateral
- The repayment frequency of the micro loans offered by MFIs is high and the borrower needs to repay the amount at quick intervals.

- In most cases, the loans are provided by these organizations are for income-generation purposes

### ➤ **SIGNIFICANCE OF THE STUDY**

At least in India, there does not seem to be any working model of analysing the financial performance and thereby sustaining of microfinance institutions. This problem is compounded by the lack of a committed legislation on working and management of microfinance institutions. The lack of a regulatory mechanism for financial disclosures by microfinance institutions also abets the problem. The present study is an attempt to study the importance of microfinance and to analyse the performance of microfinance institutions operating in India. It assumes significance because it is imperative that these institutions be run efficiently given the fact that they are users of marginal and scarce capital and the intended beneficiaries are the marginalized sections of society. MFIs must be able to sustain themselves financially in order to continue pursuing their lofty objectives, through good financial performance.

### ➤ **METHODOLOGY AND DATA**

Research design is partly descriptive, partly exploratory. The data for the present study was collected from different sources. To assess the performance of the microfinance institutions in India, The relevant information relating to loans disbursed, loans outstanding, client outreach, assets, etc. were collected from Status of Micro Finance in India, NABARD report (various issues),

### ➤ **OBJECTIVES OF THE STUDY**

1. To understand the concept and delivery models of microfinance in India.
2. To study the role and importance of microfinance in India.
3. To examine the current status and performance of microfinance institutions in India

### ➤ **History of Microfinance**

The word microfinance has its roots in 1970s when organisations such as Grameen Bank of Bangladesh with the microfinance pioneer Mohd. Yunus, were starting and shaping the modern industry of micro financing. Another pioneer in this sector is Akhtar Hameed Khan. At that time a new wave of microfinance initiatives introduced many new innovations into the sector. Many pioneering enterprises began experimenting with loaning to the poor people. The main reason why microfinance is dated to the 1970s is that the programs could show that people can be relied on to repay their loans and that is possible to provide financial services to poor people through market based enterprise with subsidy. 'Shorebank was the first microfinance bank founded in 1974 in Chicago. Today the World bank estimates that more than 16 million are served by some 7000 microfinance institutions all over the world.

### ➤ **Importance of Microfinance In India**

The concept of microfinance has been highlighted since 1970s with an aim to uplift the poor section of the society and to enhance economic growth. Its importance has been amplified amidst global financial crisis when trust into formal banking system is shaken. Microfinance in India plays a major role in the development of India. It act as an anti-poverty vaccine for the people living in rural areas. It aims at assisting communities of the economically excluded to achieve greater level of asset creation and income security at the household and community level. The utmost significance of microfinance in India is that it dispenses the access to the capital to small entrepreneurs. As it has been discussed above that microfinance in India is providing loans, insurance, access to savings accounts. The concept of microfinance focuses on women also by granting them loans. It act as a tool for the empowerment of poor women as women are becoming independent, they are able to contribute directly to the well beings of their families and are able to confront all the gender inequalities. The major targets of microfinance are the poor rural and urban households and women too. The Reserve Bank of India imparts no ceiling with respect to minimum and maximum amounts to be given as loan. Credit is important to the poor people for maintaining the common imbalance in between the income and their expenditure. It is also vital to the poor people for the income generating activities like investing in marginal farms and other small scale self-employment ventures. Their access to formal banking channels are low due to the lack of resources an nature of formal credit institutions. Consequently in India, Microfinance institutions and self-help groups are leading to other traditional banking channels as they are catering the need of credit to poor people. It has contribute a lot in enhancing the quality of life of the poor people. Therefore microfinance is not a financial system but a tool to alleviate poverty from the country and bring social change and especially to uplift the status of women in our country so they can become self-reliance. There is a public interest the interest of microfinance and this is what makes it acceptable as valid goal for public policy.

### ➤ Channels of Microfinance

There are two channels through which microfinance is being operated in India:

1. SHG-Bank Linkage programme (SBLP) – In the year 1992 NABARD initiated this channel. This model incites women to unite together to form a group of 10-15 members. Where all the women belonging to financial backward classes contributes by giving their individual savings to the group at regular intervals. Thereafter, loans are provided to the members of the group by their contributions. Self-help groups {SHG} also at later stage provide loans for income generating activities. Self-help groups has gained a lot of success in the past years and it got popular for contributing for the empowerment of women. It has been observed that once these self-help groups reach to the level of stability, they function almost independently with minimal support from NABARD, SIDBI, and Non-governmental organisations.

2. Microfinance Institutions- The primary operation of these type of institutions is to have the provision of micro financing. They lend through the concept of joint liability i.e. a group of 10-15 members who seeks loans either jointly or individually.

### ➤ Progress of SHG Bank Linkage Programme

The SHG-BLP programme has indeed become an example of success of a microfinance programme globally with an outreach to 13.87 crore families, providing social, economic and financial empowerment to the rural poor, especially women. The year wise progress (2018-19 to 2020-21) in savings and credit linkage of SHGs under the SHG-BLP is enumerated in Table 2.1 which gives an account of savings, credit disbursement and credit outstanding of total SHGs including those under NRLM

**Table 2.1: Progress of SHG BLP (2018-19 to 2020-21)**

	2018-19	2019-20	2020-21
No. of SHGs with Savings Linkage	100.14	102.43	112.23
Amount of Savings Outstanding	23.32	26.16	37.48
No. of SHGs availed loans during the year	26.98	31.46	28.87
Amount of Loan Disbursed during the year	58.32	77.66	58.07
No. of SHGs a with Loan Outstanding	50.77	56.77	57.8
Amount of Loan Outstanding	87.1	108.08	103.29

### NABARD, STATUS OF MICROFINANCE 202021

#### ➤ Progress of Savings Linkage of SHGs with Banks (2018-19 to 2020-21)

As savings grow, the eligibility of SHGs for loans from banks/FIs augment and thus business investment potential increases. Table 2.2 provide region-wise performance of savings linkage of SHGs in terms of absolute numbers and percentage share. During 2020-21, banks have reported an addition of 9.8 lakh savings linked SHGs at all India level registering a growth of 9.5 per cent compared to 2.3 in 2019-20. Region-wise comparative data reveals that in terms of number of SHGs savings linked with banks, positive growth was registered across all regions during 2020-21. Among the regions, Central region registered the highest growth of 19%, whereas the Western Region registered the lowest growth of 5%. Six States/UTs viz., Uttarakhand, Nagaland, Chandigarh, New Delhi, Karnataka, Daman & Diu, registered a negative growth. As many as 19 States/UTs viz., Chhattisgarh, Madhya Pradesh, Andaman & Nicobar, Bihar, Odisha, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Tripura, Haryana, Jammu & Kashmir, Punjab, Andhra Pradesh, Lakshadweep, Puducherry, Telangana and Gujarat registered growth rates higher than the All India average. The decline in savings accounts of SHGs in the six States is mainly due to data sanitization, closure of dormant accounts and reporting errors etc. In terms of savings amount, the Northern Region had the highest growth of 193%, followed by the Western Region (85%), North Eastern Region (73%), Southern Region (45%), Central Region (24%) and the lowest growth of 17% was registered by the Eastern Region.

**Table 2.2: Region-wise progress of Savings Linked SHGs with Banks (2018-19 to 2020-21)**

(Amount in ` Lakh)

Sr. No.	Regions	2018-19		2019-20		2020-21	
		No. of SHGs	Savings-Amount	No. of SHGs	Savings-Amount	No. of SHGs	Savings-Amount
1	Northern Region	5,48,624	62,453	5,77,122	59,550	6,09,808	1,74,345
2	North	5,23,469	40,407	5,56,899	48,141	6,33,714	83,126

	Eastern Region						
3	Eastern Region	26,54,358	6,01,155	28,11,130	6,64,333	31,22,424	7,74,912
4	Central Region	10,62,759	1,33,230	11,35,083	1,71,217	13,45,575	2,11,870
5	Western Region	13,88,615	2,05,275	14,73,853	2,01,880	15,50,176	3,74,023
6	Southern Region	38,36,418	12,89,928	36,89,236	14,70,085	39,61,703	21,29,485
	Total	1,00,14,243	23,32,448	1,02,43,323	26,15,205	1,12,23,400	37,47,761

### NABARD, STATUS OF MICROFINANCE 2020-21

#### ➤ CONCLUSION :

As we all know financial institution are the integral part of our economy as it plays key role in economic development. Therefore, India financial institutions are very strong but operations of the same are adverse, somewhere we are lacking in its implications. However micro finance plays the major role in the alleviation of poverty from the society. Many banks in India have initiated to lend money to the micro finance institution. It works towards the empowerment of women which is the great move towards the development of the country.

The importance of microfinance in the developing countries like India can not be undermined it play a vital role for socio-economic upliftment of poor and low income peoples. Since 1990s, poverty reduction has taken priority at both national and international development levels. Within this framework, various initiatives have been taken by government. Microfinance has caught the attention as an effective tool for poverty reduction and socio- economic development. Hence Microfinance can play a vital role for improving the standard of living of poor. The economic development of any country is severely influenced by the availability of financial services. Microfinance is the form of a broad range of financial services such as deposits, loans, payment services, money transfers, insurance, savings, micro-credit etc. to the poor and low income individuals. A well-developed financial system promotes investment opportunities in an economy. Therefore it is necessary that govt. of India have to focus on extending financial services to both rural and urban to ensure sustainable and inclusive growth. The functioning of Microfinance institutions in India is playing an important role in rural areas since last two decades. The central government and RBI should take necessary measurements to sustain the growth of the microfinance sector in India. The concern state governments also take necessary measurements to create awareness among people to use the services of Microfinance institutions to strengthen their Economic status and improve their livelihood.

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## TRANSCRANIAL DOPPLER ULTRASONOGRAPHY FOR DECIPHERING HUMAN BRAIN STATES

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### ABSTRACT

Transcranial Doppler Ultrasonography (TCD) has arose as a Brain-PC Interface (BCI) methodology with incredible guarantee and potential. TCD is a non-invasive ultrasound innovation that distinguishes the progressions in cerebral blood stream speed (CBFV) which has as of late been utilized as a functional cerebrum imaging instrument to look at the impacts of mental tasks on the blood stream speeds, especially zeroing in on the middle cerebral supply routes (MCAs). People, having cognitive awareness however extreme neuro-engine handicaps like muscular dystrophy or spinal line wounds, face difficulties to communicate with their environmental elements. Changes in blood stream speed in the MCAs are a sign of mental actuation brutal cerebrum which could lead us to distinguishing different brain states. Blood stream lateralization inspired by mental assignments, for example, verbal familiarity and representation undertakings, has been detected using TCD in various ongoing examinations. In this investigation, CBFV was estimated at the same time inside the left and right centre cerebral veins for substituted mental actuation and relaxation undertakings from ten healthy members. Signal components were separated and afterward chose utilizing the Fisher Criterion and Sequential Forward Search (SFS) approach. Two characterization techniques, Linear Discriminant Analysis and Naive Bayes Classifier were utilized to decipher mental activation and unwinding undertakings. Primer outcomes show an average precision, affectability (actuation) and specificity (relaxation) of  $79.13 \pm 3.85\%$ ,  $78.88 \pm 6.44\%$  and  $79.38 \pm 5.57\%$  individually. The outcomes are especially encouraging and show that TCD could be a suitable elective BCI modality and requests for additional investigation for improvement and possible true applications.

### I. INTRODUCTION

Numerous psychologically mindful people live with serious engine incapacities like solid dystrophy, various sclerosis, undeniable level spinal line injury and secured condition. Ordinarily these individuals can't speak with their environmental elements. Cerebrum PC interface (BCI) frameworks offer an elective method for correspondence for these people. BCI framework takes a physiological sign estimated from an individual and predicts some theoretical part of the individual's intellectual state. The framework likewise empower clients to produce a control order through mental movement. Various obtrusive and non-intrusive modalities have been investigated for BCI improvement. Inside these BCI modalities, different estimation modalities, for example, electroencephalography (EEG), utilitarian attractive reverberation imaging (fMRI) and close infrared spectroscopy (NIRS) can recognize mental movement. Among them, fMRI distinguishes changes in blood stream and accordingly gauges cerebrum action while it's most prominent inconvenience is the absence of convey ability. Then again, NIRS is utilized to quantify provincial cerebral tissue oxygenation and works by entrance of close to infrared light through human cerebrum tissues, yet it's not clamour safe and contradicting messages from tests can pollute the real outcome. In any case, the premier of the non-intrusive BCIs is EEG which is generally utilized and carried out in the ongoing examinations. While EEG straightforwardly gauges the electrical exercises of neuronal actuations, tMRI and NIRS measure the progressions in blood haemoglobin fixations. In contrast to EEG, the later modalities are frequently alluded to as hemodynamic or metabolic BCIs. Because of the qualities of physiological signs, these hemodynamic BCIs don't for the most part have a similar transient goal as EEG BCIs.

Unexpectedly, the cerebral hemodynamic reaction is innately slower than the relating electrical reaction estimated utilizing EEG. Anyway hemodynamic observing frameworks enjoy extraordinary benefit that it isn't inclined to electro-genic relics, for example, eye movement or muscle contraction. One of the more as of late thought to be metabolic BCI is transcranial Doppler ultrasonography (TCD). TCD has arisen as an option non-obtrusive BCI methodology as of late which is driven by the cerebral blood stream speed (CBFV) in the major basal intracranial supply routes on a constant and beat-to-beat premise. TCD permits direct preoperative assessment of the blood stream speed of the centre cerebral supply routes (MCAs) which perfuse 80% of the cerebrum, and along these lines estimations of speeds in that reflect intellectual exertion levels. In ongoing investigations, TCD has been executed as a solid and promising BCI methodology for segregating intellectual states due to its strength against ecological commotion.



A BCI study dependent on TCD investigated the segregation capacity between word age and unwinding task which accomplished an exactness of over 75%, carrying out a 45 second undertaking period. Afterward, decreased the undertaking period to 18 seconds without compromising the exactness's. These previous examinations show that enactment and unwinding undertakings of human mind can be effectively decoded utilizing TCD and can be utilized for solid BCI framework development. In this investigation, we explored TCD to interpret actuation and unwinding conditions of human cerebrum and enrolled ten capable member with ordinary vision. Signal information were gained utilizing two ultrasonic TCD tests coordinated towards the left and right MCAs, at the trans temporal window of the members. Elements were separated from the gained information and afterward chose utilizing Fisher Criterion and Sequential Forward Search (SFS) strategies. Chosen highlights were then ordered through a Naive Bayes classifier and Linear Discriminant Analysis (LOA) to segregate among initiation and unwinding mental assignments. However the throughput of this examination has been moderately acceptable, further improvement is normal sooner rather than later.

## II. METHODS AND MATERIALS

### A. Participants and Instrumentation

In this study, ten capable members having ordinary or adjusted to- typical Vision were chosen. All the members were 18-40 years old. They were all right-handed and had no announced history of neurological, respiratory, metabolic, cardiovascular, or liquor related conditions.

To screen the Doppler spectra of CBFV, a MultiDopX4 TCD unit that is made by Comp medics USA was utilized in this investigation. Double ultrasonic transducers (2 MHz) were fitted on the included headgear and put over the left furthermore, right trans temporal windows as per a set up intonation method (Fig. 1) to zero in on the MCAs as they direct 80% blood stream of the mind and the estimations of speeds in the courses reflect psychological exertion levels. Ultrasound gel was applied between the test and the client's skin to guarantee legitimate sign transduction. The information were recorded at an examining recurrence of 100Hz.

### B. Experimental Protocol

Two mental assignments (for example activation and relaxation) were performed by the members. The word reiteration task was utilized as an enactment mental errand and visual following was presents as a psychological unwinding task. During the word reiteration task, a solitary letter or some portion of a word was introduced to the members (Fig. 2). Members practiced the spelling of the word over and over and all the while envisioned composing the word with their right hand. Then again, while playing out the visual following undertaking, an hourglass was introduced to the members (Fig. 2), so, all things considered members moved their look to the TCD input (Fig. 3) and outwardly followed the gave signal while attempting to balance out their CBFVs however much as could be expected. The members plays out the initiation task for 15 seconds which was trailed by a recuperation period (Fig. 4) that permitted the member's blood streams speeds to get back to pattern levels. During the recuperation time frame, the members played out the unwinding task for 10 seconds to accomplish typical blood streams speeds. A 5 minutes break was given to all members after at regular intervals of TCD use to give sufficient time for test cooling.

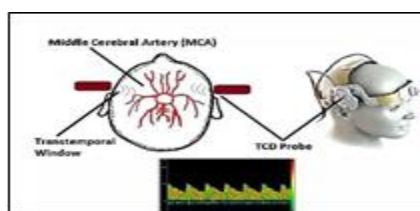


FIGURE 1: Lateral and axial view of the TCD probe directed toward the MCA, at the Trans temporal window.

Three meetings were finished by every member; the first meeting included two squares and resulting meetings contained one square for each. The members played out an absolute of forty errand fragments on each square. Each portion was either an initiation task or an unwinding task.

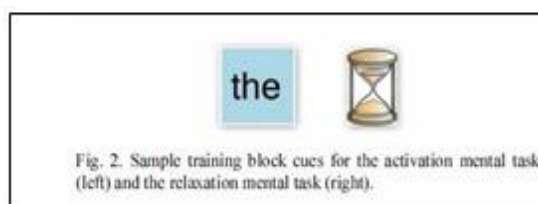


Fig. 2. Sample training block cues for the activation mental task (left) and the relaxation mental task (right).

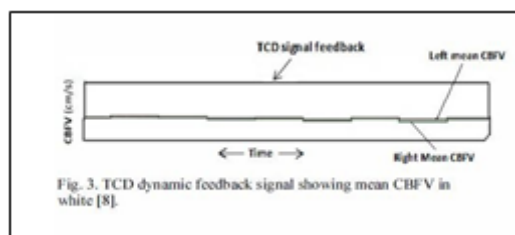
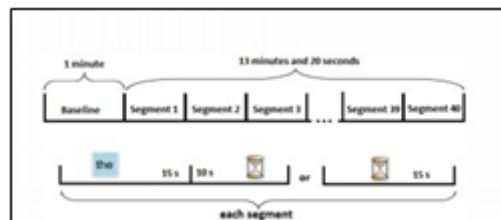


Fig. 3. TCD dynamic feedback signal showing mean CBFV in white [8].



e The square starts with an I- minute standard period which is trailed by 40 arbitrary assignment fragments.

During each undertaking segment, the screen arbitrarily showseither a letter or an hourglass. After being introduced a letter, themember plays out the actuation taskfor 15 seconds which is trailed by a 10 second unwinding task which is signalled by an hourglass. After showing an hourglass, the member proceeds with the unwinding task.

### C. Feature Selection and Classification

#### D.A Feature Extraction

Every action signal conveys an assortment of provisions where a few components can possibly segregate between the exercises and a few components are comparative in all exercises. After decrease of the impacts of commotion and artifacts pollution in obtained signals, we needed to remove highlights for segregation of mental exercises.

To distinguish changes in CBFV, different one-sided highlights were extricated during unwinding and enactment periods. The mean CBFV uncovers changes in sufficiency in signals while the incline mirrors the pace of progress in CBFV. Sufficiency variety was determined with standard deviation while entropy was utilized to measure data substance in the procured signals. An aggregate of 44 elements were extricated from each section. Means, inclines, standard deviations and entropy signal qualities gained from the left what's more, correct Trans temporal windows establish 24 elements. The distinction among mean and incline in the left and right window signals throughout a similar time stretches comprised 6 more elements. The connection, the speck item and the shared data between the left and right signals over similar three time spans contributed 9 provisions. 9 additional highlights were removed from the relationship, the speck item what's more, the shared data between the left and right signals over similar spans. The last 5 elements contained the left and right sign standard deviations and entropy over the full 15s span (4 components) and the shared data between the left and right signals over the whole stretch.

#### D.B Feature Selection

Two methodologies of component determination were researched counting Fisher model and Sequential Forward Search (SFS). The Fisher criterion can be communicated as:

$$J = \frac{|m_1 - m_2|^2}{s_1^2 + s_2^2} \quad (1)$$

In condition 1,  $m_1$  and  $s_1$  separately addresses the mean furthermore, standard deviation of elements assessed over all unwinding states, and  $m_2$  and  $s_2$  address the mean and standard deviation of similar provisions assessed over all enactment states. The fisher measure increments as the normal partition between bunches increment and the normal partition inside bunches diminishes. This strategy recognizes the elements giving greatest detachability among actuation and unwinding state designs.

For SFS, interclass detachability F- score (ISF) was utilized as the component positioning strategy. The ISF is a standardized proportion of segregation between the elements of two classes. The SF of a component is characterized as:

$$ISF = \frac{(m_1 - m)^2 + (m_0 - m)^2}{\frac{1}{n_1 - 1} \sum_{i=1}^{n_1} (x_{i,1} - m_1)^2 + \frac{1}{n_0 - 1} \sum_{i=1}^{n_0} (x_{i,0} - m_0)^2} \quad (2)$$

Here  $n_1$  and  $n_0$  addresses the quantity of occurrences from the enactment and unwinding errands separately while  $m_1$ ,  $m$  and  $m_0$  are the normal element esteems for the entire informational index, the enactment and unwinding information individually.  $x_{i,1}$  is the  $i^{th}$  enactment highlight worth and  $x_{i,0}$  is the  $i^{th}$  unwinding highlight esteem. Additionally the numerator demonstrates the detachability between the enactment and unwinding class highlights and the denominator determines the intra class inconstancy of the highlights. With bigger SF, the element viable is bound to be discriminative.

The SFS approach has a forward advance what begins at first void arrangement of features. Fundamentally, the principal subset contains just the highest level element from the ISF positioning furthermore, at each forward advance, another subset is made containing all elements inside the past subset. In this way, the first subset just contains the highest level feature from the ISF positioning and the last subset contains every one of the 44 separated features. The number of subsets made and the quantity of accessible highlights are really same. Then, at that point we played out a 10-crease cross-approval and for each crease, an ideal subset was acquired on the foundation of the approval correctness's of the subsets. Subsequent to gathering the 10 ideal subsets, another 10-overlap cross-approval was performed with this superset of ideal provisions. At last a bunch of components was chosen having the most elevated approval precision. These elements were at last used to prepare the classifier.

#### D.C Classification

We have utilized two characterization techniques in our investigation. One is Linear Discriminant Analysis (LDA) and the other is a Naive Bayes (NB) classifier.

LDA classifier is indicated by the accompanying condition:

$$y(x) = w^T x + w_0 \quad (3)$$

Here,  $w$  is the weight vector for the feature vector  $x$ , and  $w_0$  is the predisposition. Each of the 44 elements were excluded from the element vector  $x$ , for classifier preparing. In every meeting, proper highlights were chosen by the strategies include choice presented previously. The LOA arranged each testing information point as unwinding when

$y < 0$ , and initiation when  $y > 0$ .

The Naive Bayes (NB) classifier accepts freedom between highlights inside each class. Notwithstanding, NB appears to function admirably by and by in any event, when that autonomy supposition that isn't rigorously valid. On that point, the NB classifier was executed accepting the autonomy between highlights. To choose whether a particular test information has a place with either the unwinding class or the enactment class, the back conceivable outcomes ( $C$ ) of the two classes were determined. The test information were allotted to the class with the most elevated back likelihood  $C$ , given by:

$$C_k = p(C_k) \prod p(x_j | C_k) \quad (4)$$

Here  $p(C_k)$  is the likelihood of unwinding and initiation task where  $k=0$  species unwinding errands and  $k=1$  determines initiation assignments. As there are equivalent number of unwinding and initiation occurrences (80 unwinding, 80 enactments), both  $p(C_0)$  and  $p(C_1)$  are same and set to 0.5.  $p(x_j | C_k)$  is the class restrictive probabilities for each element inside unwinding or initiation classes.

A Gaussian dissemination was accepted for each component. In this manner for a bunch of chosen highlights ( $X$ ) of the test information, the probability of that test information having a place with class  $k$  is given as:

$$p(X | C_k) = p(C_k) \prod \left\{ \frac{1}{\sqrt{2\pi\sigma_{jk}^2}} \exp \left[ -\frac{1}{2} \left( \frac{x_j - \mu_{jk}}{\sigma_{jk}} \right)^2 \right] \right\} \quad (5)$$

Where  $I_{j,k}$  and  $(J_{j,k})$  are the mean and fluctuation individually of the/h include inclass k. Both the mean and the fluctuation were determined from the preparation information and the equivalent estimation was accomplished for all elements for the two classes.

Fisher standard, ISF-SFS as element determination strategies for both LOA and NB classifiers were looked at in this study.

### III. RESULT

The information we gained from 10 members were dissected separately. Each set contained 80 enactment and 80 unwinding occurrences. A 10-overlay cross approval strategy was applied to every informational index so all information focuses were haphazardly masterminded into 10 gatherings. Each gathering of information contained 8 enactment examples and 8 unwinding occasions. For each overlay, one gathering was saved as testing information while the unwinding was utilized as preparing information. In each overlay, a distinctive gathering was picked as testing information while the other 9 bunches were utilized as tramp information. This methodology was rehashed until each gathering partook once as testing information. The 10-overlay cross approval strategy was productive for little tests of information as it permitted every one of the information focuses to contribute as both testing and preparing information. Furthermore, it forestalled over-fitting by guaranteeing that the preparation and testing information were diverse inside each overlay.

Fisher Criterion and SFS brought about a normal approval exactness of  $73.32 \pm 4.09\%$  and  $78.69 \pm 3.71\%$  individually for LDA grouping (Fig. 5). For Fisher Criterion and SFS, the approval exactness was  $74.56 \pm 3.24\%$  and  $79.13 \pm 3.85\%$  separately for NB

order (Fig. 6).

Fisher Criterion and SFS showed a normal explicitness of  $72.25 \pm 6.40\%$  and  $77.00 \pm 4.26\%$  separately for LOA grouping (Fig. 7). For Fisher Criterion and SFS, the normal explicitness was  $73.25 \pm 4.13\%$  and  $79.38 \pm 5.57\%$  separately for NB order (Fig. 8).

Fisher Criterion and SFS accomplished a normal affectability of  $74.40 \pm 3.56\%$  and

$80.38 \pm 5.34\%$  separately for LDA arrangement (Fig. 9). For Fisher Criterion and SFS, the normal particularity was  $75.88 \pm 5.00\%$  and  $78.88 \pm 6.44\%$  individually for NB grouping (Fig. 10).

Contrasting these two strategies, we have gone to the end that the Naive Bayes classifier with Sequential Forward Search (SFS) accomplished higher exactness than the different techniques applied.

Fig. II indicates the quantity of components chose for LOA grouping with Fisher Criterion, Naive Bayes grouping with Fisher Criterion, LOA arrangement with Successive Forward Search (SFS) and Naive Bayes grouping with SFS in sections individually. For Fisher Standard, the quantity of components chose was consistent as 3. Then again, conflicting number of components was chosen for SFS.

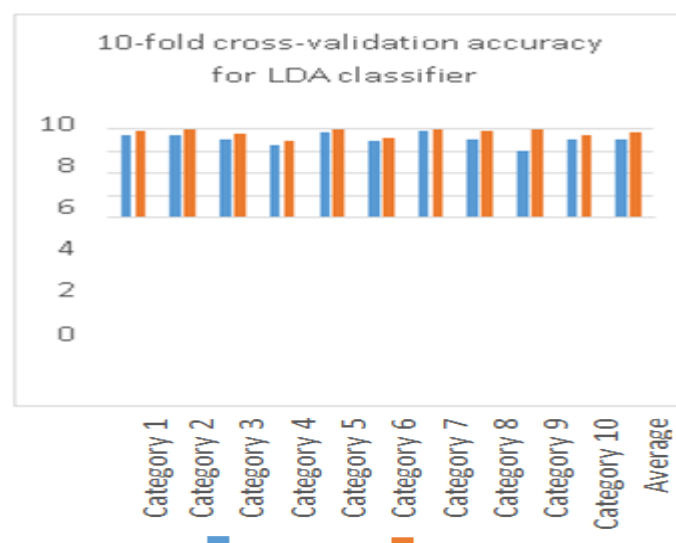


Fig. 5. 10-fold cross-validation accuracy for LDA classifier with Fisher criterion, TSF-SFS feature selection methods.

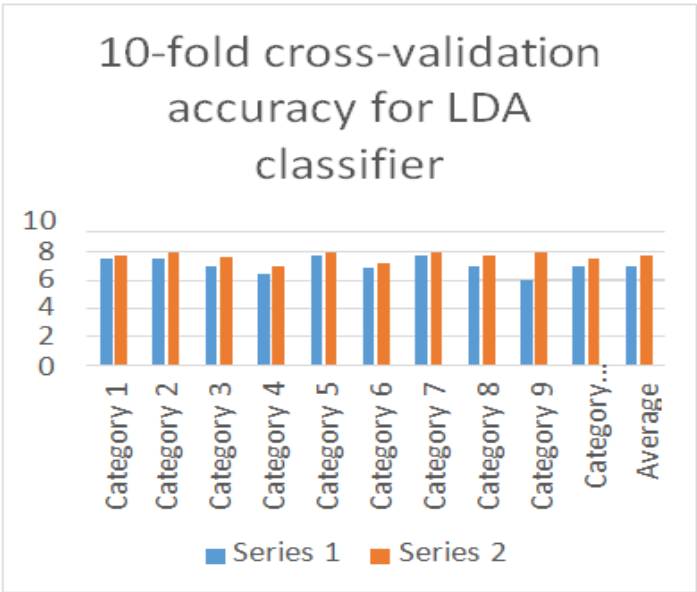


Fig. 6. IO-fold cross-validation accuracy for NB classitier with Fisher criterion, TSF-SFS feature selection methods.

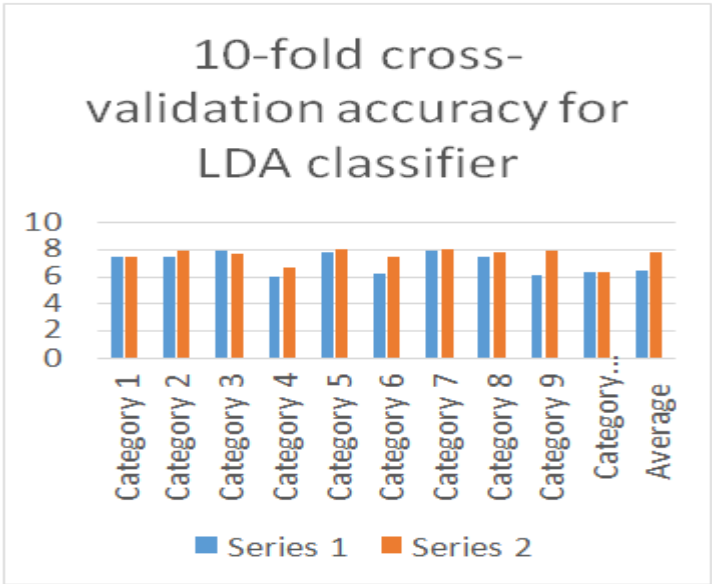


Fig. 7. IO-fold cross-validation specificity for LDA classifier with Fisher criterion, ISF-SFS feature selection methods.

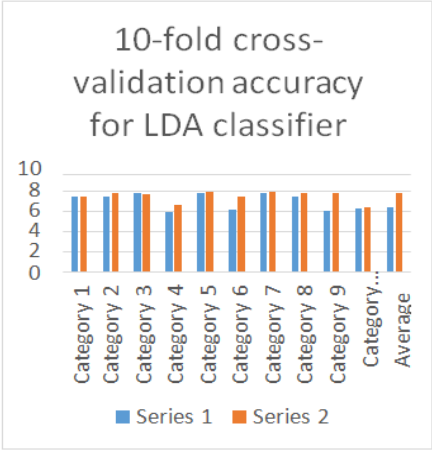
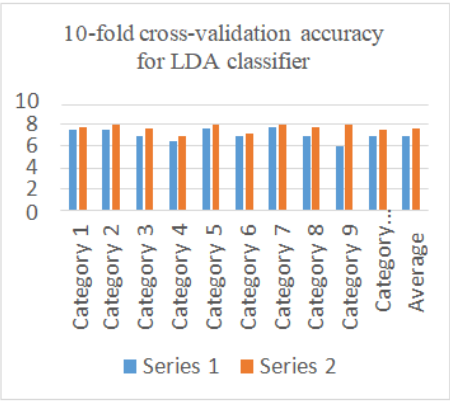
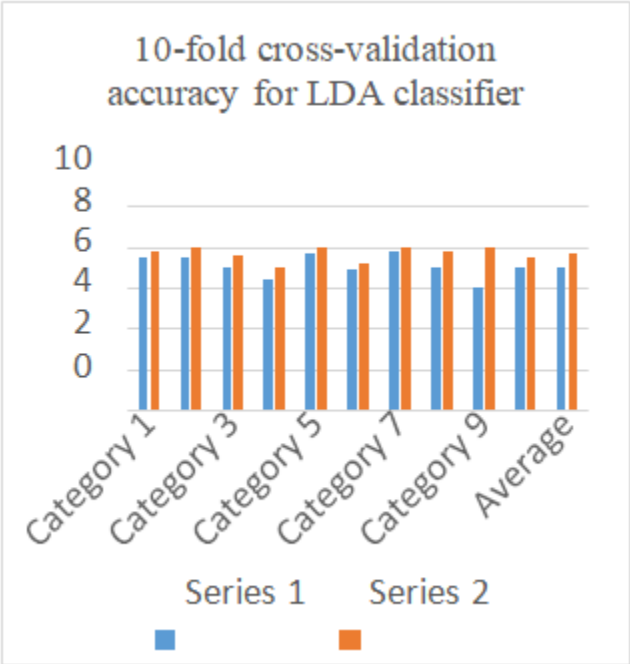


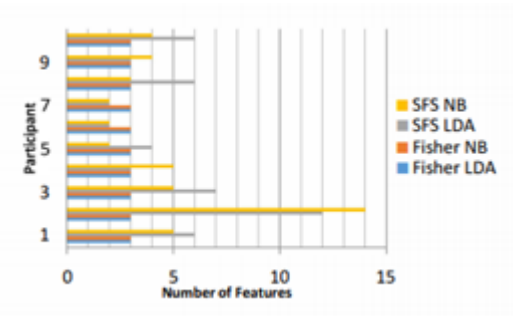
Fig. 8. IO-fold cross-validation specificity for NB classifier with Fisher criterion, TSF-SFS feature selection methods.



**Fig. 9. I O-fold cross-validation sensitivityfor LDA classifier with Fisher criterion, TSF-SFS feature selection methods.**



**Fig. 10. I O-fold cross-validation sensitivity for NB classifier with Fisher criterion, TSF-SFS feature selection methods.**



**Fig. I I. Number of features selected for eachparticipant for Fisher Criterion and Sequential Forward Search (SFS).**

all techniques had the option to sensibly separate the TeD information into actuation and unwinding states, a Naive Bayes classifier with consecutive forward search include choice accomplished the best execution. Our element determination and classifier strategies refined recently distributed work. Higher exactness’s are normal when the members get to know the exploratory convention and the instrumentations.

Fundamental outcomes show that human cerebrum states can be decoded with high precision and through further examination; exactness’s can be improved. In spite of the fact that we have zeroed in on correspondence

and control applications, it has additionally been as of late recommended that BCIs might have applications for neurological recovery. This could lead us to work on the nature of lives of individuals having engine incapacities notwithstanding being psychologically mindful.

#### IV. CONCLUSION

The target of our examination was to interpret the psychological states of human cerebrum. The outcomes show an exactness that has worked on contrasted with past examinations and suggests that our study is unmistakably a triumph for future BCI improvement. Unwinding and enactment conditions of human mind were decoded with a decent precision and it is feasible to accomplish better correctness's with additional examinations. There is likewise an extraordinary chance of planning an online TCD based gadget that will assist handicapped with peopling to speak with their environmental elements. In our examination, we have distinguished human mind states effectively and the result has opened ways to an extraordinary commitment to the field of TCD-BCI.

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**SELF-CONCEPT AMONG THE HIGHER SECONDARY STUDENTS – A COMPARATIVE STUDY****Dr. Priyanka Dafare**

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**ABSTRACT**

*Objective-* The main objective of the study is to find out the self-concept among H.S.C. students. This study will focus on comparison between the CBSC students and State board students about the self-concepts as per its dimensions.

*Hypothesis-* There is no significant deference in the self concept among the H.S.C. students of CBSC and State Board.

*Methodology-* this research was done on the basis of Descriptive method. The investigator preferred normative survey for study.

*Tools-* the tools used for study was questionnaire (SCQ-s) by R. K. Sarswat.

*Finding-* CBSC students are higher in self-concept in comparisons with state board student. CBSC students student are stronger than State Board student about physical self-concept. It is found that Social self-concept among CBSC is poor than State Board students. When compare for the temperamental self-concept, Educational self-concept and Moral self-concept study shows that there is no significance difference in CBSC and State Board student. While in case of intelligence self-concept CBSC student are found to be more active and stronger.

*Keywords-* Self-Concept, Higher Secondary Students, comparative study.

**INTRODUCTION**

Self-concept as a concept is concerned with an individual way of thinking, acting, and behaving. It has significant implication for the learner. Teachers self directly affects students personality. Self- concept is the way people think about themselves. It is unique, dynamic, and always evolving. This mental image of oneself influences a person's identity, self- esteem body image and role in society. As a global understanding of oneself, self -concept shapes and defines who we are, the decisions we make, and the relationships we form. Self-concept is perhaps the basis for all motivated behaviour (Franken, 1994).

Self-concept refers to the totality of a complex, organized and dynamic system of learned beliefs, attitudes and opinions that each person hold to be true about his or her personal existence. A positive self-concept can be developed through behave objectively in knowledge oneself, and have a positive and rational thinking. It is believed that the development of student's self-concept depends on the focus of educators in classroom practice.

Cooley (1902) defined the self as "that which is designated in common speech by the pronouns of the first person singular, I ,ME,MY,MINE,MYSELF". Lecky (1945) identified the self-concept as the nucleus of personality. Sartin (1952) noted that behaviour is organised around cognitive structures. One such important structure is the self. For Sullivan the self-arises out of social interaction. Every students have deference in their self-concept. R.Arumugrajan noted that there is significant difference between male and female higher secondary students in there academic self-image. In conclusion of her research Anuradha Mani stated that the various dimensions of family environment and academic Self-concept contributed to the prediction of Achievement. It is found by Srivastav, N. that there is relationship of aggression with self-concept and academic , non-academic perform. Study done by Sarswat, R. find out that the boy' self-concept was positively and significantly related to Social adjustment while the girl's self-concept was positively and significantly related to home, social, emotional, school as well as total adjustment. Manav, R.N. noted in his study that self-concept variables was found to be significantly related to the students achievement. All these research found by various researcher state that there is different aspect of self-concept are influenced by home, school, social and other factors and it is closely related to academic achievement, personality factors. Hence present study focus on study about self-concept among H.S.C. students.

**OBJECTIVE OF THE STUDY**

The main objective of the study is to find out the self-concept among H.S.C. students. This study will focus on comparison between the CBSC students and State board students about the self-concepts as per its dimensions.

**HYPOTHESIS**

There is no significant deference in the self concept among the H.S.C. students of CBSC and State Board.



**METHODOLOGY**

To achieve the above cited objective of the present study NORMATIVE SURVEY METHOD has been used under the descriptive research. After reviewing the characteristic of the different method of educational research, the investigator decided to use survey method for present study.

**POPULATION**

The population of the study is the student studying in H.S.C. students of CBSC and State Board from Wardha district of Maharashtra.

**SAMPLE**

The sample of the present study was limited to 60 students from the above mention population selected on the basis of simple random sampling procedure.

**RESEARCH TOOL**

SELF CONCEPT QUESTIONNAIRE (SCQ): to find out self-concept among the M.Ed. student researcher has used the SCQ developed by Dr. Raj kumarSaraswat, New Delhi , University, which contain 48 items with six separate dimensions of self-concept viz,- physical, Social, Intellectual, Moral, Educational and Temperamental.

**DATA ANALYSIS AND INTERPRETATION**

The collected data was analysed by using descriptive & inferential statistics mean, standard deviation 't' test to find out significance difference.

**Difference between the H.S.C. students of CBSC and State Board about self-concept and its Dimensions**

Variables	Sub-sample	Numbers	Mean	Standers deviation	't' value	Significance level
Physical self-concept	CBSC	30	32.06	3.335	2.555	S (0.05)
	State Board	30	29.86	3.335		
Social self-concept	CBSC	30	31.43	4.378	2.858	S (0.05)
	State Board	30	34.66	4.378		
Temperamental self-concept	CBSC	30	30.23	3.73	1.35	N. S (0.05)
	State Board	30	31.53	3.728		
Educational self-concept	CBSC	30	31.06	3.82	1.41	N. S (0.05)
	State Board	30	30.63	4.15		
Moral self-concept	CBSC	30	31.83	3.335	1.07	N. S (0.05)
	State Board	30	32.66	2.569		
Intellectual self-concept	CBSC	30	36.2	3.438	7.536	S (0.05)
	State Board	30	25.9	4.05		
Total self-concept	CBSC	30	192.16	7.67	2.726	S (0.05)
	State Board	30	184.5	7.72		

**INTERPRETATION**

The analysis of the score of H.S.C. students shows that the mean score of CBSC students are higher than State board student about physical self-concept. The obtained 't' value (2.555) is significant at 0.05 level. This result indicates there is significance difference between the CBSC and State Board students. Whereas score obtained with social self-concept i.e. 't' value (2.858) is significant at the 0.05 level and result indicate there is significance difference between CBSC and State Board students in social self-concept. The score mean about temperamental, Educational and Moral self-concept are slight different among CBSC and State Board students but 't' value (initially 1.35, 1.41, 1.07 ) are not significant at 0.05 level as well as 0.01 level. The score mean for intellectual self-concept among CBSC students is higher than State Board students and 't' value 7.536 is significant on both level(0.05 and 0.01).

The score for total self-concept among CBSC students is higher than State board students. 't' value (2.726) is also significance at both level (0.05 and 0.01).the data analysis shows that there is significant difference between CBSC and State Board students about self-concept and its dimensions. Thus all hypothesis became significant.

### **FINDINGS**

1. CBSC students are higher in self-concept in comparisons with State Board student.
2. CBSC student are stronger than State Board student about physical self-concept.
3. It is also found that Social self-concept among CBSC students is poor than State Board students.
4. When compare for the Temperamental self-concept, Educational self-concept and Moral self-concept study shows that there is no significance difference in CBSC students and State Board student.
5. While in case of intelligence self-concept CBSC student are found to be more active and stronger than state Board students.

### **EDUCATIONAL IMPLICATIONS**

The school and colleges is such a important and pervasive context for many years of the formative years, it could well be expected to have impacts on self-concept that last long beyond the school and college years. Thus there has been much research on the ways self-concept are related to the academic abilities and performance in the school and college. Present study also on the same ways. Self-concept in turn may be displayed through the individual's confidence level, overall commitment and motivation for new experiences and challenges. In context of education therefore the student's construct of the self may have important implications on the learning experiences. Self-concept developed through the influence of the parents or guardians and teachers. For example sex-role stereotyping by the parents as well as feedback on or exaggeration of personal characteristics, may establish self-concept upon the child. Present study also emphasized that teacher educators should have concerned with self-concept because there their self-concept influence their student self-concept.

### **RECOMMENDATIONS**

- It can be carried out in relation to self-concept and academic achievement.
- A similar study can also be carried out to see effect of school environment, home environment on students.
- A study may be taken to explore the comparison between Arts, Sciences and Commerce students.

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**IMPLICATION OF HUMAN AUGMENTATION ON ADVANCED MEDICAL FUTURISTIC TECHNOLOGICAL ERA**

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**ABSTRACT**

*In this paper, an effort has been made to showcase that Human enhancement technologies are opening up tremendous new possibilities. But they're also raising important questions about what it means to be human. These technologies are currently geared towards upgrading or restoring physical and psychological abilities for medical purposes. The introduction of a new technology, such as a human enhancement technology, may induce apprehension and concern among the general public. Social media enable individuals to find information and share their insights and concerns regarding new technologies. This results in an abundance of viewpoints that guides the individual's acceptance and decision-making. Human augmentation is a field of research that aims to enhance human abilities through medicine or technology. This has historically been achieved by consuming chemical substances that improve a selected ability or by installing implants which require medical operations. Both of these methods of augmentation can be invasive. Lately, augmented reality and multimodal interaction technologies have enabled non-invasive ways to augment human. In this article, we first discuss the field and related terms. We provide relevant definitions based on the present understanding of the field.*

**KEYWORD:** Human Augmentation, Augmented Senses, Augmented Action, Augmented Cognition, Replicating human ability, Supplementing human ability, Exceeding Human ability, Cyborg, Gamification, Mixed Reality

**INTRODUCTION:**

The field of human augmentation sometimes referred to as “Human 2.0” focuses on creating cognitive and physical improvements as an integral part of the human body. Technologies that enhance human productivity and improve or restore capabilities of the human body or mind are an area of computing we refer to as human augmentation. Advances in such technologies are empowering, offering improvements to human health, quality of life, and functional performance. An example is using active control systems to create limb prosthetics with characteristics that can exceed the highest natural human performance. Advanced human augmentation suggests technologies that augment and enhance human actions, senses and work in new, yet unexplored ways by allowing humans to see, hear and feel the surrounding environment in new and enriched ways. The aim is to utilize the existing and envisaged technologies for meaningful human-defined purposes in augmenting humans in appropriate ways. The technical interaction concepts are based, for example, on virtual, augmented and mixed reality (VR/AR/MR) solutions, wearable computing devices, smart materials, brain and skin interfaces and near-eye displays. The information provision for the augmented human utilizes e.g. Activity and behaviour analysis, personalization, situation and context awareness. Other types of human-augmentation technologies work with specific IT resources including the cloud, big data, and mobile computing. These include wearable devices such as watches or bracelets that link the human body to external sources of information that are visual, audio, or text based. For this special issue, we focused primarily on approaches utilizing computation-based solutions instead of those that are rooted in purely pharmaceutical, psychological, or physiologic approaches.

**DEFINING HUMAN AUGMENTATION TECHNOLOGY:**

A common definition of human augmentation is “technologies that enhance human productivity or capability, or that somehow add to the human body”. We would add that in order for something to be an augment, it must become so integrated into the user’s life that it becomes an extension of them. For instance, a hammer is only relevant when you need it and thus would not be an augment. But a sufficiently discreet exoskeleton could become as normal to your life as your ability to walk, and thus would be an augment. So, following this rule, a laptop would not be considered an augmentation, but a smartphone and especially a mobile smart watch could easily be considered an augmentation. It’s almost always with (or on) you, and it augments your ability to access any information at any time.

In other words, for a technology to be considered an augmentation by our definition, it needs to be a persistent and intuitive part of the human experience on a moment-by-moment basis. A tool never becomes a part of your identity, but an augmentation almost surely has to. Human Augmentation refers to the enhancement of human abilities through the use of different technologies. This includes a wide variety of devices that fall under its scope, making it sometimes problematic to define exactly what Human Augmentation is.

Implants and external devices are both considered to be examples of Human Augmentation technology. The first is often referred to as invasive because it tends to require medical interventions. The second is considered to be non-invasive because it can easily be removed at will and without any medical interventions. These different technologies often trigger strong debates as to whether Human Augmentation is ethical or not. However, if you think about it, enhancing the human body isn't new. Many technologies have been enhancing the human body for millennia. The primary aim of this phenomenon is cognitive and physical enhancements in the human experience. While being a concept which still remains relatively vague, the developments in this technology are meant to offer enhancements in case of crucial areas like human health, quality of life as well as performance.

Now, humans have been looking into this for a long time, especially when it comes to the field of medicine. This field has been trying to augment bodies by experimenting with genes to fight viruses like AIDS, and even cure blindness. But here, we want to talk about the kind of augmentation that uses emerging technologies to change the way humans will function. Scientists and biologists, after going through decades of research, still have not quite figured out what power our brain holds at 100% capacity. We need to gain the ability to understand what is happening within our body, from both a physical and chemical point of view. When this understanding is combined with advanced technologies like AI, we will have the necessary foundation for the next stage of human evolution called human augmentation, aka, Human 2.0.

### **CATEGORIES OF AUGMENTATION TECHNOLOGY:**

There are three main categories of augmentation and these are senses, action, and cognition. Let's take a closer look at each.

#### **Augmented Senses**

Augmented, extended, or enhanced senses are achieved through the interpretation of available multisensory information. This information is then presented to humans using selected senses. Some Sub-classes of augmented senses include augmented vision, haptic sensation, hearing, smell, and taste.

Furthermore, this category of augmentation adopts methods and technologies that make up for the effects of sensory impairments. Here, the sensory signals of the impaired senses are amplified using healthy senses. An example is the use of haptic actuators to describe the environment to a blind person. The same technology can be used to interpret speech signals to a deaf person.

On the other hand, augmented sense can also improve the capabilities of existing senses. This is made possible by augmenting human senses with the use of more sensors to observe signals that are beyond normal human sensory capabilities. These signals are then transformed into a suitable format that humans can use. Light sensors or tiny cameras are some technologies that can enable the human to see clearly even in the dark.

#### **Augmented Action**

Augmented action involves sensing human actions and mapping them into actions in local, remote or virtual environments. Augmented action can be classified into subclasses including speech input, gaze-based controls, motor augmentation, and amplified force, amongst others.

An example is the use of prosthetic limbs to enable a person with amputated limbs to lift and move objects. Likewise, exoskeletons enable paralyzed people to walk using robotic feet. Therefore, augmenting human action is an advancement over the natural human motor and sensory limits.

Over and above that, there are exoskeletons that can be used to carry out manual tasks that still require human intelligence. In this case, they provide humans with the strength to lift heavier items. They also reduce the pressure on the lower back area, which keeps pain at bay. However, human intelligence to determine where these items are to be placed is still in play.

#### **Augmented Cognition**

Augmented cognition is a field of research that combines cognitive psychology, neuroscience, engineering, computer science, and human-computer interaction (HCI). This type of augmentation is made possible by detecting the human cognitive state. And the detection is carried out using analytical tools to correctly interpret and adapt the computer's response to coincide with the current and future needs of the user.

Further, human-technology interaction exists when a tight coupling between the user and computer is actualized by sensing the physiological and neurophysiological of the user's cognitive state. What's more, augmented cognition integrates the information sourced from the users, and this information is used to adapt computer input to meet the user's situational needs.

Alternatively, it has been argued that augmented cognition can offer support when it comes to human information processing in relation to working memory, sensory memory, and attention, amongst others.

### **TYPES OF HUMAN AUGMENTATION TECHNOLOGY:**

Human augmentation can be further divided into three main categories with different functions:

#### **1. Replicating human ability**

The human augmentation technology which restores or replicates routine human abilities comes under the replication category. For instance, this could be hearing aids for the deaf or prosthetic limbs for the ones who are disabled. Replication helps in facilitating equal opportunities for those that have undergone a disastrous accident or ailment or for the ones who were born with inadequacies and face hindrances while fulfilling their everyday needs. The devices adopted here facilitate extensive psychological assistance for their users.

#### **Replication Examples**

- ❖ **Naked Prosthetics:** A company that creates custom hand prosthetics for individuals who have had their fingers amputated. They are one of the first finger prosthetics manufacturers to provide their users with extremely high levels of dexterity.
- ❖ **eSight:** A wearable device similar to glasses that provides legally blind individuals with the ability to see their environment. The device has cameras on the front that take in the environment in near-eye quality and display it on a screen that sits right in front of the wearer's eyes.
- ❖ **MotionSavvy:** A platform that translates sign language into speech and speech into sign language, acting as a personal translator for deaf people. While these products are currently geared towards businesses with deaf employees, they could eventually expand into apps on smartphones, making sign language communicable for anyone.
- ❖ **Cochlear Implants:** Cochlear is one of the first companies to develop such a product that restores hearing without requiring an external hearing device to be worn.
- ❖ **Bioprinting:** The process of creating organic tissues (organs, bones, skin, etc.) using 3D printing techniques. While this technology is still in its earliest stages, it has the potential to completely redefine the medical industry and how we typically think of healthcare.

#### **2. Supplementing human ability**

The human augmentation technology which enhances one's ability in doing things comes under the supplementation category. For instance, these could be devices that artificially enhance one's strength, improve one's sight, and make them superior to the normal limits or enhance one's intelligence. Such human augmentation which strengthens our physical or intellectual constraints can revolutionize our culture as well as bolster our prospects.

#### **Supplementation Examples**

- ❖ **Exoskeletons:** Wearable, mechanical devices that can be worn on the outside of the body. They typically provide the wearer with artificial strength and endurance. The Sarcos Guardian is an example of an industrial exoskeleton that allows a human worker to lift up to 200 pounds, perform precise operations with heavy machinery, and handle repetitive motions without strain.
- ❖ **Neuralink:** Another project by Elon Musk with the ultimate goal of creating a brain-computer interface. If successful, the project would allow individuals to interact with a computer on a neural level. While this project is still in its infancy, Musk has a track record of making impossible ideas a reality.
- ❖ **Waverly Labs:** has created a set of earbuds that can translate conversations in real-time, completely sidestepping the need to learn foreign languages. While the languages it can translate are limited, and it isn't completely reliable, it's a strong step forward.
- ❖ **Google Glass:** By now, everyone has at least heard of this technology, even if you're not entirely sure what it does. While the device has had a rocky, vision augmentation is becoming increasingly popular.
- ❖ **HoloLens 2:** is a mixed reality headset from Microsoft that allows people to visualize and manipulate objects in holographic form. The device has many commercial and industrial uses, such as 3D computer-aided design and design collaboration, employee training and virtual instruction, and gaming.

#### **3. Exceeding human ability**

The human augmentation technology which enables us to carry out any phenomenon that we are physically limited from performing on our own comes under the exceeding augmentation category. For example, think of those typical superhero skills such as the ability to be able to fly, the capability to breathe underwater, detect through the smell of chemicals that cannot be detected from the normal olfactory sense, and so on.

**Exceeding Examples**

- ❖ **Zapata Flyboard Air:** A turbine-powered hoverboard. The driver stands on top of it like a skateboard or surfboard and can fly up to 500 feet in the air. While the device is available for purchase, quotes seem to hover around a quarter of a million dollars. That said, the company is working to make the product more practical and affordable.
- ❖ **Invisibility Cloak:** The idea of turning invisible certainly captures people's imaginations, and while we don't quite have the technology ready yet, we are getting closer. Various researchers have already come up with ways to make certain surfaces and objects invisible, and they're trying to apply the same concepts to human cloaking.
- ❖ **Artificial Blood Cell:** While still theoretical, research by Robert Freitas Jr. has explored the possibility of creating artificial blood cells. This idea was born from research into mammals—whales, dolphins, etc. Who can hold their breath underwater for long periods of time? The assumption is that their blood cells are better at storing oxygen, which we might be able to recreate.
- ❖ **Nanobot:** Even though the word rings of science fiction, these have a very high potential of becoming a normal part of the medical industry. A nanobot is "a robot that allows precise interactions with Nano scale objects, or can manipulate with nanoscale resolution." These bots can be deployed into the human body to perform specific tasks that do things the human immune system can't on its own, such as targeting and attacking certain diseases and cancers the human immune system struggles with.
- ❖ **Synthetic Memory Chip:** It's no secret that hard drives are much better at retaining their memory than we are. They are also able to access that memory with greater speed and accuracy. This idea motivated neuroscientist Theodore Berger to explore synthetic memory chips that can be installed in the human brain. While still conceptual, the project could allow people to have "perfect" memories that never forget information.

**HUMAN AUGMENTATION : MEDICAL TECHNOLOGY ADVANCES**

Mind-reading exoskeletons, digital tattoos, 3D printed drugs, RFID implants for recreational purposes: mind-blowing innovations are coming to medicine and healthcare almost every single day. I have shortlisted some of the greatest ideas and medical technology developments that could give us a glimpse into the future of medicine.

**1) Mixed reality opens new ways for medical education**

Augmented, virtual, and mixed reality are all technologies opening new worlds for the human senses. While the difference between these technologies might seem arbitrary at first, it greatly determines how they could be used in healthcare. While AR lets users see the real world and projects digital information onto the existing environment, VR shuts out everything else completely and provides an entire simulation, and mixed reality is able to interact with the world while projecting information into it. Thus, AR can be used by surgeons for projecting potentially life-saving information into their eyesight during operations, VR can be used in psychiatry to treat phobias efficiently, and mixed reality is able to bring revolutionary novelties to medical education, or pre-operative surgical planning, among others.

For example, the Microsoft HoloLens opens up radically new ways for medical education as it is able to project the human body in its full size in front of med students. Thus, the organs, veins or bones will be visible accurately in 3D, and future medical professionals will be able to analyse their shape, remember their characteristics more vividly than it is possible when studying from a book.

**2) Brain-computer interfaces bring hope for the paralyzed**

Dr. Gary Marcus, at New York University and Dr. Christof Koch at the Allen Institute for Brain Science told The Medical Futurist that brain implants today are where laser eye surgery was decades ago, but the field will advance significantly in the upcoming years. Imagine a retinal chip giving you perfect eyesight or the ability to see in the dark, a cochlear implant granting you perfect hearing or a memory chip bestowing you with almost limitless memory. What if you could type into a computer with only your thoughts or control your entire smart house by sending out the necessary brainwaves?

Although that's really galactic leaps away, the first neuroprosthetics is already on the market: you can purchase cochlear implants, and retinal implants – the latter was approved by the FDA in 2013. Moreover, implants for people with Parkinson's disease send electrical pulses deep into the brain, activating some of the pathways involved in motor control. Rarer, but also in use, are brain implant therapies for people paralyzed by spinal cord injury or other neurological damage. A chip inserted into the brain reads off electrical signals that are translated by a computer to restore some movement and communication.

### **3) Might we all end up being recreational cyborgs?**

There are already famous examples of real-life cyborgs, and I am truly convinced that such creatures will not only populate the terrain of sci-fi movies, but they will be everywhere around us in the very near future. The 'cyborg-craze' will eventually start with a new generation of hipsters who implant devices and technologies in their bodies just to look cooler.

Advances in future medical technology will not just repair physical disadvantages such as impaired eyesight but will also create superhuman powers from having the eyesight of an eagle to possessing the hearing of a bat. Hearing aids powered with artificial intelligence, earbuds making you multilingual, or RFID chips already point to that direction.

### **4) 3D printing drugs in dinosaur shapes for kids**

If guns, bars of chocolate, even entire houses can be 3D printed now, and the biotechnology industry is even working on printing out living cells; why would the appearance of 3D printed drugs be surprising? It's a logical sequel that's already happening.

In August 2015, the FDA approved an epilepsy drug called Spritam that is made by 3D printers.

### **5) Gamification in health insurance is not a game**

In November 2017, Qualcomm and United Healthcare announced that they have integrated Samsung and Garmin wearables into their national wellness program. It enables eligible plan participants to earn more than \$1,000 per year by meeting daily walking goals. I believe this is just the beginning of a beautiful friendship between health insurance companies, wearable manufacturers, and the principle of gamification. The latter indicates playful incentives, which could motivate and slightly nudge people into the desired behaviour such as a healthy way of life in the case of health insurance companies.

However, the question is how far health insurance companies should push such gamified solutions. Will they leverage data on accomplished or unaccomplished daily fitness goals to increase premiums for high-risk patients or to reduce their business risks by alerting patients about bad lifestyle choices? What will happen to the patients' private data?

### **6) New technologies bring along new diseases?**

Regarding technological development, there is always a risk for the emergence of so far unknown illnesses and conditions. New types of diseases might appear due to the excessive use of virtual reality solutions, video consoles or smartphones. Examples include virtual post-traumatic stress disorder (v-PTSD), which might be the diagnosis for gamers who participate in large virtual battles wearing VR masks (such as Call of Duty) and experience similar symptoms as those soldiers who fought in real wars.

Plus, video-game epilepsy, in fact, is well-documented and the subject of a recent trial which found that video games, in particular, were more likely to provoke seizures in subjects with photosensitive epilepsy than standard television programs, even if the same screen is used for both.

### **7) Artificial food as the hope against food shortages**

Synthetic tea? Lab-grown meat? Artificial milk? Nutrients and vitamins in a protein shake? Sci-fi movies like the Matrix, Star Trek or The Hitchhiker's Guide to the Galaxy showed us a glimpse of the future of eating disconnected from Mother Earth. Some innovative solutions are already here, promising an option for alleviating the overstraining of natural resources and still providing food for millions of humans.

For example, researchers of the Cultured Beef Project remove muscle cells from the shoulder of a cow and feed the cells with a nutrient mix in a Petri dish, and then they grow into muscle tissue. From a few starter cells, one can derive tons of meat. The Netherlands-based company, Mosa Meat introduced their first hamburger in London in 2013, and they promise to bring artificial beef to the masses in the next 3-4 years.

### **8) Voice as diagnostic and medical support tool**

Researchers and medical professionals have noticed in the last years how useful voice-based solutions can prove to be in healthcare – both in diagnostics as well as in supporting their daily tasks, such as administration.



Scientists found that characteristics of patients' voices – or as medicine labels them, vocal biomarkers – reveal a lot about their health; and help in detecting serious diseases and health risks. For example, an Israeli company, Beyond Verbal deals with emotion analytics and provides voice analysis software. It has announced that its algorithms were successful in helping to detect the presence of coronary artery disease (CAD) in a group of patients. Another initiative, Sonde Health Inc., a Boston-based company develops a voice-based technology platform for monitoring and diagnosing mental and physical medical conditions, but we expect a lot more solutions to come in the future.

#### 9) Patient empowerment as a consequence of the tech revolution

In the last decade, rapid technological advancement has resulted in a shift toward digital health in medicine. This shift is theorized as a cultural transformation of how disruptive medical technologies providing digital and objective data accessible to both caregivers and patients lead to an equal level partnership between physicians and patients with shared decision-making and the democratization of care.

From the patients' side, the result is the evolution of the 'e-patient' where the 'e' stands for 'electronic', 'equipped', 'enabled', 'empowered', 'engaged' or 'expert'. A patient who takes responsibility for their health, and actively engages in shaping their future – in a mutually beneficial partnership with their caregivers. Although this doesn't sound like technological advancement, which it really isn't, it is enabled and facilitated by wearables, health sensors, and any other innovations which make patients the point of care.

#### 10) Digital tattoos for a more invisible healthcare

With the development in 3D printing as well as circuit printing technologies, flexible electronics and materials, applying so-called digital tattoos or electronic tattoos on the skin for some days or even weeks became possible. Some researchers use gold nanorods, others graphine or various polymers with rubber backing to apply the tattoo on the skin without causing irritation. Certain experts believe that these skin patches or tattoos are only the beginning, and in the future, other skin techniques such as henna, tanning, and makeup will also be tested.

These flexible, waterproof materials impervious to stretching and twisting coupled with tiny electrodes are able to record and transmit information about the wearer to smartphones or other connected devices. They could allow healthcare experts to monitor and diagnose critical health conditions such as heart arrhythmia, heart activities of premature babies, sleep disorders and brain activities noninvasively. Moreover, by tracking vital signs 24 hours a day, without the need for a charger, it is especially suited for following patients with high risks of stroke.

#### 11) AI ANXIETY

There may be times when talking to a conversational AI is better than talking with a doctor. There may be more effective therapies for PTSD that start with bots. If therapy requires that you "work through" some horrific trauma that is easier if I don't have to share that with another feeling person. Or just as good, only much more conveniently or at lower cost: The Woebot trial showed success in delivering cognitive behavioural therapy to people suffering from depression.

While AI and machine learning promise earlier diagnoses and better screening, they raise new questions: What does it mean for data to be good? Who should people trust?

#### CONCLUSION:

Recent advances in mediated environments, computation, and biological measurement is finally allowing us to realize the cyborg model of human-technology interaction. In particular, the functional aspects of embodied cybernetic systems enable processes related to or identified as biological plasticity. As an interactive stimulus, the mitigation strategy itself often resembles a form of interactive media

To conclude, there remain a number of practical and moral obstructions to the widespread use of many human enhancements. Many cultures still struggle to regulate the health care system for the purpose of making people well and this should provide caution to those who consider there to be a simple route towards an effective regulation of human enhancements. When establishing ethical guidelines, it is crucial to clarify the perspective from which the question is being asked, in order to understand the breadth of the ethical concern invoked by human enhancements and the scope of answers. If the matter is of personal morality alone, then it will not be necessary or ethically appropriate to involve professionals within such choices. In turn, a matter that concerns society at large should take precedence over individual morality.

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**ANALYSES OF EQUITY MARKET SITUATION**

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**Rohini Yevale****ABSTRACT**

*Equity capital market is a place where capital is provided for running a business organization. Countries growth is depend on availabilities of capital. Capital is essential component in business organization. Equity market provide capital and help our economy to grow fastly. In our economy, we face the problem of unemployment. Due to unemployment, we face poverty in our country. To come out that problems, we need to create employment opportunities in our economy. Equity market provide base to our economy which develop our economy and decline the problem of unemployment.*

*Key – Words: Components, Equity market, Unemployment, Employment Opportunities.*

**INTRODUCTION**

Everyone needs money for survival their life. Due to money, we fulfill our all needs. Business organization is required capital for running business. That's why Business organization must know about capital market or Equity market. Equity market divided in two parts.

1. Primary Market
2. Secondary Market

Through equity market, company can raise fund and meet the need of capital. We deal commodities like Sugar, Cotton, Wheat, Metal etc. from commodities market. Equity market and commodity market is a place where all types of commodities and instruments are traded, buying and selling activities are settled down. Equity market provide base to functioning of primary and secondary market.

**OBJECTIVES OF STUDY**

The main base of research is objectives of study. In each and every activity, objectives are very important. Objective provide guideline and direction to study. The main objectives of equity market is to provide proper information regarding equity market and it helps the investors to take right decision regarding share market. Share market is a place where investors face risk and require proper knowledge to face risk. This research gives detail information about share market.

**IMPORTANCE OF STUDY**

This study is more important to analyses the situation of equity market. Equity market provide fund to our business organization and help to investors to invest money. This study throws the light on working of Primary and Secondary market which give the right platforms for trading of securities. Many investors hesitate to invest in equity market because of lack of knowledge but this study reduce confusion and provide sufficient knowledge to people for equity market.

**RESEARCH DESIGN**

For the research of study material, researcher use Primary and Secondary data and find out conclusion. Through books reading, online information, personal experience and observation used in research design. Researcher spent time with friends who work in share market which provided valuable information for study material.

**ANALYSIS OF EQUITY MARKET SITUATION****Primary Market**

Through primary market, company can raise finance from public through shares. In Primary market company issues securities first time to investors. To expand company, business firm need finance. Through Primary market company get finance from investors to start new project or business activities. Primary market deals new issue only. For transaction in Primary market, there is no particular place. There are different modes are available in Primary market for issuing Securities which is given below.

- Through the Prospectus where company offer securities to general Public it is called public issue.
- When unlisted company offer shares first time and get listed on stock exchange is known as Initial Public Offer (IPO).
- Follow on Public Offer (FPO): Listed company offer another shares to expand the capacity of business it is called follow on public offering.

- Offer for sale is Institutional investors invest their funds in unlisted company at beginning period when company becomes large these investors sell their shares to common people and company get listed this process is known as offer for sale.
- In Private placement securities are sold to small number of investors such as large bank, mutual funds, insurance companies, pension fund.
- In right issue, company issue shares to existing shareholders and issue letter of offer. In right issue existing shareholders apply for shares through letter of offer.
- In Bonus issues Shareholders do not pay extra money for purchasing new shares. Here existing shareholders get new shares first in the form of Bonus shares.

Securities Exchange Board of India (SEBI) regulate equity market. SEBI provide protection to shareholders. To improve the condition of equity market, SEBI has given various guidelines. SEBI also bring reforms in secondary market which improve the confidence of investors. Stock market, equity market or share market which represent the ownership claims of business. Equity market also facilitate online trending which bring transparency in share market. For selling of securities broker is essential part. Register brokers are allowed to trade shares.

Securities market is collection of market and exchange where all traders and investors come together for dealing purpose. BSE and NSE both are more popular exchanges in India which deals lots of stock regularly. In stock market stock broker is essential part which make easy buy and sell equity stock, bonds and other securities. Moneycontrol.com in India is providing financial information regarding equity stock. BSE and NSE are located in Mumbai city of Maharashtra state which provide online trading services to investors and bring more transparency in transaction process.

### **FINDING**

From the analyses of study, researcher found that, people get sources of income from equity market. Equity market is risky market but investors can analyse proper situation of share market, then only investors can make profit. To invest in equity, investors should analyses the different securities and take good decision for making profit. Equity stock market provide capital to business firm and help our nation to grow and expand rapidly. Capital market play vital role in every economy. Because of capital market, it provide finance to business firm.

### **CONCLUSION**

In this way share market work for business organization. Which help the business firm to expand capacity and grow rapidly in world market. Equity markets provide base for trading of securities. In equity market various securities are available which meet financial needs of investors.

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## INDIA: OVERPOPULATION AND POPULATION PREDICTION USING TIME SERIES ANALYSIS

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**ABSTRACT**

*India is the second most populated country in the world and comprises nearly a fifth of the world's population. The population in India has drastically increased in the past few decades. India's population crossed the 1 billion mark in the year 1997 and continues to grow even further. It is poised to overtake China as the world's most populous country in a few years.*

*Population plays a significant role as a measure of a country's economic growth and development. Mortality, fertility and migration influence the trend in population. Even though the fertility rate has declined to about the half the level of the 1980s, that trajectory may not continue. If the fertility rate in the country remains unchanged, the population could easily break the 2 billion mark by the end of 2100. With the population showing no signs of slowing down and with the advent of advanced medical facilities and increased agricultural productivity, the problem of overpopulation, population explosion and over-utilization of resources is constantly looming over our heads. Overpopulation has become a major concern in a developing country like India. It leads to rapid consumption and depletion of natural resources, creates strain on the infrastructure, increases pollution level and will lead to unemployment and under-employment in the country. Overpopulation adversely affects the environment. In order to expand infrastructure for living, deforestation and land clearing is carried out on large scales which leads to loss of biodiversity and destruction of ecosystem. In such situation, the study of the trend in population growth and to come up with a solution to these problems has become of utmost importance.*

*Prediction of future population using past data is possible with the help of statistical tools and techniques. The aim of this research is divided into two parts. The first part is to predict the population of India upto the year 2050 using the concept of time series analysis. An ARIMA model will be used for this purpose. The second part of the research deals with the causes and measures towards the impending problem of overpopulation.*

*Keywords: mortality, fertility, overpopulation, time series, ARIMA model*

**INTRODUCTION**

Overpopulation is the situation that arises when the population exceeds its carrying capacity and therefore, becomes difficult to sustain. Overpopulation is a severe threat to humanity's own existence. Population is like the two sides of a coin. If it is within limit, it increases productivity and provides adequate strength to a nation. However, beyond a certain limit, i.e., its carrying capacity, it becomes a burden and creates a strain on natural resources, infrastructure, employment opportunities and the environment. Currently, with a population of around 1.3 billion, India ranks second among the world's most populated countries. It contributes to around 17.7% of the world population. The population growth rate of India stands at 0.97% and is currently showing a declining rate. The growth rate is calculated as,

$$\text{Growth rate (\%)} = \frac{\text{Population in year } t - \text{Population in year } (t-1)}{\text{Population in year } (t-1)} \times 100$$

Time series analysis is the technique of studying and analyzing the time series data collected over a period of time in order to study the trend in the data and extract important characteristics from it. It is the arrangement of statistical data in a chronological order. It is mainly used for prediction and forecasting purpose.

ARIMA stands for Autoregressive Integrated Moving Average Model. An ARIMA model can be used for forecasting the future population in the country. It provides a powerful method for time series analysis. The basic assumption of an ARIMA model is that it is stationary, i.e., having constant variance and mean.

Using this model, the annual future population in the country can be predicted.

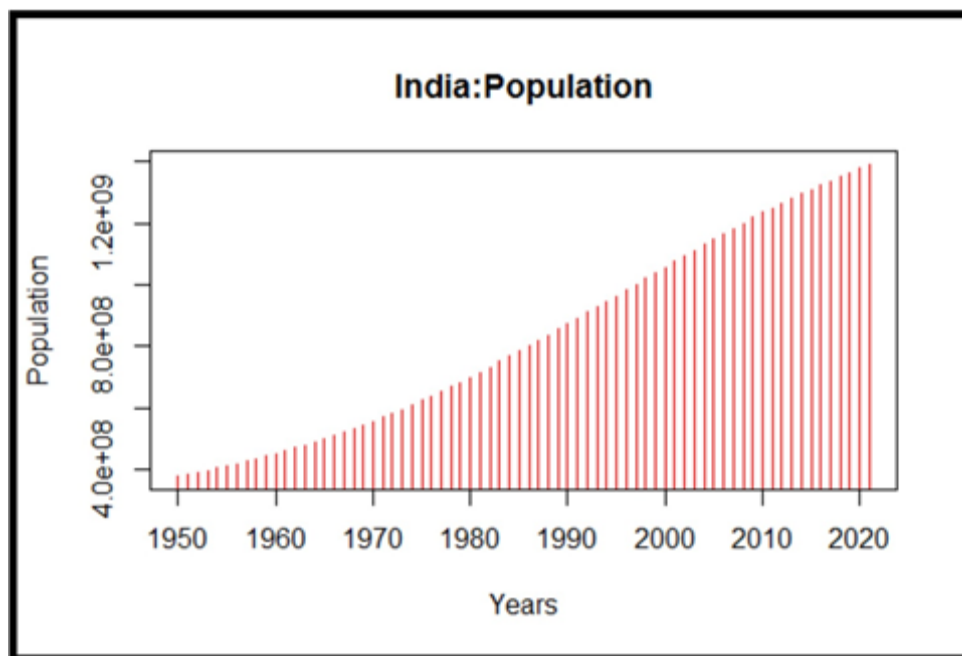
**METHODOLOGY**

**Data Collection:** This study is based on secondary data which has been collected from various websites, articles, research papers and reports.

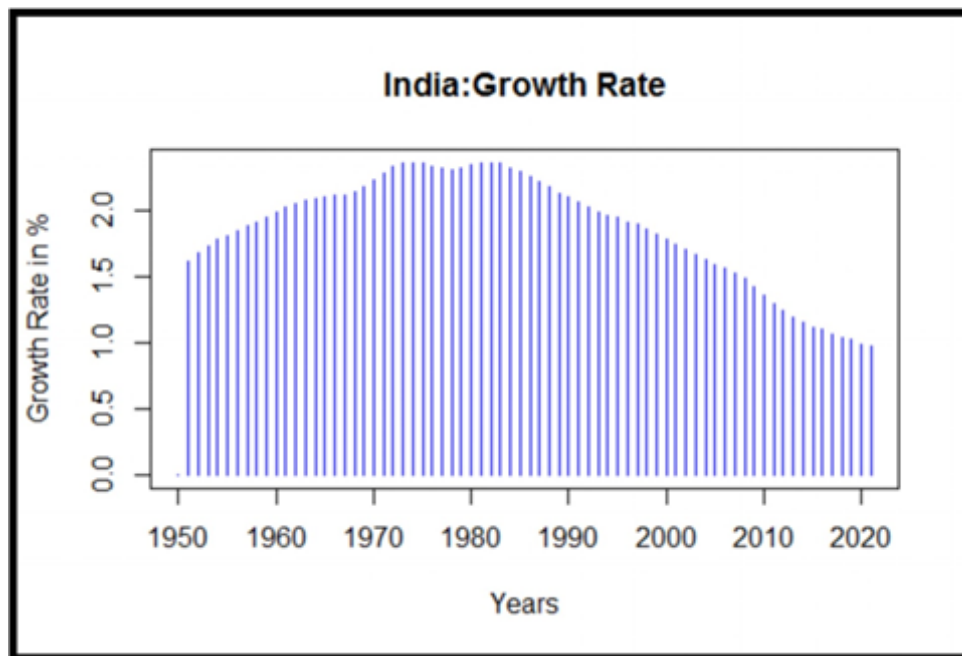
**Methods of Data Analysis:** Time Series Analysis technique has been applied to predict the future values of population. The collected data was coded and analyzed by drawing graphs and charts using software such as MS Excel and R.

#### ANALYSIS AND INFERENCE

The data collected consists of three variables, Year, Population and Growth Rate (in %). The data shows the population in the country from 1950 -2021.

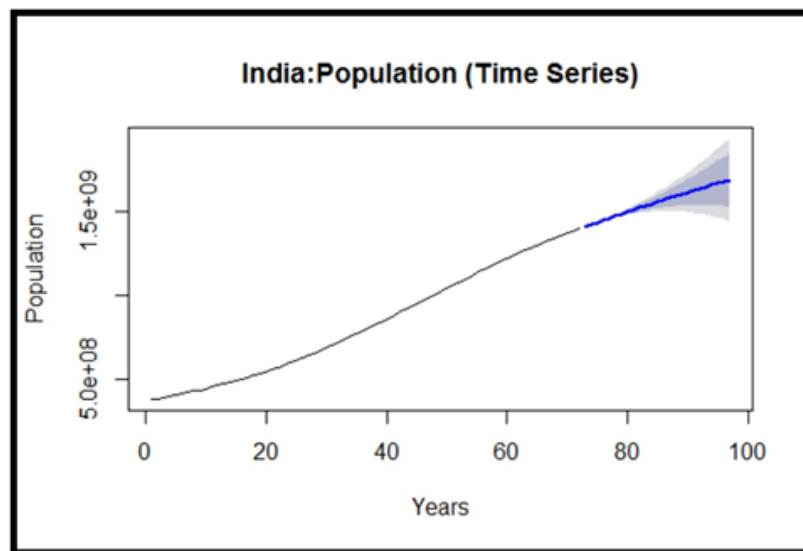


Graph of Population vs Years. The upward trend in population is clearly visible in the above graph.



Graph of Growth rate vs Years. One can observe the decrease in the growth rate over the years, starting from mid 1980s.

The results obtained by time series analysis is graphically represented below.



Graph based on predictions by time series analysis. The black line denotes the population values from 1950 to 2021 and the blue line denotes the predicted values of future population. The shaded portions in the graph denote the 80% and 95% prediction intervals for the predicted values.

The predicted values obtained by these models are tabulated below.

Year	Forecast	Lo.80	Hi.80	Lo.95	Hi.95
2022	1406648592	1406561935	1406735248	1406516062	1406781121
2023	1419737290	1419352098	1420122482	1419148189	1420326390
2024	1432689406	1431644599	1433734214	1431091512	1434287301
2025	1445509983	1443319959	1447700007	1442160631	1448859335
2026	1458201327	1454298413	1462104241	1452232335	1464170319
2027	1470758934	1464548265	1476969602	1461260536	1480257331
2028	1483180255	1474079656	1492280853	1469262090	1497098419
2029	1495461841	1482925113	1507998569	1476288570	1514635112
2030	1507606077	1491120858	1524091297	1482394110	1532818045
2031	1519616255	1498688449	1540544062	1487609938	1551622573
2032	1531500142	1505628662	1557371622	1491933128	1571067157
2033	1543263797	1511919709	1574607885	1495327151	1591200443
2034	1554914253	1517526588	1592301918	1497734754	1612093752
2035	1566454581	1522409345	1610499818	1499093205	1633815957
2036	1577887655	1526535225	1629240085	1499350891	1656424420
2037	1589213168	1529883044	1648543292	1498475573	1679950762
2038	1600432064	1532446697	1668417430	1496457418	1704406709
2039	1611544197	1534230095	1688858299	1493302481	1729785912
2040	1622551982	1535243366	1709860598	1489024977	1756078988
2041	1633457512	1535495099	1731419926	1483636930	1783278095
2042	1644264991	1534989978	1753540004	1477143280	1811386701
2043	1654977512	1533725606	1776229418	1469538725	1840416300
2044	1665599038	1531695250	1799502826	1460810866	1870387210
2045	1676131674	1528888921	1823374427	1450943316	1901320032
2046	1686577897	1525297964	1847857829	1439921525	1933234268
2047	1696938599	1520915908	1872961291	1427735124	1966142075
2048	1707215467	1515740868	1898690066	1414380338	2000050596
2049	1717409358	1509773798	1925044918	1399858172	2034960544
2050	1727522345	1503018418	1952026272	1384173218	2070871472

The above table gives us the forecast for each year from 2022 to 2050. The Lo.80 and Hi.80 are the lower and upper limits of the 80% prediction intervals respectively. Similarly, the Lo.95 and Hi.95 are the lower and upper limits for the 95% prediction intervals respectively.

From the above data, it is evident that the population of India will cross the 1.5, 1.6 and 1.7 billion mark by 2030, 2038 and 2048 respectively.

India may face several issues due to its overpopulation. Some of the major consequences are listed below.

- 1) **Depletion of resources:** With an ever increasing population, there will be mass consumption of natural resources. Overuse of resources will adversely affect the quality of living in the country.
- 2) **Food and Infrastructure:** As the population goes on increasing, the demand for food also increases. In a country like India, where the majority of the population depends on agriculture for food as well as livelihood, there is a constant need to increase agricultural output. However, with the increasing population, farmlands are being cleared on a large scale to make way for more buildings, houses, roads and other infrastructure. So it becomes difficult to satisfy the demand for food in the country.
- 3) **Poverty and Unemployment:** Unemployment is a major concern in the country and is directly related to overpopulation. It becomes difficult to provide employment to a large number of people due to fewer employment opportunities available. This leads to poverty and poor standard of living of a large number of people in the country. Unhygienic lifestyle due to poor living leads to ill-health resulting in decrease in life expectancy.
- 4) **Social Problems:** Poverty and unemployment results in various social problems. Uneducated and unemployed youths have to resort to robbery, prostitution and other forms of malpractices for their livelihood. This leads to increase in the crime rates, particularly in the urban areas, where the majority of such youths migrate to in search of better employment opportunities.

## CONCLUSION

Population is an important aspect for development of a nation. A controlled population is like an asset but an uncontrolled population turns out to be a liability. With the population of India increasing at a rapid pace, it is unfortunately turning out to be a liability. Overpopulation has become a major concern in India. It leads to depletion of natural resources, creates strain on the infrastructure, increases pollution level, leads to unemployment and adversely affects the environment. One way of tackling the problem of overpopulation and reducing the birth rate is birth control. It is important to spread awareness about birth control and family planning in the country. The Uttar Pradesh Government recently proposed the Population Control Bill. However, there are major flaws and shortcomings in this too. In a country like India, where the patriarchal society is extremely dominant and social stigma is very much prevalent, it is the women who have to face the adverse effects and consequences. They are the ones who have to face the burden of sterilization, abuse and ill-health. It will lead to increase in the number of cases of female foeticide. Moreover, it has been unanimously decided that using forceful measures to control the population is a violation of basic human rights and women's rights and it turns out to be completely ineffective to achieve its goal. That is why proper planning, consideration and discussions are extremely necessary while dealing with such sensitive issues.

Time Series Analysis provides the basis for predicting future population in the country. Graphs provide a pictorial representation for the above analysis. The ARIMA model built gives the conclusion that the population of India will exceed 1.5 billion by the end of this decade and will continue to increase further.

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**NEP 2020: OPENING DOORS TO ADVANCEMENT**

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**Sandeep Vishwakarma****ABSTRACT**

*India introduced its new National Education Policy (NEP) 2020 last week, laying out the Narendra Modi government's vision and broad direction conceived for educational reform. It was considerably overdue — the NEP is only India's third education policy document; the previous one was revised in 1992. The policy introduces a whole gamut of changes and reads as a very progressive document overall, with a firm grasp on the current socio-economic landscape and the prospect of future uncertainty. Education for a new generation of learners has to necessarily engage with the increasing dematerialisation and digitalisation of our economies, requiring a completely new set of capabilities in order to be able to keep up. This seems to be an even more urgent prerogative now, with the trend towards digitalisation and disruptive automation being accelerated by the pandemic. The NEP seems to acknowledge this, but how far do the document's prescriptions go in paving the way for India's future workforce to be prepared for a new economy?*

**INTRODUCTION**

The NEP proposes sweeping changes including opening up of Indian higher education to foreign universities, dismantling of the UGC and the All India Council for Technical Education (AICTE), introduction of a four-year multidisciplinary undergraduate programme with multiple exit options, and discontinuation of the M Phil programme.

In school education, the policy focuses on overhauling the curriculum, “easier” Board exams, a reduction in the syllabus to retain “core essentials” and thrust on “experiential learning and critical thinking”.

In a significant shift from the 1986 policy, which pushed for a 10+2 structure of school education, the new NEP pitches for a “5+3+3+4” design corresponding to the age groups 3-8 years (foundational stage), 8-11 (preparatory), 11-14 (middle), and 14-18 (secondary). This brings early childhood education (also known as pre-school education for children of ages 3 to 5) under the ambit of formal schooling. The mid-day meal programme will be extended to pre-school children. The NEP says students until Class 5 should be taught in their mother tongue or regional language. The policy also proposes phasing out of all institutions offering single streams and that all universities and colleges must aim to become multidisciplinary by 2040.

**The requisites of digital engagement**

Education for a new generation of learners has to necessarily engage with the increasing dematerialisation and digitalisation of our economies, requiring a completely new set of capabilities in order to be able to keep up. The future of work promises to be much more nebulous and fast-changing than the world we inhabit today, with a much larger gig economy. It shall, therefore, need an agile workforce, which can quickly adapt to changing labour force requirements. The NEP has done well to recognise this shift and provide for it, by putting flexibility at the core of its vision for education. The policy's focus on conceptual rather than rote learning, and the concurrent emphasis on soft skills like communication, leadership and teamwork is heartening. Emerging challenges such as building resilience to climate change, pandemics and disruptive emerging technologies shall require a workforce able to draw on cross-cutting competencies. The NEP has, therefore, shown commendable foresight in seeking to break down silos and encourage interdisciplinarity, which shall lead to a workforce with a much more holistic sense of the world.

The policy recognises the crucial feedback loop with regard to technology and education: the fact that technology enables superior learning, but wielding it effectively requires digital skills and education as well. But even while acknowledging this, the NEP leans much more towards the enabling aspect of technology, without fully dwelling on the need for building the capabilities required for engaging meaningfully with it. The NEP is big on Edtech, and contains some potentially great ideas such as the use of adaptive software to provide tailored and flexible lessons [1], blended learning and the use of AI software to track student progress. These are interesting examples of technology deployed right, without distracting from the fundamentals of learning and sapping its communal aspects. The conceptualisation of the NETF (National Educational Technology Forum), for instance, to brainstorm on the deployment of technology to improve the systemic performance of the entire educational system is also promising.

The NEP leans much more towards the enabling aspect of technology, without fully dwelling on the need for building the capabilities required for engaging meaningfully with it. However, the policy does not go nearly far enough in working to foster technological capabilities — arguably the much more crucial aspect of the two. In this regard, the NEP's focus on promoting socio-emotional intelligence and foundational literacy and numeracy is an excellent move. However, as per the world standard, these foundational skills must also include digital literacy. Children today begin engaging with technology at a precociously young age and, hence, need to be taught how to engage with technology in a healthy and productive way, right as they enter school. Countries across the world now include a technological element in their curriculum at the Foundational Level itself: The UK and Sweden, for example, teach the principles of computer programming to children from the age of five. President Obama's 'Computer Science for All' initiative focused on providing coding and programming skills to children from kindergarten onwards, whereas the NEP prescribes the introduction of coding only at the Middle Stage i.e. class 6-8.

The future of work requires going beyond just learning how to use technology, children now need to go a step further and also learn how technologies are created and designed, at a very intuitive level. The NEP has cited the need for computational thinking at the foundational level, but does not conceptualise the integration of digital skills into the core curriculum. Computer literacy and programming is something that can be integrated into curricula early on. To make it fun and engaging, it can even be used for story-telling and games. The advantages of an early beginning cannot be underestimated: the Programme for International Student Assessment (PISA) found that economies like South Korea and Singapore were far better at analysing digital texts than other developed countries, simply because their students had greater experience in navigating technology and were, therefore, notably better at task-based browsing. These subtle differences eventually add up to a significant competitive edge. The NEP has cited the need for computational thinking at the foundational level, but does not conceptualise the integration of digital skills into the core curriculum.

### **The Language Debate**

Much of the debate around the NEP has predictably centred around one aspect of the policy — its focus on local languages. The policy promotes regional languages as the medium of instruction — where possible — till secondary school. Without delving too far into the debate, if the question is considered solely from the perspective of the demands of the digital economy, the policy could well be an inspired move. Indian languages feature nowhere among the top languages in use on the internet, and most have not ventured into cyberspace at all. This has affected access to the internet for millions of Indian users. FICCI estimates that the availability of online content in regional languages would enable the digital enfranchisement of about 200 million Indians. The narrow linguistic scope available online has also limited representation, by restricting the access of different voices expressing their lived realities, creating vacuums in the production of information on certain geographies and cultures.

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Research suggested that multilingual people contribute significantly to the diversification of digital content. The NEP's focus on promoting multilingualism and reviving proficiency in local languages could help create a workforce to do just that. However, considerable effort shall also need to be expended to create markets and demand for regional languages, in order to make their promotion a success. Additionally, the emphasis on regional languages must not be to the detriment of learning foreign languages, especially English. Proficiency in the English language is needed to tap into global networks — and English is still very much the language of the internet. It determines access: a Google search in English brings up about 5 times more results than one in Arabic. It is also the language of code, at least as of now, and therefore comprehending technological creations and traditions requires English. Therefore, bilingualism on the part of teachers (as encouraged by NEP) will be imperative to encourage fluency and greater use of English, especially for the majority of children hailing from non-English speaking backgrounds.

The absence of digital skills has the potential to greatly exacerbate increasing inequalities. The NEP recognises the need for inclusivity and makes provisions for policy design to address existing disparities. However, it will need explicit sustained effort to ensure that India's digital transformation does not leave some of us behind. Women will need a push from the education system to pursue STEM. Research suggests that they often display greater anxiety with respect to entering the field.

Also, since discrimination tends to find its way into the technology we design, education systems shall need to incorporate gender and race sensitisation as well as ethics (which NEP already recommends), as a part of syllabi. Equitable access also demands that the policy's goals of employing technology be complemented by efforts to increase digital penetration and create foundational digital infrastructure. India's internet penetration currently stands at 40.6%. A large percentage of children without access to computers at home shall depend on school labs, which must therefore be well-provisioned, else the digital divide will exacerbate inequalities further.

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### **Implementation of NEP**

The NEP only provides a broad direction and is not mandatory to follow. Since education is a concurrent subject (both the Centre and the state governments can make laws on it), the reforms proposed can only be implemented collaboratively by the Centre and the states. This will not happen immediately. The incumbent government has set a target of 2040 to implement the entire policy. Sufficient funding is also crucial; the 1968 NEP was hamstrung by a shortage of funds. The government plans to set up subject-wise committees with members from relevant ministries at both the central and state levels to develop implementation plans for each aspect of the NEP. The plans will list out actions to be taken by multiple bodies, including the HRD Ministry, state Education Departments, school Boards, NCERT, Central Advisory Board of Education and National Testing Agency, among others. Planning will be followed by a yearly joint review of progress against targets set.

The document states universities from among the top 100 in the world will be able to set up campuses in India. While it doesn't elaborate the parameters to define the top 100, the incumbent government may use the 'QS World University Rankings' as it has relied on these in the past while selecting universities for the 'Institute of Eminence' status. However, none of this can start unless the HRD Ministry brings in a new law that includes details of how foreign universities will operate in India. It is not clear if a new law would entice the best universities abroad to set up campuses in India. In 2013, at the time the UPA-II was trying to push a similar Bill, The Indian Express had reported that the top 20 global universities, including Yale, Cambridge, MIT and Stanford, University of Edinburgh and Bristol, had shown no interest in entering the Indian market. Participation of foreign universities in India is currently limited to them entering into collaborative twinning programmes, sharing faculty with partnering institutions and offering distance education. Over 650 foreign education providers have such arrangements in India.

### **New Transformations under NEP**

The National Educational Policy is a transformational initiative to bring a paradigm shift in the domain of education in our country in both qualitative and quantitative dimensions. The focus is on universalization of Primary education by taking the GER in Primary Education to 100 percent by 2030 and has envisioned a mission of achieving GER of 50 % in Higher Education. The new National Education Policy is based on the foundational dimensions of access, affordability, equity, quality and accountability which has made it robust and comprehensive from multiple dimensions. The New National Policy has emphasized more on curriculum reforms with an enhanced focus on outcome-based approach and to minimize the load of the bag of the youngsters by removing the redundant and less important content from the curriculum. NCERT shall be the key driving force behind curriculum reforms for Schools. The policy has envisioned setting up multiple bodies to achieve excellence in the three broad areas of teaching, learning, and assessment for inclusive growth and development.

The National Education Policy is a culmination of the comprehensive process of series of consultations, meetings, feedbacks, expert comments, citizens' response and views, ideas, and suggestions taken from academicians, researchers, policymakers, parliamentarians, ministers and other stakeholders of society.

The new National Educational Policy shall open new vistas of opportunities for students to study in foreign universities on Indian soil thereby checking the outflow of precious foreign exchequer. The latest policy has recommended for replacement of 10+2 model with a new model of 5+3+3+4 Model wherein the students will have a load of relevant, modern, and contemporary curriculum designed under the leadership of experts from NCERT. The NEP has focused on academic delivery in mother tongue or regional language till class V which has done away with the compulsion of studying English from a tender age. With an aim to give an exponential and catalytic boost to the rate of growth in the GER, all single-stream colleges, and universities have been suggested to become multi-disciplinary by 2040 and single-stream institutions/universities should be phased out

by 2040. The implementation of the New National Educational Policy shall be done with a collaborative approach in consultation and cooperation of the states in the light of the fact that education is on concurrent list wherein both the central and state governments are empowered to enact laws. The major focus of the governments shall be to garner optimal level and utilization of funds to fructify the envisioned dreams of the New National Educational Policy.

The multi-regulatory structure of the regulatory environment is likely to witness a thorough overhaul for streamlining the regulatory mechanism to make the new over-arching regulatory environment more enabling and facilitating to enable the stakeholders to focus more on quality-related dimensions oriented more towards self-disclosure. The high level implementation team shall evolve well defined targets and Key Performance Indicators for the various stakeholders and the team shall evaluate the performance of all the stakeholders against the well-defined targets in advance. The New National Education Policy is more normative than prescriptive and the states will also have a significant say in the process of implementation.

### **CONCLUSION**

The new education policy has a commendable vision, but its potency will depend on whether it is able to effectively integrate with the government's other policy initiatives — Digital India, Skill India and the New Industrial Policy to name a few — in order to effect a coherent structural transfiguration. For instance, policy linkages can ensure that education policy speaks to and learns from Skill India's experience in engaging more dynamically with the private sector to shape vocational education curricula in order to make it a success. There is also a need for more evidence-based decision-making, to adapt to rapidly evolving shifts and disruption. NEP has encouragingly provisioned for real-time evaluation systems and a consultative monitoring framework. This shall enable the education system to constantly reform itself, instead of waiting for a new education policy every decade for a shift in curriculum. This, in itself, will be a remarkable achievement.

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**SKILL BASED EDUCATION IN INDIA - IMPORTANCE OF SKILL EDUCATION IN INDIA AND CHALLENGES.**

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**ABSTRACT**

*Skill education in India is often caught in a dichotomy of regular and vocational. India has a huge population with an average age of 29 years. Having such rich demography, Skill Education should transform this demography into a skilled workforce. However, there is immense lacunae in terms of both "Skill" and "Education". Interestingly Skill Education has deep connections with the Social sphere which is not directly evident but has always been on the other side of the coin. This study would explore this vacuum and various questions surrounding it. Skill Education in India needs more attention as like the general education imparted at schools. Irrespective of the stage of schooling ( primary, secondary and higher secondary ) a rise in the employability and industrial skills, ensures a better and productive human resource. With the aim of increasing the employability of the youth it is essential to develop a thorough understanding of the existing infrastructure and academic curriculum of schools and polytechnic institutes in India.*

**Keywords :** *Quality Education, Skill Education, Gender gap, Digital divide, Vocational, Primary Schools , Skills, Employment, Economic Development*

**INTRODUCTION :**

India represents a population with wide range of socio-economic diversities and an uneven distribution of both natural and man-made resources. Human resource development and skill mapping have been lately being appreciated for their major contribution to a nation's economical, social and administrative progress. Thus it is essential to identify, develop and retain skills in developing nations with rapidly changing economic scenario as like that of India (NSDC, 2005 ). Skill refers to a broader set of aptitude but is mostly understood as marketable skills and the interest in developing these skills gets limited to specific groups of people these skills gets limited to specific groups of people ( Burrell and Anderson, 2008 ).

Education is a vital piece of tool which is essential to bring social, economic or political changes in a population. Knowledge and skill can travel longer distances and make an impact in many lives than any other policy change, this makes education more inclusive and reachable. As India moves progressively towards becoming a 'knowledge economy' it becomes increasingly important that the country should focus on advancement of skills and these skills have to be relevant to the emerging economic environment.

With the increase in Knowledge, Globalization and competition, the huge need for a highly skilled workforce has arisen in India. Skilled workforce plays a major role in accelerating the growth rate of Economy, Skilled workers are not born. Every worker, when provided with the required opportunities to avail vocational education and training, will be successful in .

With the increase in Knowledge, Globalization and competition, the huge need for a highly skilled workforces has arisen in India. Skilled workforce plays a major role in accelerating the growth rate of Economy. Skilled workers are not born. Every worker, when provided with the required opportunities to avail vocational education and training, will be successful in discovering their potential. The National Skill Development Policy has envisaged the task of training 500 million Indians by the end of 2020 to meet the emerging needs of rapidly emerging demand for skilled workforce in the economy.

In India, skill education is critical from both socio-economic and demographic point of view, It is observed that countries with a higher proportion of skilled workforce tend to have higher GDP and per capita income levels.

In this paper, we would be discussing the importance of Skill Education and its impact on various marginalized sections of the society .

**Problem with Delayed Efforts For Skill Development**

There has been a consensus that the delivery and effective incorporation of skill development lesson by adults (23-40 years ) are limited by the availability of Focused time for learning new skills with dedication as the responsibilities of family ,professional work burden and personal priorities take their toll ( Burrell, 2006b ). This leads to a disinterested classroom, ineffective practical learning and impaired implementation ability at work place ( Burrell, 2006b). Although these sum up to be the most generous expectations of employees and job seekers but the real goal of enhancing human resource remains unachieved in long run ( Dhawan, 2004 ).

In addition most professionals or job seekers of the age group of 23-40 years have a specific demand to devote least possible time for their training as they aim to start their professional career as early as possible. In addition, the choice of special technical streams during the training period gets influenced by jobs, salary and personal reasons. The candidate is also seen to be taking decision not from his experience with the field rather from his brief understanding of the career prospects.(Dhawan, 2004). In several instances the outcome has been early job dissatisfaction, growing disinterest among the employee coordination. These indeed result in declining productivity, output and financial returns of company, firms and services ( Haseloff, 2005 ).

**Benefits of skill based education :**

- \* If individuals get educated through skill based learning they can produce better results and earn more money.
- \* Education and training improves an individual's employability and labour motility, and it also increases the individual's ability to adapt changing technologies.
- \* Ample education and great skills influence the path of national economic development attract investment from abroad and promote growth.
- \* Countries that have a greater share of educated and very higher pace.
- \* Education and training generate other significant and great social benefits reduced dependence on income support for the unemployed individual's, reduced incidence of crime, improved lawful behaviour and health awareness among them.

**Challenges of skill based education :**

Although the resource constraints are fiercely different between the under developed countries and industrialized economies so practically all the countries face major challenges in reconstruction of their education system to meet changes in the demand for great skills and also to improve the learning environment at educational institutions and work places. Young individual's without proper education and marketable skills have very low chances of being employed in good jobs. They often get confuse will they be able to generate reasonable income if they get skill based learning or they should continue with their usual studies. For the employers, there involve high risk to invest in new available in employees and the culture of learning is weak.

**Steps need to be taken to increase employability :**

- \* Need to extend career and vocational guidance to youth.
- \*Developing new occupational standards for educational and training awards through improved partnerships with different industries
- \* Introducing National Systems of Vocational Qualification that can assure quality of education and training delivery through competence-based training and skills assessment.
- \* Marking progress in industry specific training system and professionalization of vocational education and training In new production or technologies if required skills are not available in employees and the culture of learning is weak.
- \* Need to extend career and vocational guidance to youth.
- \*Developing new occupational standards for educational and training awards through improved partnerships with different industries.
- \* Introducing National Systems of Vocational Qualification that can assure quality of education that can assure quality of education and training delivery through competence-based training and skills assessment.
- \* Making progress in industry specific training system and professionalization of vocational education and training management.
- \* Expanding provision of entrepreneurial training along with trade training.
- \* Supporting provision of entrepreneurial training and overseeing their quality.
- \* Partnership between public and private enterprises in improving provision of education and training.
- \* Development of national education and training policies.
- \* Setting up and composition of local and national bodies with employers and unions as well as other stakeholders.
- \* Provision for on-the-job training and directly providing workplace training facilities.

**Different types of Skills:**

- \* Analyzing skills
- \* Decision making skills
- \* Adaptability skills
- \* Negotiating skills
- \* Organising and Planning skills
- \* Persuading skills
- \* Leadership skills
- \* Initiative skills

**Educational System in India :**

India has a very complex Skill education system with large and diverse levels of skill training across a huge heterogeneous population. It can further be divided into Education and vocational Training controlled broadly by three ministries namely Ministry of Human Resource Development, Ministry of Skill Development and Entrepreneurship and Ministry of Human Resource Development and this caters to both college Education ( Arts, Science, Commerce ect. ) and Technical Education (Engineering ) and University Grants Committee And All India Council for Technical Education (AICTE) stands as the nodal body which controls the governing funds and grants.

Vocational Training in India is delivered both by private and public operated channels. They are governed by the Ministry of Skill Development and Entrepreneurship with a nodal body as Director General of Employment & Training (DGET ). Industrial Training Institutes (ITIs ) and National Skills Training Institutes (NSTIs) largely constitute the public operated channels of Skill Training There are a large number of Industrial Training Centers (ITCs ), Vocational schools etc. that constitute private channels for Vocational Training.

**Organizations for skills development :**

- \* National Skill Development Agency (NSDA ).
- \* National Skill Development Corporation (NSDC).
- \* International Training Center (ITC ).

Both NSDA and NSDC organizations come under the Ministry of Skill Development and entrepreneurship India. The aim of National Skill Development Corporation of India is to promote skill development by catalyzing creation of large quality, for profit vocational institutions. NSDC provides funds to build scalable, for profit vocational training initiatives National Skill Development Agency aims to co-ordinate and harmonise the skill development activities in the country.

**Objectives of Skill based learning :**

1. Strengthening the general education component of vocational education programs,
2. Providing good basic knowledge in humanities and sciences, preparing students to be able to work in different professions, teaching students to be problem solvers and encouraging them to be lifelong learners.
3. Allowing greater cost-sharing i.e. moving from a system which is exclusively financed by the government to a system which is increasingly financed by the private sector who would be willing to do so if it sees the system paying user not see accrual of labour market from vocational education.

The main aim of skill based learning is to raise confidence, improve productivity and give direction through proper skill development. Skill development will enable the youth to get good jobs. Development of skills is very essential for the individual's as it channelize them for proper job opportunities. There should be a balanced and stabilized growth in all the sectors and all the jobs should be given equal importance. Every job aspirant would reach all the areas of skill. Corporate institutes. Different non-government organizations. Government institutions would help in the overall development of youth so they can achieve good goals in their life through the use of these skills.

**OTHER ISSUES :**

The quality of training imparted in the public it is and the facilities provided are also questionable a lot of times. The adaptability to the changing demands in the job market are sometimes not met by the training system, and



curriculum. Also, in addition to that, mobility stands as a hurdle in the path of the pass outs of it is. A student being a pass out from ITI cannot further mobilise to any degree of next immediate level in formal education.

### CONCLUSION

In the long run, early shaping of the human capital can ensure the country's economic boost and thus requires implementation of skill based education at schools. However, the existing infrastructural and financial limitation of schools and polytechnic institutes in ensuring effective delivery of such courses needs to be monitored by government with active participation of private times.

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## A STUDY ON AWARENESS AND PERCEPTIONS TOWARDS HEALTH CARE INSURANCE AMONG WOMEN IN MUMBAI CITY

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### ABSTRACT

*The COVID-19 epidemic has brought attention to the affordability of high-quality healthcare. A majority of the public is concerned about the cost of good-quality healthcare. For many families, high hospitalisation bills pose a significant financial concern. Medical Insurance plans have become increasingly popular as a means of defraying the expense of healthcare throughout the years.*

*According to the IRDA Insurance Awareness Survey Report from 2012, less women in India choose health insurance. Women, on the other hand, have a similar chance of being admitted to the hospital as men. Women have been exposed to worrying health problems as a result of modern lives and rising stress levels, among other factors.*

*Diabetes, hypertension, stroke, polycystic ovary, breast cancer, cardiovascular, and thyroid disorders are on the rise in women, yet according to an IRDA poll conducted on the eve of Women's Day, only 39% of all women choose health insurance.*

*The objective of this paper is to analyse the factors determining the demand for healthcare insurance among women and to highlight the main considerations in choice of an insurance provider. The study also tries to find out the factors that inhibit women consumers from opting for health insurance. The data for the study has been provided by a primary survey from Mumbai city. The results indicate that age, marital status and education levels affect the health insurance purchase decision. This study has attempted to provide empirical evidence that consumer socioeconomic and demographic characteristics are important determinants of health insurance. In order to increase reach of private health insurance among women, insurance sector players will need to redesign their strategic approaches such as being customer friendly, market segmentation, targeting specific needs of women and overcoming the factors which are perceived by women consumers as inhibiting them from opting for health insurance. The results from this study may take research in this area a step closer to the same. Women consumers would also benefit from these results as an informed consumer is likely to make a better decision regarding choice of healthcare insurance provider.*

**KEYWORDS:** Pandemic, Determinants, Health Insurance, Socio-economic, Demographic, consumption

### 1.1 INTRODUCTION

In 2020, India is estimated to have a population of 138 crores, placing it second in the world in terms of population. As the world's fastest-growing trillion-dollar economy and the fifth-largest overall, India has ascended to become the world's fifth-largest economy by nominal GDP, according to IMF data. The country's nominal GDP has increased by more than 700 percent since 1995. Despite such impressive GDP growth, a number of issues persist, including sustainability, infrastructure, and healthcare. Public health spending accounted for around 1.3 percent of the country's GDP in fiscal year 2018. A strong contrast may be drawn with the United States, where health spending as a percentage of GDP is approximately 17.7%.

Further alarming statistics can be shown about healthcare of women in India. In the spheres of politics, sciences, space, legal, services, manufacturing and media, the fairer sex is breaking the glass ceiling and seeking equality in all circles of life. But the contrasts emerge with wellbeing issues that a lady wrestles with. These days, ladies are having successful careers and managing their homes as well as exceeding expectations at the workplace. While successfully playing diverse parts in life, ladies tend to disregard their wellbeing.

The health of modern, urban working women is taking a hit, as they attempt to strike a balance between family and professional life. Furthermore, certain diseases affect women more than men. Arthritis, osteoporosis, breast and ovarian cancer are a few diseases on the rise among women.

The National Family Health Survey (NFHS-4) by the ministry of health and family welfare reported that more than 55% of households in India do not generally seek health care from the public sector. "Less than one-third (29%) of households have at least one usual member covered under health insurance or health scheme. Only 20% of women age 15-49 and 23% of men age 15-49 are covered by health insurance or a health scheme," the

survey report said. The Insurance Awareness Survey conducted by the National Council of Applied Economic Research (NCAER) on behalf of the IRDA in 2010, reported that only approximately 6 per cent of insured households have health insurance.

Hence it can be inferred that Health insurance coverage in India is far from satisfactory and the coverage of women by specific health insurance schemes is abysmally low.

At present there are a few general insurers that offer insurance plans for women that cover maternity-related expenses among other medical illnesses. However, due to a lack of understanding and the fact that the husband has an insurance coverage that covers his wife and children, there are few takers for such specific plans.

## **1.2 BRIEF LITERATURE REVIEW:**

The recent years have revealed increased research interest in the awareness, and understanding of the health insurance sector. Many researchers and scholars have looked into the relationship between consumer socioeconomic and demographic characteristics and health insurance consumption.

Reddy V. K. (2016) in his study found Lack of awareness, Lack of cooperation and coordination with providers, uncertainty in product development are some of the factors which frustrate growth in private sector health insurance in India.

Joshi, Manish (2016) in their study have identified various factors influencing consumer behavior when taking health insurance. Number of young professionals with higher spending capacity is increasing nowadays resulting in buying health insurance on the basis of financial affordability. This gives tax benefit as an added advantage. These professionals prefer to buy individual health insurance than group health insurance because they keep changing their jobs for professional growth. Senior consumers are more concerned about their health and prefer to have annuity benefit on each and every type of investment, policy or saving tool. Online health insurance business can be increased by providing easiness in virtual environment. Availability of online claim lodgment facility is a must in online health insurance contract execution.

Insurance companies can address the problem of financial illiteracy of consumers by educating them. This point was corroborated by the Max New York–NCAER survey (NCAER, 2008) which showed that even though a majority of Indian households are good savers, they do not undertake financial planning and are financially at risk. Households need to understand the risk of both ‘living too long’ and ‘dying too young’. Further, in urban India and amongst the salaried class, insurance is largely used as a tax saving tool, rather than for protection against risk.

Makoka et al. (2007) in their study have found income and education of the consumers as significant determinants of private health care in an environment of free public health care by governmental and public institutions.

Being financially literate is not only important to the individual household and family, it is also important to communities and societies. (Hogarth, Jeanne M., 2006)

Temple (2002) in his quest for factors influencing insurance decision of the elderly found income and age as significant predictors of demand for private insurance health care.

Propper (2000) for instance, observed that the demand for private health insurance is a function of income, previous experience and the perceived duty of the government in providing health care to the masses.

Randall P. Ellis, Moneer Alam and Indrani Gupta (2000) , highlighted the need to develop a prospectus of strategy for greater regulation and increased health insurance coverage by making suitable changes - particularly in claim settlements and the exclusion clause. They also highlighted the need for a competitive environment and an opening up of the insurance sector.

A person's consumption and savings typically increase along with income, creating a demand for insurance in order to safeguard the income potential of the insured. Hence there is a positive relationship between increase in income and consumption of health insurance as has been researched by Browne and Kim (1993) who found a positive relationship between life insurance consumption and the level of income.

Although the level of penetration of health insurance has increased after the entry of many private players with global tie-ups, it is still low compared to other countries. According to consumer feedback, the problem has been exacerbated due to:

- Agents' inability to clearly explain the features of the products;

- Lengthy documents that are not user friendly and
- The perception that agents are only concerned with their commissions.

In India, awareness levels and knowledge about medical insurance schemes – both public and private are important factors in taking decision about health insurance. Socio-economic factors also could play a role in the decision. Perceptions of consumers are also at play here. Also, there may be various reasons why individuals may not decide to opt for health insurance. Furthermore, women's health and healthcare is an issue often relegated to low priority in a family. Few empirical studies have been done in this area in the Indian context, especially in the area of healthcare insurance for women. This research paper tries to cover this gap.

### 1.3 OBJECTIVES OF THE STUDY

1. To study the association between demographic variables like age, marital status, education levels and the consumption of healthcare insurance.
2. To study the perception of women consumers of healthcare insurance and identify the main factors influencing them in choice of an insurance provider.
3. To identify other factors or reasons which inhibit women consumers from opting for healthcare insurance.

### 1.4 RESEARCH METHODOLOGY

#### 1.4.1 SOURCES OF DATA:

The current paper is based on primary data as well as a review of relevant journals, articles, reports, international research papers, and other sources. An attempt was made to conduct a poll of mostly female respondents from Mumbai. A questionnaire was created to collect information from women from all walks of life in the Mumbai Metro Region. Purposive and snowball sampling were used to collect data. About 113 people responded, and 102 of the questionnaires were deemed to be complete and eligible for study. The data was analysed and presented in tables and graphs after a thorough examination.

#### 1.4.2 RESEARCH DESIGN:

A research design is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the research problem.

#### **The current research is descriptive and exploratory in nature.**

The current study is descriptive as it is trying to describe the characteristics of the sample being studied.

An exploratory research looks at a data collection and looks for potential relationships between variables in order to generate a hypothesis. Medical Insurance Coverage is the Study's Independent Variable. The demographic dependent variables are age, marital status, education level, occupation, and annual family income. The current study's hypothesis was created to look into the possible relationships between these two groups of variables.

#### **HYPOTHESIS:**

The Independent Variables of the Study are Coverage of Medical Insurance

The Dependent Variables are age, marital status and education levels.

#### **The Null Hypotheses:**

- $H_{01}$  : There is no significant association between consumption of medical insurance and age of a woman
- $H_{02}$  : There is no significant association between consumption of medical insurance and marital status of a woman
- $H_{03}$  : There is no significant association between consumption of medical insurance and education level of a woman

#### **The Alternate Hypotheses:**

- $H_{11}$  : There is a significant association between consumption of medical insurance and age of a woman.
- $H_{12}$  : There is a significant association between consumption of medical insurance and marital status of a woman.
- $H_{13}$  : There is a significant association between consumption of medical insurance and education level of a woman.

The above hypotheses have been tested based on data analysis. On the basis of the results either the null or alternate hypothesis will be accepted or the other will be rejected.

#### 1.4 DATA AND RESULTS

##### 1.4.1 Descriptive Statistics:

The frequency distribution of the demographics of the sample data is as given below:

Age Group			
		Frequency	Percent
1	Less than 20 years	22	21.6
2	21 to 30 years	42	41.2
3	31 to 40 years	11	10.8
4	41 to 50 years	12	11.8
5	50 & above	15	14.7
	Total	102	100.0

Marital Status			
		Frequency	Percent
	Married	40	39.2
	UnMarried	62	60.8
	Total	102	100.0

Education Level			
		Frequency	Percent
	Graduate	23	22.5
	Not Graduate	11	10.8
	Post - Graduate	26	25.5
	Professionally Qualified	18	17.6
	Student	24	23.5
	Total	102	100.0

Source: Primary Data Collection 2021

##### 1.4.2 Testing of Hypothesis

The Null Hypotheses developed for this study are as follows:

$H_{01}$  : There is no significant association between consumption of medical insurance and age of a woman

$H_{02}$  : There is no significant association between consumption of medical insurance and marital status of a woman

$H_{03}$  : There is no significant association between consumption of medical insurance and education level of a woman

The **Chi Square** statistic has been **used for testing** relationships between the independent variables and the dependent variable categorical variables

The Cross-Tabulations generated from SPSS Software are reproduced below:

Table A

Age Group / Consumption of Medical (Health) Insurance Policy Crosstabulation		
	Do you have Medical (Health) Insurance Policy ?	Total

		No	Yes	
Age Group	21 to 30 years	31	11	42
	31 to 40 years	5	6	11
	41 to 50 years	3	9	12
	50 & above	2	13	15
	Less than 20 years	18	4	22
Total		59	43	102

Table B

Marital Status / Consumption of Medical (Health) Insurance Policy Crosstabulation				
		Do you have Medical (Health) Insurance Policy ?		Total
		No	Yes	
Marital Status	Married	9	31	40
	UnMarried	50	12	62
		59	43	102

Table C

Education Level And Consumption of Medical (Health) Insurance Policy Crosstabulation				
		Do you have Medical (Health) Insurance Policy ?		Total
		No	Yes	
Education Level	Graduate	19	4	23
	Not Graduate	7	4	11
	Post - Graduate	10	16	26
	Professionally Qualified	3	15	18
	Student	20	4	24
Total		59	43	102

Table D

Household Income Per annum (in Rs.) * Consumption of Medical (Health) Insurance Policy ? Crosstabulation				
		Do you have Medical (Health) Insurance Policy ?		Total
		No	Yes	
Household Income Per annum (in Rs.)	10 Lakhs to 15 Lakhs	2	6	8
	15 Lakhs to 20 Lakhs	2	3	5
	20 Lakhs and above	1	8	9
	5 Lakhs to 10 Lakhs	4	10	14
	Less than Rs. 5 Lakhs	50	16	66
Total		59	43	102

The table values for chi-square test are summarised as below:

Table E Testing of Hypothesis

Sr. No.	Variable	Pearson Chi-Square value	Sig value	df	I (A/R)
1	Age	27.764	<0.001	4	R
2	Marital Status	33.710	<0.001	1	R
3	Education Level	28.852	<0.001	4	R

At 5 per cent level of significance, the level of significance calculated for all the demographic variables such as age, marital status, education level is  $< 0.001$  which is less than 0.05. Hence at 5 per cent level of significance, the null hypothesis is rejected when compared with age, marital status and education level. Therefore, it is understood that there is a significant association between opting for medical insurance and the age, marital status and education level of a woman.

### 1.5.1 PATTERNS OF CONSUMERS WHO HAVE TAKEN HEALTH INSURANCE

**Table E Total Medical Premium paid in the year**

	Frequency	Percent	Valid Percent
Nil	39	38.2	38.2
10,001 to 15,000	3	2.9	2.9
15,001 to 20,000	13	12.7	12.7
20001 and above	11	10.8	10.8
5,001 to 10,000	13	12.7	12.7
Less than 5,000	23	22.5	22.5
Total	102	100.0	100.0

Here we can see that out of the women who have opted for medical insurance, maximum of them are paying premium less than Rs. 5000 per annum. This shows a low priority accorded to medical insurance.

### 1.5.2 PERCEPTION OF CONSUMERS WHO HAVE TAKEN HEALTH INSURANCE

The respondents were asked to give their opinion on the main factors considered by them when choosing health insurance provider. A Five point Likert Scale was used to gather the responses. The results summarised are shown below:

**Table F Factors Affecting Choice of Insurer**

Factor Affecting Choice of Insurer	Frequency Percentage of Responses					
	Total	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
Name & Reputation of Insurer	71	1	4	3	27	36
Nominal Premium Charges	71	-	5	8	39	19
Wide Range of Illnesses covered	71	7	3	1	25	35
Cashless Facility	71	2	5	7	22	35
Prompt Claim processing & less formalities	71	5	5	3	27	31
Easy Accessibility of Linked hospitals	71	1	5	6	20	39
Easy availability of Services in hospitals	71	-	5	6	21	39

As we can see from the above that the maximum weightage given is to easy availability of linked hospitals and services in hospitals Wide Range of Illnesses, Cashless facility and name and reputation of the insurer are also of importance to consumers.

On the other hand, premium charged does not seem to be a major factor which indicates that consumers are willing to pay for good health insurance cover.

### 1.5.3 Awareness Levels and Sources of Information about Medical Insurance

**Table G**

Awareness of Medical Insurance: Sources of Information				
		Frequency	Percent	Cumulative Percent
Agents		15	14.7	33.3
Family		24	23.5	56.9
Friends		9	8.8	65.7
Newspapers		5	4.9	70.6
Social Media		15	14.7	85.3

TV		14	13.7	99.0
Not Aware of Medical Insurance		20	18.6	100.0
Total		102	100.0	

Out of the 102 respondents, 18.6 % were unaware of medical insurance.

Among those who had awareness, FAMILY seems to be the main source of information, showing that women are mostly dependent on their male heads or family members to get information and possibly take decisions about medical insurance.

#### 1.5.4 PERCEPTION OF NON-POLICY HOLDERS REGARDING REASONS FOR NOT TAKING HEALTH INSURANCE

**Table G Reasons for Not taking Health Insurance**

REASONS FOR NOT TAKING HEALTH INSURANCE	Frequency of Responses					
	Total	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
Funds Limitation	60	3	5	8	25	19
Don't Feel the need for it	60	9	12	9	16	14
Prefer to invest elsewhere	60	5	11	12	20	12
Low awareness	60	9	10	13	20	8
No Comprehensive Coverage	60	3	12	14	24	7
Not taken by Friends & Relatives	60	5	21	18	9	7

As we can see from the above a mixed response has been obtained from the non-policy holder. Majority of them don't feel the need for insurance pointing to low awareness levels and also face funds limitation. Low knowledge levels also are indicative of the reasons inhibiting such individuals.

#### 1.6 CONCLUSION:

Since liberalisation of the insurance sector in India, while the sector has grown at around 40 % per annum, given the large size of India's population, only less than 2 % of the people are covered by private health insurance.

There is a positive effect of age, marital status and education level on insurance coverage. Maximum weightage given is to easy availability of linked hospitals and services in hospitals. Family seems to be the main source of information, showing that women are mostly dependent on their male heads or family members to get information and possibly take decisions about medical insurance. Wide coverage of Illnesses and Cashless facility are also of importance to consumers. Low awareness levels also are indicative of the reasons inhibiting such individuals.

There is a need to find more innovative and effective ways for improving knowledge and awareness levels among the women consumers. As health of the woman of the family invariably affects the overall happiness, well-being of the entire family and their growth, there is a need to have more development in this area of women's medical insurance

#### 1.7 LIMITATIONS AND FUTURE RESEARCH

This study was confined to women sampled from different strata of Mumbai city. Representation for the whole population and the country cannot therefore be claimed. Secondly, the conditions of the method and smallness of the sample are also limiting factors. It is therefore recommended that a further study with a larger sample size and other groups of people be carried out using the same data set for better representation and generalisation of the results.

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## AN ANALYSIS OF THE IMPACT OF COVID-19 ON WOMEN ENTREPRENEURS IN INDIA

Ms. Sharlet Bhaskar<sup>1</sup> and Dr. Sushama Patil<sup>2</sup><sup>1</sup>Research Student & Assistant Professor, Chandrabhan Sharma College of Arts, Science & Commerce<sup>2</sup>Ramanand Arya D.A.V. College**ABSTRACT**

*The corona virus diseases (COVID-19) has been substantially influencing the life of people across the world. In India, the pandemic has affected self-employed women too (comprising women entrepreneurs, women self-help group members and home-based workers), which include almost 50% of all working women in India, due to disruptions in business operations and supply chains. Although research suggests that COVID-19 has had a heavier impact on men, the economic impact of the pandemic has been suffered to a greater degree by women entrepreneurs considering household income, business sales, lifestyle and mental health.*

*Keywords: COVID-19, Women Entrepreneurs, Pandemic.*

*Statement of the problem:*

*The current review aims to shed a more realistic light on the research in this field by critically examining the impact of Covid-19 on women entrepreneurs in India.*

*Scope of the study:*

*The scope of this research is to examine the impact of Covid-19 on women entrepreneurs in India.*

*Objectives of the study:*

*The aims of this study are:*

- 1. To explore the impact of COVID-19 on women entrepreneurs.*
- 2. To explore the opportunities for women entrepreneurs in light of the corona virus pandemic.*

*Hypothesis:*

- 1. Ho: Women entrepreneurs are not adversely affected by the COVID-19 crisis.*
- 2. H1: Women entrepreneurs are more adversely affected by the COVID-19 crisis.*

*Research Methodology:*

*The study is carried out with secondary data. Secondary data collected from articles, journals, websites etc. has been used in this research paper.*

*Significance of the study:*

*Results of the study will throw light on the issues and challenges faced by women entrepreneurs and how Government and Non Government agencies can help implement better policies to motivate and support them.*

**INTRODUCTION:**

The COVID-19 pandemic has led to an economic crisis of a scale unprecedented in modern times. It is also amplifying gender and social inequalities (Blundell et al., 2020; Hupkau and Petrongolo, 2020), and throwing the differences in male and female entrepreneurship and particularly the role of family responsibilities and care at the micro level of the entrepreneur into sharp relief. The sudden impact of mitigation measures on the availability of schooling and accessibility of childcare and the concentration of female selfemployed in 'face-to-face' service sectors (Henley and Reuschke, 2020) are expected to exacerbate gendered aspects of self-employment. Other views, by contrast, have predicted a greater adverse impact on women's businesses in the COVID-19 crisis arising not from family and childcare reasons but from the interplay of economic factors and the business models of women entrepreneurs (Manolova et al., 2020).

**IMPACT OF COVID 19 ON FEMALE ENTREPRENEURS:**

COVID-19 has affected female entrepreneurs in the following ways:

**1. Muted Demand for Services**

Women-owned enterprises are more likely to operate within the sectors that were most adversely affected by the pandemic. More than 50% of female entrepreneurs work in the wholesale/retail trade which suffered greatly decreased demand due to shutdowns. Quarantine measures made in-person shopping impossible, reducing the

possibility to make sales. In addition, the economic impact of the pandemic more generally meant that potential customers were less likely to have disposable income available to spend. Previous customers were often forced to reconsider their financial priorities as job losses and pay-cuts became widespread.

## **2. Serious Threats to Business Survival**

A recent study by the OECD showed that women entrepreneurs begin businesses with less capital, instead financing their business ventures using their own money. Forbes has reported that only 25% of female entrepreneurs seek financing for their businesses, compared to 34% of men. Women have reasons to feel skeptical about requesting this financial support: they are less likely to receive it. When women are approved for loans, it's for a third less than what male entrepreneurs typically receive. It means that businesses run by female entrepreneurs may be especially vulnerable during times of crisis, because they are less likely to have reserves of capital to depend on when income is low.

## **3. Challenge to Work-Life Balance**

When businesses locked down, many schools did too. This meant that, even if a female entrepreneur was able to maintain operations digitally, she often faced an additional workload to manage in the household. Although working from home can represent a positive change for many people who can avoid a commute and approach their work with greater flexibility, it can also bring new challenges for female entrepreneurs, especially if they have children. School closures meant that working mothers were forced to juggle full-time childcare alongside their job, which had an adverse impact on work-life balance.

## **4. A Need to Adapt and Diversify**

Although the nature of most female-owned businesses makes them especially vulnerable to adverse circumstances, their model also makes them more versatile and adaptable than many larger businesses. Because (often by necessity) they are designed to require less capital to function, they can be more easily adapted to the new circumstances of the pandemic. Many small companies were able to change their direction or implement new services; for example, fitness trainers moved to online classes and clothes manufacturers began to specialise in protective facemasks.

## **5. Increase in unpaid care work**

With support services like domestic help and daycare facilities also being impacted due to the pandemic, women are now having to shoulder an increased domestic workload, in addition to trying to keep their businesses afloat.

## **6. Disproportionate gender balance in affected sectors**

Small and growing businesses (SGBs) have definitely been one of the hardest hit segments during the pandemic. Close to 40 percent of SGBs in emerging markets are staring at potential failure in the next half of the year. Many of these women-led businesses are found in sectors like tourism, education, and beauty, which are also the ones most affected due to new physical distancing measures.

## **7. Lack of external investment**

Prior to the pandemic, supporting and catalysing women entrepreneurship was a topic that was gaining traction across intermediary organisations and investment firms. Gender-lens investing was becoming a part of mainstream conversations. This will only reinforce and widen existing investor biases and slow down investment in women-led enterprises.

## **8. An assumption of access**

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

## **Survey of Women-based MSME Entrepreneurs**

In Between the month of April and May 2020, the Government of India announced four phases of lockdown to control the COVID-19 pandemic. Phase 1 (the very first of a series of lockdowns) lasted approximately three weeks (until mid-April) and was a national top-down approach with strict protocols to contain the movement of people, freight operations and daily businesses. Most businesses across a spectrum of scale and size reported closures/non-activity during this phase and its extension into Phase 2 (Kapoor et al 2020). Subsequent lockdowns were localised and offered more lenient protocols aimed at preparing the economy for gradual reopening. By the beginning of June, formal unlock processes were initiated nationally.

To examine the impact of COVID-19 on women-led MSME enterprises, Krea University researchers surveyed 2,083 non-agricultural enterprises in Bihar, Chhattisgarh, Madhya Pradesh, and Odisha to examine the impact of Covid-19 on women-led MSMEs.

#### Number of Enterprises Surveyed According to Nature of Operations

State	Production	Service	Trading	Total
Bihar	64 (14.68)	148 (17.85)	299 (36.55)	511 (24.53)
Chhattisgarh	144 (33.03)	214 (25.81)	175 (21.39)	533 (25.59)
Madhya Pradesh	103 (23.62)	279 (33.66)	136 (16.63)	518 (24.87)
Odisha	125 (28.67)	188 (22.68)	208 (25.43)	521 (25.01)
Total	436 (100.00)	829 (100.00)	818 100.00	2,083 100.00

Note: Figures in parenthesis are percentages.

Revenues of most businesses reduced significantly during the lockdown months, with median revenue for April being reported as zero across businesses. Three out of four states reported over 80% drop in revenues. With supply chains disrupted, production units saw the largest decline in revenue, with most reporting zero revenue for April, May, and June.

With poor social networks, and low self-efficacy affecting risk preferences, this finding brings to light the importance of government aid through direct cash transfers and short-term interest free loans among other low-risk financial products. It also indicates a ready market for innovative micro-insurance and flexible loan products for helping small women-led businesses tide over difficult times and hit the reset button.

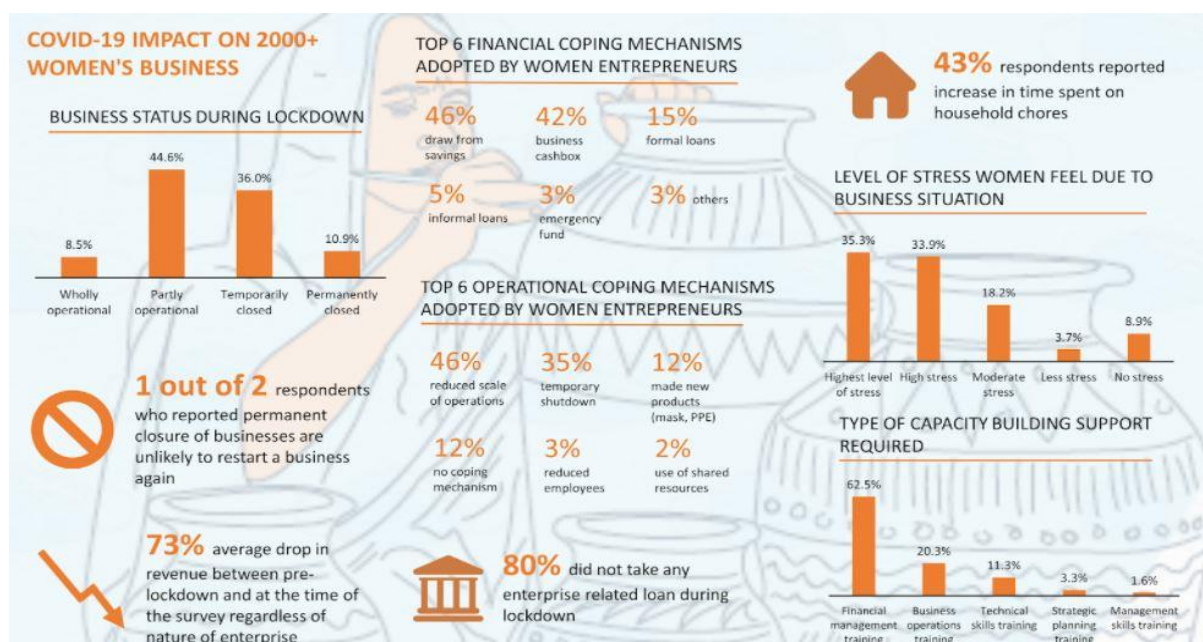


Figure 1: Summary of the Study Findings

Source: Authors' own calculations.

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**Encouraging and Enabling the road to Entrepreneurship:**

The following are some steps suggested to encourage more women to take the road to entrepreneurship and to mitigate the negative economic impacts of COVID-19 on women:

**1. Family support:**

Social norms and the level of family support can influence and shape women's decisions, such as the location of the businesses, feasibility of work travel, time spent on business activities, and networking.

**2. Facilitating women's access to markets and networks:**

Women's limited mobility, along with a greater burden of unpaid care work, means that women are not well integrated into formal and informal networks. They do not have access to markets, with low or no representation in local business associations. Better access to market information is a well-documented benefit of mobile phones.

**3. Create role models:**

Make more women leaders in business visible to create role models for young girls, and encourage mentorship wherein successful business leaders contribute back to society by mentoring potential and early stage entrepreneurs. This will create a pipeline of future women entrepreneurs.

**4. Education in business skills and technology:**

Deliberate efforts are required to improve women's participation in industry-aligned skilling programmes at all levels, across low, medium, and high-skill industrial sectors, preparing women for entrepreneurship opportunities in future-oriented industries.

**5. Access to capital:**

While all entrepreneurs navigate complex challenges and competitive markets, women entrepreneurs face specific regulatory and social hurdles that limit equal access to the assets, credit, and capital required to establish and grow their businesses.

**6. Supportive public and private sector:**

The cultures and practices of public and private sector institutions and businesses have a significant impact on women's economic opportunities. Public and private sector entities have the levers of control to sway the ecosystem in favour of women entrepreneurs when they desire to do so. Before Covid-19, only 17 per cent of women entrepreneurs reported awareness about government schemes. Special measures were announced in the COVID-19 stimulus package for the MSME sector in May 2020. Private sector entities can better integrate women in their supply chains, invest in promising women-led start-ups, and support the creation of an affordable, quality universal child-care system for the country.

**7. Direct income support to women:**

Introduce economic support packages, including direct cash-transfers, expanded unemployment benefits, tax breaks, and expanded family and child benefits for vulnerable women and their families. Direct cash-transfers, which would mean giving cash directly to women who are poor or lack income, --can be a lifeline for those struggling to afford day-to-day necessities during this pandemic. These measures provide tangible help that women need right now.

**8. Support for women-owned and -led businesses:**

Businesses owned and led by women should receive specific grants and stimulus funding, as well as subsidized and state-backed loans. Tax burdens should be eased and where possible, governments should source food, personal protection equipment, and other essential supplies from women-led businesses. Economic relief should similarly target sectors and industries where women are a large proportion of workers.

**9. Support for women workers:**

Implement gender-responsive social protection systems to support income security for women. For instance, expanded access to affordable and quality childcare services will enable more women to be in the labour force. Bridging the gender pay gap is urgent, and it begins by enacting laws and policies that guarantee equal pay for work of equal value and stop undervaluing the work done by women.

**10. Support for informal workers:**

Provide social protection and benefits to informal workers. For informal workers left unemployed, cash transfers or unemployment compensation can help ease the financial burden, as can deferring or exempting taxes and social security payments for workers in the informal sector.

**11. Reconciliation of paid and unpaid work:**

Provide all primary caregivers with paid leave and reduced or flexible working arrangements. Provide essential workers with childcare services. Unprecedented measures to address the economic fallout have already been taken, but comparatively few measures have been directed at supporting families grappling with paid and unpaid work, including care needs. More efforts are also needed to engage citizens and workers in public campaigns that promote equitable distribution of care and domestic work between men and women.

**CONCLUSION**

The conflict between work and family domains plays an important role in the perceived entrepreneurial success. The work–family conflict affects all four dimensions of the perceived entrepreneurial success, proving to be a key element for the perception of the success of women entrepreneurs in this moment of pandemic. Difficulties related to risk management and uncertainty in managing one's own company, especially in this pandemic crisis, can negatively influence the perceived entrepreneurial access in terms of personal financial rewards and fulfilment. Time demands, counter intuitively in this moment instead, increase the success in relationships at workplace, probably due to the greater involvement they cause. The perceived self-efficacy in transforming opportunities into business and in the ability to grow the company also from a financial point of view plays a decisive role. The possibility of creating networks and associations must be considered as a possible strategy to help women entrepreneurs in this particular crisis situation.

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**EFFECT OF TELECOM SECTOR WITH A SPECIAL FOCUS ON BHARTI AIRTEL**

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**ABSTRACT**

*Bharti Airtel is one of the renowned and one of the widely spread telecom communication having coverage of whole India including foreign country as well. In this report we will be going to discuss about the market structure of Bharti Airtel, its expansion plans, its marketing and ways in which the company was indulged in doing promotions and advertisement for increasing the market share not only in terms of users but also in terms of Market growth and Revenue.*

*In this report we will going to discuss about various ways through which the Bharti Airtel did their promotions, the products of Telecom Sector in which Bharti Airtel is dealing SWOT analysis of Bharti Airtel.*

*For Proving that weather the Bharti Airtel is one of the renowned company in case of telecommunication a survey was also done considering 125 reviews which have been collected through random snow-ball sampling, in relation to which Z-test is also performed to measure which company is better and what are the ways they are using to making their product publicly aware and popular.*

*Keywords: - Advertisement and Promotional Activities, SWOT Analysis, Bharti Airtel, Telecommunication Network, modes of Advertisement, Key Performing Areas.*

**INTRODUCTION**

Telecommunication is one of the fastest and the largest growing network and is one of the cheapest sources of earning when compared with other developed and developing countries. With the increase in demand of latest and updated technology in telecom sector which is introduction of 4G Spectrum and along with that using of optical fiber cable for transferring connection have taken a lead in the market not only this sooner 5G connectivity is also going to strike Indian Market, thus the scope of telecommunication is rapidly growing sector in India. In country like India, there are only 4 major companies which are providing efficient and wide range of high and hustle connectivity which are Bharti Airtel, Reliance Jio, Vodafone- Idea and BSNL.

Presently only Reliance Jio is the only company which is only dealing in 4G Spectrum and providing only 4G connectivity to its users, but by looking into the penetration level, more than 30 percent of the Indian Population is living without a smart phones and mostly people earning are only trying to fulfilling their basic needs, and other three companies indicating are providing all the three connectivity range of 2G, 3G and 4G which is a greater advantage to others who are not having smart phones and are still working with basic phones.

Bharti Airtel is one of the oldest and one of the fastest growing telecommunication company established in July, 1995 as a Public Limited Company with listing of shares on both NSE (National Stock Exchange) and BSE (Bombay Stock Exchange)

In this paper, the main fact covered was the way the Telecommunication sector specially in comparison with Bharti Airtel did their marketing presented their Advertisement and other promotional activities, The major products of telecommunication sector, what all are the super products of Bharti Airtel, Product wise growth and market share in case of Bharti Airtel and along with various sources have been taken into consideration as Bharti Airtel is one of the renowned and one of the widely spread telecom communication having coverage of whole India including foreign country.

In this report we will be going to discuss about the market structure of Bharti Airtel, its expansion plans, its marketing and ways in which the company was indulged in doing promotions and advertisement for increasing the market share and both Primary and secondary source of data collection is done for completing the study.

**REVIEW OF LITERATURE**

To understand the study, we have considered various articles and many researchers who did study on telecommunication sector, the growth prospects and the challenges which are been faced by various telecom companies in India and even outside India.

(Mittal, 2019) in this the author examined the working of Bharti Airtel telecommunication sector, at what strategy the Bharti Airtel is working the tele-geography plays a most important role in this paper. (Nding 'ori & Rotich, 2015) in this both the authors have discussed about the factors which has affected the outsourcing of consumer services in Bharti Airtel Ltd in Kenya. (Gandhimathi & Ramasamy, 2015) in this the writer analyzed

the detailed study on financials of Bharti Airtel Analysis. (Martínez-jerez & Narayanan, 2007) in this, the author discussed about the strategies which the Bharti Airtel is using for out sourcing their products and services which are available in the market. (Boafo et al., 2015) in this the writer analyzed the fact that mobile portability in mobile telecommunication companies in Ghana a case study on Bharti Airtel Limited. (Bhoganadam & Rao, 2014) in this the author examined the process and procedure of selection and recruitment level of Bharti Airtel as one of the second top telecommunication sector in India and discussed about the steps an employee has to come across due. (Sharma & Rathore, 2013) in this both the authors discussed on case study about the impact of working capital Management and their impact on profitability.

### RESEARCH OBJECTIVES

1. To understand the advertisement and promotional activities which have taken place in telecommunication sector.
2. To understand the future and growth prospects of Bharti Airtel of Telecom Sector in India.

### RESEARCH HYPOTHESIS

1.  $H_0$  = There is no impact of Rate the telecom service providers in terms of overall service offered during COVID-19.? [Bharti Airtel] and How well you like the services provided by the telecom serviceproviders during COVID-19.
2.  $H_1$  = There is an impact of Rate the telecom service providers in terms of overall service offered during COVID-19.? [Bharti Airtel] and How well you like the services provided by the telecom serviceproviders during COVID-19.

### METHODOLOGY

In this paper we have discussed in detail by taking into consideration both the aspects which are Primary and secondary sources of data collection, as Bharti Airtel is one of the top and renowned Communication networks conventional in India.

India is widely growing sector in terms of Telecommunication and smart phones and from the past few years there has been decline in the rate of internet connectivity and increased in usage of internet, India is one of the cheapest internet service providers among the countries worldwide.

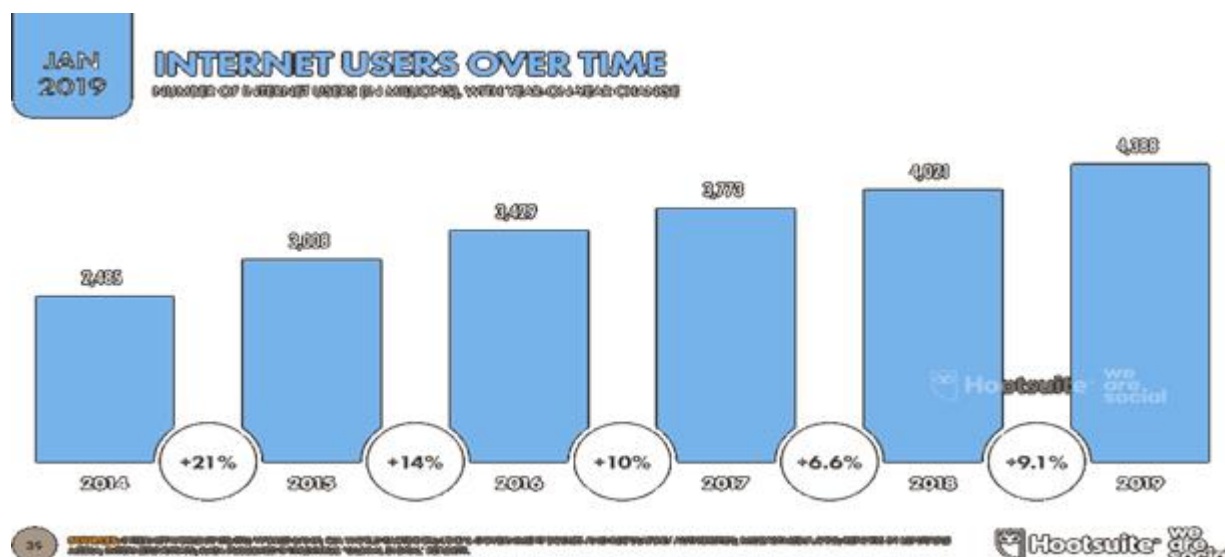


Figure No. 1. Showing the increase in growth of internet users over the past six years

From the figure 1, it is clear from the data as given in <https://datareportal.com/reports> states that, there has been an repeatedly increase in number of internet users from time as there were only 2400 million users in 2014. Which has led to an increase in almost double till financial year 2019 to around 4300 million users with year on year growth of 21 percent from financial year 2014 to financial year 2015, thereafter 14 percent Y-O-Y in financial year 2016, 10 percent from financial year 2016 to financial year 2017, 6.6 percent Y-o-Y in financial year 2018 and finally 9.1 percent in financial year 2019, thus showing an increase in internet users but the increase in decreasing order till financial year 2018 and again there is an increase in increasing rate in financial year 2019.



Bharti Airtel is one of the most reputed brands when it comes to Telecommunication sector, Bharti Airtel is one of the top and leading brands across the globe, and is continuously spreading its reach. During the pandemic and post pandemic the main source of advertisement of telecommunication sector.

1. Apps which are used for making recharges and other payment options
2. Networks whether wired or wireless
3. Broadband connections and Direct to Home services
4. Work from Home packages.

**Table No. 1, The Telecom Sector is hushed with revenues, as it is further categorized into various parts,**

Telecom Industry				
Sr. No.	Industry			
		Company-1	Company-2	Company-3
		Reliance Jio	Airtel	Idea-Vodafone
1	Revenue Generation 2019	659,205 crores	80,700 crores	37,932.10 crore
2	Market Position	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
3	Revenue Share	31.70%	30%	28.50%
4	Market Share	32.04%	30%	28.10%
5	Revenue Growth rate	40.70%	-3.47%	31.17%
6	3-year CAGR	28.37%	7.82%	-47.30%
7	KPI-1: No. Of Users	40.50 Crore	32.90 Crore	32.50 Crore
8	KPI-2: No. Of Super brands	1 Jio Money	Airtel telecom	Broadband network
		2 Jio Payment	Airtel Payment Bank	Telecom
		3 Jio Telecom	Airtel D2H	Television Network

From the table no. 1, it is clearly showing the total market leader in terms of revenue share and market share along with growth rate of all the top three companies Reliance Jio, Bharti Airtel and Vodafone-Idea and among them Jio is having the majority stake in the market with revenue generation of about 659, 205 crores and the second top brand in telecommunication is of Bharti Airtel with revenue generation of about 80, 700 crores and at the end it is Vodafone-Idea with almost 38, 000 crores.

From the above table it is also clear that the three years CAGR which is highest in case of Reliance Jio with a positive of 28.37 percent which is very huge when compared with Bharti Airtel i.e. of 7.82 percent and Vodafone-Idea with a negative growth of 47.30 percent showing a loss-making concern. Refer no. from annual report and <http://www.moneycontrol.com>.

The customer base of these top multinational companies is 38 crores in case of Reliance Jio with highest number then it referred to the Bharti Airtel with almost 14.23 crores which is the second largest consumer base thus Bharti Airtel is one of the top multinational brands in terms of providing telecommunication services.

### BHARTI AIRTEL SWOT ANALYSIS

Strengths, Weakness, Opportunities and Threats are the major components which provides the company an idea what all is happening around them in the country and worldwide. SWOT plays a major role in deciding what the company is good at and what the other competitors are doing to strengthen their power and making your company back.

SWOT is created of 2 parts: the strengths and weaknesses discuss with the internals of an organization whereas the opportunities and threats are external to the corporate and exist within the setting.

The strength of an organization may well be in managing the stigmatization method quickly and comprehensively. Its weaknesses may belong to the distribution of merchandise or payment delays. These are internal issues/problems associate degree need to be understood and prohibited on a current basis. Typically, consultants are known as in to assess these 2 aspects on the idea that associate degree outsiders may provide additional insights into the corporate.

The two external factors, opportunities, and threats don't seem to be within the company's management. The setting, composed of social, economic, legal, regulatory, national, and even international events, should be unceasingly scanned to trace them. **For example**, a chance for a white goods company may well be in freezers for ice cream; threats may well be imports or the entry of recent players with cash and experience.

During a globalizing world, opportunities will arise anyplace, anytime, even as threats will come back from any half or section of world business.

### SWOT ANALYSIS IN CASE OF BHARTI AIRTEL

Table No. 2 SWOT Analysis of Bharti Airtel in Telecom Sector

From table no. 2, it is clearly stating the main-main SWOT for the Bharti Airtel, describing their strengths and the power of competitor i.e. Reliance Jio, proving a biggest threat to Bharti Airtel from past three years

Telecom Industry		
Sr. No.	Industry	Sub Category
		Airtel
1	Strength No. 1	well-known Telecom segment with trade name Equity
2	Strength No. 2	widespread communications with international contact with all in one enclose
3	Weakness No. 1	The Bharti Airtel is having very huge borrowings debts
4	Weakness No. 2	The charge of instructing and expansion of employees is as well a huge expenditure for corporation.
5	Opportunity No. 1	Preparation to commence consumer 360, a folder of all patron in succession
6	Opportunity No. 2	Work in partnership with Smartphone company moreover as long as method to them will be an elegant move about.
7	Threat No. 1	Amplify in price tag of knowledge and human resources are heartwarming the turnover margins.
8	Threat No. 2	Competitive competition in the marketplace with supplementary companies like especially Jio, has pretentious the margins greater than the last 2-3 years.

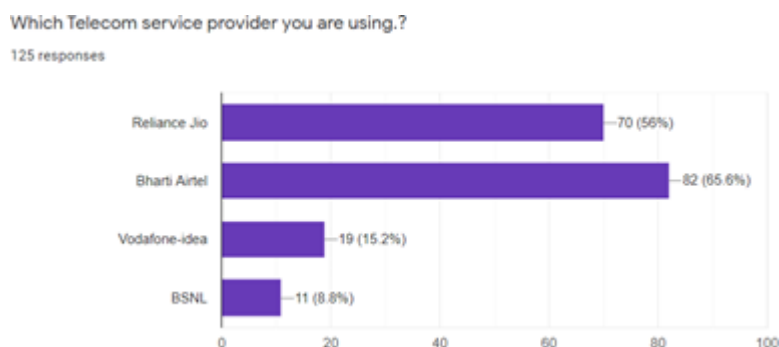
### AGR & NLD

Telecom operators' area unit needed to pay the license fee and spectrum indicted within the type of 'revenue share' to the Centre. The revenue quantity accustomed to calculate this revenue share is termed because of the AGR. in keeping with the DoT, the reckoning ought to incorporate all revenues earned by a medium company – together with from non-telecom sources like deposit interests and sale of assets. The businesses, however, are of the read that AGR ought to comprise the revenues generated from medium services solely and non-telecom revenues ought to be unbroken out of it.

Table No. 3 Market share by revenue

Stake Up (Market Share by Revenue (AGR & NLD) %					
Duration	Bharti Airtel	Reliance Jio	BSNL/MTNL	Vodafone-Idea	Others
Qtr. 1 2019	31.7	22.4	8.1	34.7	3.1
Qtr. 2 2019	30.9	26.1	7	32.8	3.2
Qtr. 3 2019	30	29.7	5.9	31.4	3
Qtr. 4 2019	27.2	31.6	7.1	32.1	2
Qtr. 1 2020	30	31.7	8.6	28.1	1.6

From considering the fact of number of users a questionnaire was send and received a response for the telecom service providers which individuals are using. Table No. : 3



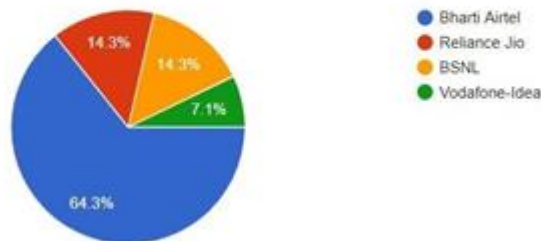
From the figure 3, it is clearly stating that Bharti Airtel is on the top among all the competitors, but Reliance Jio which came in Indian Telecom sector 3 years back, plays a major role and is one of the biggest competitor of

Bharti Airtel, out of 125 responses 82 respondents have chosen Bharti Airtel as their main telecommunication network. And the second on the scale is Reliance Jio with 70 users among the total number of respondents.

The number of subscribers of the telecommunications company Bharti Airtel was approximately 403 million in 2019. The company operates across Asia and Africa in over 16 countries. In terms of subscribers, the company ranks amongst the leading three mobile service providers.

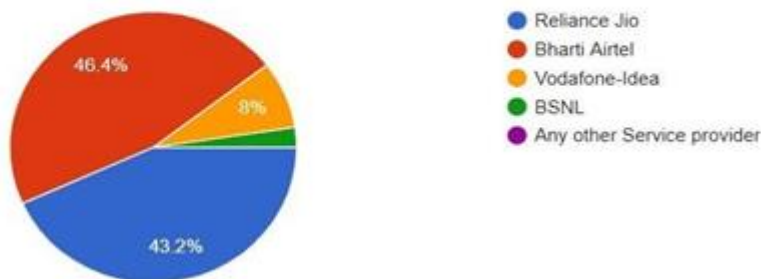
Figure No. 4, Describing the port and transferred request which are done by customers during lockdown period

To which telecom service provider you purchase/PORT your connection in the past three to four months?  
14 responses



From the figure no. 4, it is clearly stating out of 125 respondents 14 port/transferred their numbers and the major stake in porting the numbers were of Bharti Airtel with 64.3 percent and Reliance Jio and BSNL was having same proportionate in porting, thus showing that the customers are highly satisfied with the services and telecommunications offers which Bharti Airtel is giving to its clients. Bharti Airtel is one of the oldest companies in Telecommunication sector and is having major stake in the market with about 403 million and is also expanded globally.

Which Telecom provider advertisement, attracts you the most?  
125 responses



During the lockdown stage in Figure no. 5,

From figure 5, it is describing about the advertisements which are presented by various telecommunication companies, Bharti Airtel is among the top who advertise a lot about the products and services on various offline and online modes and also Bharti Airtel is the most trusted company which helped their customers and make them free from any problem during the CoVID-19 pandemic Situation, they have changes whole lot of advertisement ways and analyzed the market movement at an early stage, thus the advertisement which are been shown were focusing on more of work from home services, internet connectivity they even change their plans for the pandemic time and also establish a platform where no individual to face any issue related to recharge or any other problem.

**Table no. 4**, to prove the reliability of Information received from the respondents, Z-TEST is applied as the total numbers of respondents were more than 30 so I applied Z-Test to prove whether the information is accurate/

z-Test: Two Sample for Means		
Particulars	Rate the telecom service providers in terms of overall service offered during COVID-19.? [Bharti Airtel]	How well you like the services provided by the telecom service providers during COVID-19.?
Mean	3.785714286	4.182539683
Known Variance	1.545714	0.954

Observations	125	125
Hypothesized Mean Difference	0	
Z	-2.817342006	
P(Z<=z) one-tail	0.002421147	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.004842293	
z Critical two-tail	1.959963985	

The given sample size is 125, we have used Z-test for comparison of Means and find that, at 95 percent of level of significance, and P value for two-tail Z test is 0.004842293 which is less than even than 5% level of significance, thus we will reject the null hypothesis which is less than P value, thus we will accept the Alternate hypothesis it means there is some impact/relationship of Rate the telecom service providers in terms of overall service offered during COVID-19.? [Bharti Airtel] and How well you like the services provided by the telecom service providers during COVID-19.

As per your opinion, which telecom service provider is providing best in class service.?

125 responses

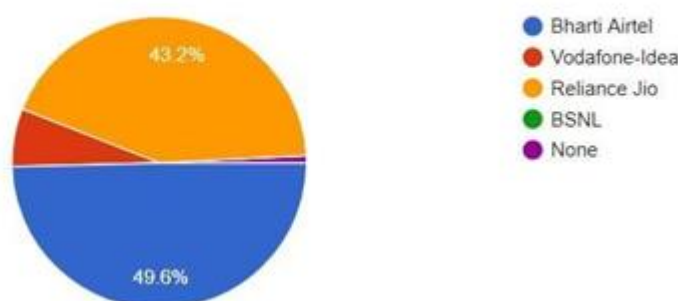


Figure 9,

Among all the telecommunication companies only two companies are surviving by providing best in services to their customers as almost 49.6 percent of the respondents are in favor of Bharti Airtel, and 43.2 percent respondents rest there is hardly any share of Vodafone-idea and BSNL. Thus, showing the true and actual scenario of what individuals like the most in terms of services and offers, which both BhartiAirtel and Reliance Jio are doing but study from the fact, Bharti Airtel is still among the top and a multinational brand with wide coverage.

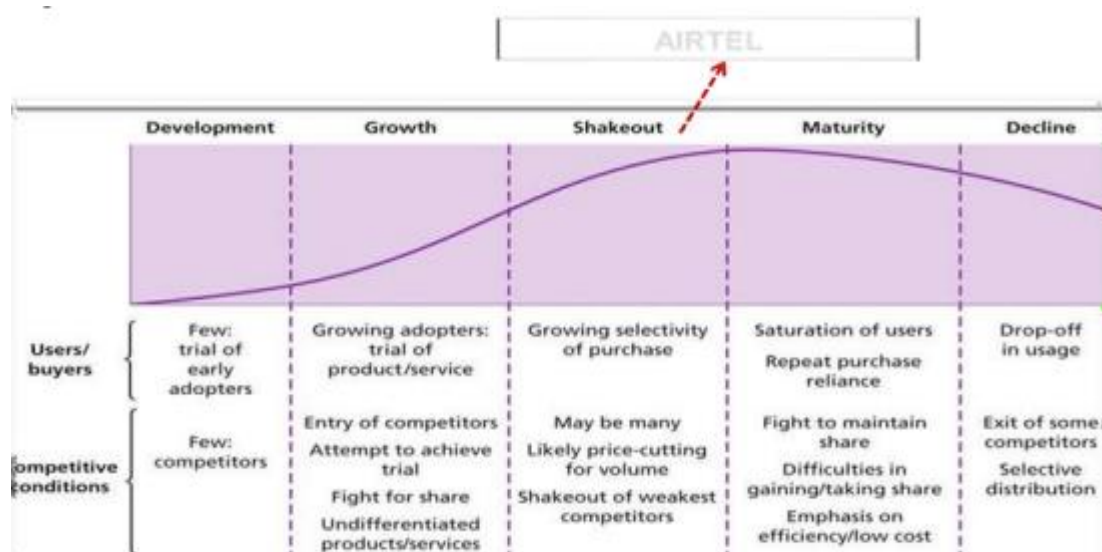


Figure-10 Stage of Bharti Airtel in Telecommunication sector.

From the above figure-10, it is clearly stating that the Bharti Airtel is already crossed its growth stage and is in the middle of maturity and development thus the company has to achieve its and maintain its consistency, in order to grow and exceed in market

**CONCLUSION**

In Indian telecommunication sector, tariffs for wireless connections are lowest, thus both these brands Reliance Jio and Bharti Airtel are surviving in the market. Reliance Jio is having highest customer base in terms of connections whereas Bharti Airtel is still struggling for maintaining its consistency in the telecom sector, as per the analysis and respondents reviews are positive towards Bharti Airtel and Bharti Airtel is doing a lot more with advertisements and providing the exclusive services to their clients, thus proving Bharti Airtel is an established and a well growing company not only in India but across the globe by having operation in 16 countries worldwide.

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**A STUDY ON 5G WIRELESS SYSTEM: IS IT THE FUTURE**

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**ABSTRACT**

*In this paper, an attempt has been made to review various existing generations of mobile wireless technology in terms of their portals, performance, advantages and disadvantages. The paper throws light on the evolution and development of various generations of mobile wireless technology along with their significance and advantages of one over the other. In the past few decades, mobile wireless technologies have experience 4 or 5 generations of technology revolution and evolution, namely from 1G to 4G. Current research in mobile wireless technology concentrates on advance implementation of 4G technology and 5G technology. Currently 5G term is not officially used. In 5G research is being made on development of World-Wide Wireless Web (WWWW), Dynamic Adhoc Wireless Networks (DAWN) and Real Wireless World.*

**KEYWORD:** Evolution from 1G-5G, 5G Network Architecture, Need of 5G LTE, 5G, 5G Architecture, Mobile Technology, WWW, OTA etc.

**INTRODUCTION:**

The development of wireless technology started in early 1970's. In the next four decades the development of mobile wireless technology projected from 1G to 5G technology. 5G technology is the 5th generation technology for mobile wireless technology. 5G Technology is highly intelligent technology which adds up a large number of specifications to the 4G technology and makes it completely wireless without any limitation. 5G provides very high bandwidth with many other advanced features such as spectral efficiency, energy efficiency, etc., making it perfectly wireless for real world and so makes powerful and beneficial for the users. The fifth-generation wireless mobile technologies offer tremendous data capabilities and unrestricted calls and in addition an infinite data broadcast with latest mobile operating system. The idea of WWWW (World Wide Wireless Web) is started with 4G technology and is completed with the 5G mobile technology. It is expected to release in 2020. This technology helps in creating a universally connected world with uninterrupted access to information, communication and entertainment. This will definitely change our lifestyles in a significant manner.

**EVOLUTION OF MOBILE NETWORK TECHNOLOGY:**

The step for wireless communication was led by an Italian inventor, G. Marconi by communicating a letter up to distance of 3km (from starting point to its destination point) with the help of electromagnetic waves. After this initiation, wireless communication became a very important part of present styles of living. With the passing of time a number of modifications keep on taking place as per the need, which led to different generations of wireless technologies:

- ❖ **1G (First Generation):** 1st Generation Mobile Network were developed in 1980s and completed by early 1990s. It was based on analogue system. It used analogue radio signals with frequency 150MHz and voice call modulation was done with the help of Frequency Division Multiple Access (FDMA). Its speed was up to 2.4 kbps. Its main feature was it allows user to make voice calls within a country.
- ❖ **2G (Second Generation):** It was launched in 1991. It was based on digital system. It can give you speed up to 64 kbps. Main services provided are digital voices and SMS facility with more clarity, using the bandwidth of 30 KHz to 200 KHz.
- ❖ **3G (Third Generation):** It developed between late 1990s and early 2000s. Its transmission speed lies between 125kbps to 2 Mbps. Data are sent through Packet switching technology and circuit switching was used for interpretation of voice calls. It provides superior voice quality. It also provides the facility of Video Conferencing, E-mailing, Online banking-billing, Global Roaming, mobile TV etc.
- ❖ **4G (Fourth Generation):** It was developed in 2010. It is faster and more reliable compared to earlier networks. Its speed is up to 100Mbps. It provides improved communication network based on IP. It provides high performance in low cost. Long Term Evolution (LTE) is considered as main technology for 4G. Multimedia Messaging Service (MMS), digital video broadcasting, High Definition (HD) TV, Video chat are the services provided by 4G in addition to features of 3G.
- ❖ **5G (Fifth Generation):** It is next coming phase of wireless networks. It provides 10 times more capacity than other existing systems. It expected speed will be up to 1Gbps. It is completely wireless

communication with almost no limits supporting Wireless World Wide Web (WWW). It is more reliable and faster in lower cost. It provides high capacity, large phone memory, faster data transmission, supports interactive multimedia, etc.

#### COMPARISON BETWEEN 4G AND 5G MOBILE TECHNOLOGIES:

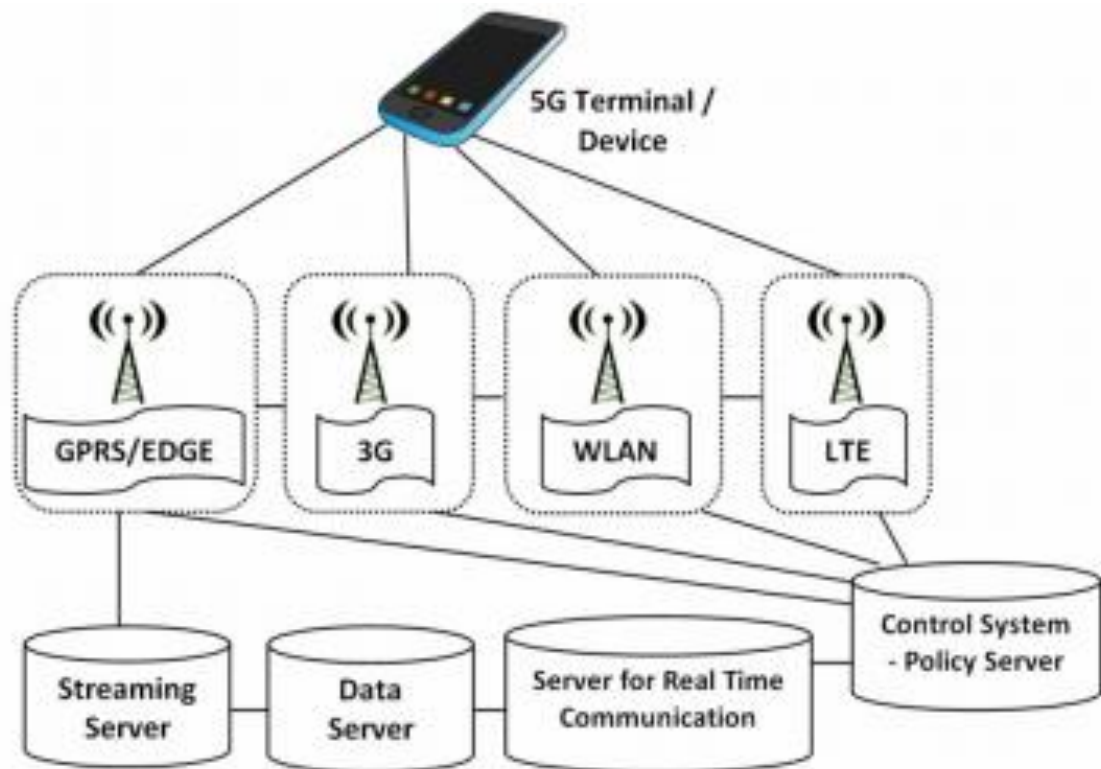
S.N.	Specifications	4G (IV Generation)	5G (V Generation)
1.	<b>Bandwidth</b>	Up to 100 Mbps	Greater than 1Gbps
2.	<b>Frequency Band</b>	2GHz to 8GHz	3GHz to 300GHz
3.	<b>Technologies</b>	Unified IP, seamless integration of broadband LAN/WAN/PAN and WLAN	4G, advanced technologies based on OFDM modulation and IPV6
4.	<b>Services</b>	Global roaming, Dynamic Information Access, HD streaming, Wearable Devices	Wearable Devices, Dynamic information access, HD streaming, Devices with AI capabilities
5.	<b>Standards</b>	IP based on LAN/WAN/PAN	IP based on LAN/WAN/PAN and WWW
6.	<b>Multiple Access</b>	CDMA	CDMA, BDMA, FBMC
7.	<b>Core Network</b>	All IP Networks	5G Network Interfacing, Flatter IP Network
8.	<b>Initiation year</b>	2010	2015
9.	<b>Antenna</b>	Type Sub Wavelength Antenna	Array Antenna
10.	<b>Radiation Pattern</b>	Omni-directional	Fan-beam Directional
11.	<b>Deployment Year</b>	2000-2010	By 2020

#### NETWORK ARCHITECTURE OF 5G MOBILE TECHNOLOGY:

The model of 5G technology is entirely IP based model for both mobile and wireless communication. The various components involved in the architecture making it very fast, secure and famous among the customers in all over the world are as follows:

- **GPRS:** General Packet Radio System (GPRS) is basically a step developed for internet access during third generation. It is the first step towards the end-to-end wireless communication. It provides data rates from 56Kbps to 114Kbps. It also promises to provide continuous connection of internet to mobile and computer users. It consumes comparatively less battery during internet access.
- **EDGE:** Enhanced Data GSM Environment (EDGE) provides an evolutionary path from 3G technology to GSM and TDMA. It provides maximum data transmission rate up to 473 Kbps. It is developed to increase the bandwidth of GPRS technology.
- **3G:** 3 Generation (3G) technologies developed to access wireless communication. It provides high quality, cost effective, wireless multimedia application, greater security features, video calls/ conferences and enhanced wireless application as compared to previously available services.
- **WLAN:** Wireless Local Area Network (WLAN) provides the facility of wireless connection and communication among the devices. It uses high frequency radio waves, micro waves, etc. for its functionality. Use of WLAN increases mobility, productivity, scalability as it provides high speed wireless connection.
- **LTE:** LTE stands for Long Term Evolution. LTE works by using all IP network architecture. It supports data as well as voice communication. LTE supports MIMO (Multiple Input Multiple Output), because of which higher data rate is achieved. As a result, LTE is a standard for high-speed data transmission for mobile networks, providing a high speed up to 100 mbps. AS it uses improved architecture, handoff from one region to other is smooth. This results in smooth data flow without any interruption.





#### FEATURES OF 5G MOBILE TECHNOLOGY:

Fifth generation wireless technology is providing a large number of utilities for consumers at highest priority. The fifth-generation wireless technology provides a number of features which makes it perfect wireless for real world. Some of these features are:

- 5G technology provides higher bandwidth.
- 5G technology provides high quality services based on policy to avoid error.
- An advanced billing interface which is more effective and attractive is provided by 5G technology.
- 5G technology provides high resolution and bi-directional large bandwidth shaping.
- 5G technology provides a unified global standard which facilitates service portability and global mobility.
- 5G technology works on lower power consumption.
- 5G technology provides better network coverage.
- 5G technology provides huge broadcasting data with very high connectivity speed of 25Mbps which was never before.
- 5G technology is expected to provide downloading speed up to 1Gbps in LAN,
- The traffic statistics of 5G technology makes it more accurate.
- Through remote management offered by 5G technology a user can get a better and faster solution.
- 5G technology also provides tools of subscriber supervision for fast action.

#### CONCLUSION:

The design of the 5G technology is an open platform on different layers, from physical to application layer. The present work of 5G technology is focused upon providing specified services with WWW functionalities in lowest cost ever, keeping the users in the top of the priority. There are lot more to come, which is definitely going to change the lifestyles of the societies. As 5G is only a step behind to arrive in Indian market with inexpensive rates, much reliability and will take connectivity speed and global mobility to new heights. The 5G wireless technology is going to deployed completely by 2020.



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**A STUDY ON CHALLENGES AND OPPORTUNITIES FOR TEACHERS IN RURAL AREA OF ICT IN EDUCATION" (WITH REFERENCE TO INDIAN VILLAGES)**

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**ABSTRACT**

*Rural areas are geographically dispersed and if educational programs for such rural areas are to provide equitable coverage, accessibility technological means must be considered. Indeed there has to be an existing or proposed infrastructure that would enable these programs to be conveyed. This paper looks into the information and communication needs for the vast majority of rural areas in rural villages (Rural India) so as to build mechanisms to support ICT in order to increase the rate of development and economic growth. The data collected from Secondary schools in India, why there is a pressing need to primarily finance ICT projects focusing on the needs, aspirations, capacities and perspectives of the vast majority of people in rural areas.*

*Key words: Economic Growth, Development, Infrastructure, Information and Communication Technologies (ICTs). Knowledge, Ethics, Secondary schools,*

**INTRODUCTION:**

One of the biggest concerns of educators across the world, and especially in India, is making the present generation learners future-ready. India is relatively young as a nation with around 28 million youth population being added every year. More than 50 per cent of its population is below the age of 25 and more than 65 per cent are aged below 35 years. In 2021, the average age of an Indian is expected to be 29 years, while it will be 37 for China and 48 for Japan. However, India's high youth population won't be of help to the economy if universal education is not achieved all over India. Moreover that, more than 68 percent of Population living in rural areas so it's a need of time to spread ICT in rural areas.

The main problem India now faces is that all the pedagogical innovations are fit to improve the quality of urban education while the rural learners and their education remain largely neglected. With 68 per cent of the population residing in rural India, education there truly deserves much more attention, especially when it is plagued with so many problems - dearth of teachers, teacher absenteeism and poor quality of teachers.

**METHODOLOGY OF STUDY:**

Secondary research was conducted to review the present status of Teachers teaching in Rural areas. The information and data for the research can be collected through primary as well as secondary source i.e. published articles, journals, newspapers, reports, books and website. Data has been collected from the website of rural development and also taken from various committee reports submitted to Govt. of India on Development of ICT.

**MEANING AND DEFINITION**

**ICT** refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.

**ICT** is the Information and Communication Technologies. "**ICT** in Education" means "Teaching and Learning with **ICT**". **Educational ICT** tools can be divided into 3 categories: Input source, Output source and others.... Worldwide research has shown that **ICT** can lead to improved student learning and better teaching methods.

**PROBLEMS IN IMPLEMENTING ICT SOLUTIONS:**

While implementing ICT, the first barrier is language. The information available on internet is in English as it is a world-wide accepted International language. So, education status is essentially needed to be improved. India is a prosperous nation in terms of resources. It may be then human resource, natural resources, etc. Management is the ultimate solution for it. Many industries can be developed in rural India like paper industry, handloom industries, etc. As such, the global ICT industry is fast changing as a result of emerging technologies, economic, social and business trends. Connectivity is not available in most rural areas. There are other problems too like electricity. We need to focus on this too because rural development is a very vast subject which covers all the socio-

Economic, cultural and technological development and that's what is the rural development. ICT does not include only the Internet but a gamut of other tools which could be used individually or in convergence with each other. Financial problems are faced by most of the rural families. This is the root cause for poor standard

of living. ICT platforms help in generating incomes through new ways of carrying out business, reducing cycle times or increasing productivity. Many government schemes are provided for those who want to start a new business, loan facilities are also available. The rural

Citizens should take benefits of such schemes. To implement ICT, computer literacy in fact, technical literacy is also essential. In business, entrepreneurs must not bring international branded products because the rural economy is not so strong. So, this mistake should be avoided. Problems in establishing network: This is a technical issue to establish a network. The first point is the large investments needed to establish a strong network along with infrastructure. To achieve the balance between rural and urban areas, communication is important. This communication is well established through internet. Access to the Internet as well as the telecommunications is confined mainly to the urban centers in India and the rural areas remain beyond the ambit of new technology. The facility of internet is not so costly to connect from one place to another. The rural area is neglected in this case. At start of the invention of mobiles and telephones, this technology was unknown to rural areas. One important reason is the prohibitive cost of connecting India's vast rural areas with

Telecommunications. Once an Internet connection is established in villages, it can serve as a multipurpose platform for imaginative entrepreneurs. The projects have not adequately transferred capabilities to rural areas. By bridging distances, telephony and the internet, which fall under a broader category known as Information and Communication Technologies (ICTs), allow people living in remote areas unprecedented access to resources and opportunities.

### **SOME OF THE PROBLEMS IN ICT**

#### **1. NON-PERMANENCE OF TEACHERS IS DEMOTIVATING**

Most of the schools in rural areas are run by the government. They appoint ad hoc teachers, instead of Permanent ones, who are poorly paid as compared to the huge remuneration of a full-time Trained Graduate Teacher (TGT).

Moreover, promising career prospects, which is quite a motivation booster, is almost nil for the non-Permanent teachers. This leads to dissatisfaction, eventually resulting in a dearth of teachers because they move away to more permanent jobs.

#### **2. LATE OR BLATANTLY ABSENT**

Lack of accountability of teachers and school authorities has raised the rate of absenteeism. School Development and Management Committees (SDMCs), comprising parents and members of the to.' community, have been entrusted with the responsibility of overseeing teachers and their duties. However, research suggests that the committee has hardly seen success.

#### **3. NON-TEACHING DUTIES**

Moreover, non-teaching duties like election invigilation often keep teachers away from schools. Furthermore, teachers often have to report for duty far away from their home. With an inadequate transport system in rural India, the distance only adds to their woes and often results in absenteeism.

#### **4. EXEMPTION FROM TET**

Several states have exempted candidates from Teachers' Eligibility Test (TET) as only 20 per cent of the aspirants clear it. This wrong move, in an attempt to quickly fix the issue of dearth of teachers, has deteriorated the quality of education in the states even further. However, quality of teachers is a major concern not only in these states, but across the entire country.

#### **5. LACK OF QUALITY TEACHER TRAINING**

There are many private teacher-training institutes in India, but the quality of the training they provide

is unsatisfactory. Continuous professional development is a motivator for teachers, and enough attention is needed in this regard.

### **DIGITAL AIDS TO THE RESCUE**

Many remedies such as surprise school inspections, teacher-training courses etc. have been attempted to salvage the rural education scenario. Without being dismissive of any of these, I would like to point out the effectiveness of digital aids in battling the challenges plaguing our education system. This front has benefited, and gained visibility, thanks to some potential ventures by both government and non-government initiatives alike.

**GOVERNMENT INITIATIVES IN INCREASING ICT EDUCATION (POLICY MEASURES)**

Attuned to the NDA government's Digital India initiative, a couple of projects have been introduced in the school education segment.

For instance, E-Basta aims to make digital education via tablets and computers accessible to learners in rural areas. Digital learning can help develop critical thinking skills. The project aims not only to benefit learners in learning concepts, but also to make them comfortable with technology.

Steps are already being taken to introduce digital aids in preschools. Though digital aids can never really replace teachers, initiatives of these kinds can make quality content available to them. Again, Rashtriya Madhyamik Shiksha Abhiyan (RMSA 2009), in partnership with state governments, is dedicated to enhance the capacity of all teachers in Information and Communications Technology (ICT).

Many teachers are not techno-savvy, and the teacher-training courses never really prepare them to handle digital aids in classrooms. Such schemes can go a long way in keeping them motivated besides improving their competence.

**OVERCOMING OBSTACLES: PLAN OF ACTION**

The first success criterion of all analyzed projects is the great effort made to define objectives that take into consideration the socio-economic context of the target area. In order to implement ICT, We need to consider the following points: LAN Connectivity; The local area network can be established in the low cost. Telephone connection and modem are required for wired network. Dongle is also the option for LAN connectivity. User-friendly & inexpensive PC: Desktop PCs are available at affordable cost. They are user-friendly too. We can provide the computer facilities in the schools. To impart technical education, language-friendly software are also essential. Learning System on Projector startup is the good step that government can implement. Multinational companies should motivate youth by taking the seminars and provide them employment opportunities. Teachers training: In rural areas, education system is not so good. Vision and plan are needed to be designed. We can encourage and enhance learning and their skills in rural people if we ensure communication in local languages, so that rural people can understand easily. Designing a reliable and low cost network is the aim to connect to the rural areas. "Digital Divide" is the popularly used phrase associating underdevelopment and lack of access to ICT and information. Till now, the network failed in terms of Power, data loss security and reliability. So, the network designers need to concentrate on the protocols and make the network highly efficient.

**CONCLUSION:**

Lack of resources within the educational sector educational is a hindrance in the implementation of ICT in developing countries. Because of limited resources then there will be lack of sufficient computer experience for the students and teachers. The schools need to be provided with adequate facilities and resources for effective implementation of ICT. Effective implementation of ICT largely depends on the teachers and the schools administration. The Government can help by providing in-service training to the ICT teachers.

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## CONTRIBUTION OF DR. BABASAHEB AMBEDKAR TO CHANGE INDIAN SOCIETY

Mrs. Sunita Pramod Sonar

## ABSTRACT

*Digital forensics is the process of uncovering and interpreting electronic data. The goal of the process is to preserve any evidence in its most original form while performing a structured investigation by collecting, identifying, and validating the digital information to reconstruct past events. The context is most often for the usage of data in a court of law, though digital forensics can be used in other instances. Digital forensic science is a branch of forensic science that focuses on the recovery and investigation of material found in digital devices related to cybercrime. Digital forensics is the process of identifying, preserving, analyzing, and documenting digital evidence. This is done in order to present evidence in a court of law when required. Few criminals are becoming smarter so data hiding techniques which includes encryption and steganography. The evidence of criminal activity is placed in such way where traditional search methods cannot be able to find it. Computer forensic is not just about detective work like searching for and trying to find out information it is worried about keeping sensitive data handling responsibly and confidentially, taking precautions to not nullify findings by corrupting data, taking precautions to make certain the integrity of the information, staying within the regulation and guidelines of evidence. With the help of computers we can investigate the identity theft, fraud and embezzlement, software piracy and hacking, blackmail and extortion, child pornography and exploitation etc. Computer provides different kinds of software. And with help of these software we can solve the different kinds of cases. The proof generated by computers are consider as legal proofs in the court.*

## INTRODUCTION

As the world is growing towards digitalization, all these industries are utilizing the benefits of digitalization in the working process. With the help of digitalization, the working procedures are performing very fast and effectively. To use digitalization we just need a computer or a system. Some forensics software tools are there that need to be installed in the computers so one can perform the task. It gives us the benefit of fast operations. From the personal or commercial aspect of technology, computer forensics is important because we're heading into an 'internet of things' world; everything is going to be connected all the time." For instance, the Echo, Siri, and Portal digital assistants, along with web connected refrigerators and other home appliances are in more and more homes with internet connectivity and microphones. We're heading into an era where absolutely *everything* will need to be examined.

Unfortunately, those who commit crimes have not missed the information revolution. Criminals use mobile phones, laptop computers, and network servers in the course of committing their crimes. In some cases, computers provide the means of committing crime. For example, the Internet can be used to deliver a death threat via email; to launch hacker attacks against a vulnerable computer network, to disseminate computer viruses, or to transmit images of child pornography. In other cases, computers merely serve as convenient storage devices for evidence of crime. For example, a drug dealer might keep a list of who owes him money in a file stored in his desktop computer at home, or a money laundering operation might retain false financial records in a file on a network server. Indeed, virtually every class of crime can involve some form of digital evidence.

Computers are used for committing crime. Law enforcement now uses computers to fight crime.

Computer forensics is widely known for catching criminals in various types of fraud. However, investigators are now using computer forensics to catch murderers, and access encrypted data daily that will stand as evidence in a court of law. Evidence from computer forensics investigations is usually subjected to the same guidelines and practices of other digital evidence. It has been used in a number of high-profile cases like Sheetal Amte in Maharashtra. Computer based evidence isn't just useful in solving digital-world crimes, such as **data theft, network breaches and illicit online transactions**. It's also used to solve physical-world crimes, such as burglary, assault, hit-and-run accidents and murder. Computer forensic includes various types of analysis in different fields related like..



Forensic tools help investigators to extract crucial pieces of evidence from electronic devices to be presented in a court of law to put the criminals behind bars. Forensic tools provides us n number of solid tools which are used to help tracking criminal very easily. These tools includes

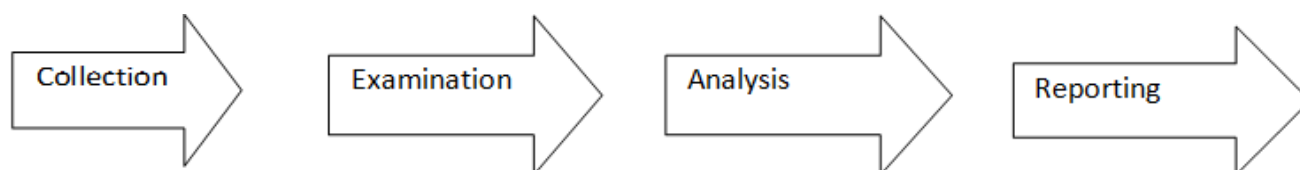
1. **Paladin :-** Paladin is undoubtedly one of the most versatile collections of forensic tools currently available. The entire suite consists of over 100 tools classified into 33 categories! Whether it is a matter of unauthorized access, data leak, modification of existing data, malicious software like spyware and malware, or even if it is something as simple as a weak password that was cracked through guesswork.
2. **CAINE (Computer Aided Investigative Environment) :-** CAINE is a suite of forensic tools that is Linux live distribution and provides an interactive GUI for forensic analysts to carry out a broad range of investigative activities. One of the major distinguishing factors about the CAINE suite is its applications for the assessment of database, memory as well as networks.
3. **3. X-Ways Forensics :-** X-Ways Forensics provides a large array of various types of tools that aid in digital forensics. From data recovery to disk cloning, finding and retrieving lost data, recovering deleted files and many more – X-Ways Forensics has grown to become an absolute must-have for all budding and professional cyber forensic analysts.
4. **Autopsy :-** The term autopsy is synonymous with the science of forensics. Medical autopsy is performed by a medical examiner to discern the cause and nature of death. Borrowing from the idea, Autopsy is a software toolkit to assess computer hard drives and smart phones and look for evidence to help identify instances of crime or malicious activities.
5. **Wireshark :-** Wireshark is a free open source forensic tool that enables users to watch and analyze traffic in a network. Since every organization maintains an internal network for day-to-day operations, Wireshark is an excellent choice for network administrators as well as cybersecurity experts to study all the activities on a network to identify deviations from established norms and zero-in on any suspicious behavior.
6. **ProDiscover Forensic :-** In the event of a crime, the perpetrators often try to destroy the evidence in order to escape justice. This is an extremely common occurrence in the case of cybercrimes. In such a scenario, it is deleted information on devices that help investigators nab the criminals and restore the damages. Few forensic tools can recover deleted information as well as ProDiscover Forensic
7. **Volatility Framework :-** is a unique forensic tool that lets investigators analyze the runtime state of a device using system information found in the volatile memory or RAM. Whenever we turn a device off, all unsaved data, which is present in the RAM gets deleted. It is only when we save something that it gets transferred from the RAM to permanent memory.
8. **Computer Online Forensic Evidence Extractor (COFEE) :-** The Computer Online Forensic Evidence Extractor or COFEE was developed by Microsoft to aid law enforcement officers in extracting information

from Windows computers. It is an easy to use platform offering more than 150 forensic tools that investigators can use to analyze computer memory to discern actionable evidence.

9. **WindowsSCOPE** :- In the aftermath of a cyberattack, it is extremely important to evaluate the scenario and determine how the attack was carried out. WindowsSCOPE happens to be one of the best tools for incident response. In the event of an attack, this tool reverse engineers the entire operating system and all running processes, ports, open files, and so on. This allows forensic analysts to paint a clear picture of the sequence of events surrounding the attack and shed light on the causation.
10. **FTK imager** :- FTK® Imager is a **data preview and imaging tool** that lets you quickly assess electronic evidence to determine if further analysis with a forensic tool such as Forensic Toolkit (FTK®) is warranted.

## METHODS

Computer forensic process includes 4 steps. With the help of these steps investigators are to find out the criminal easily.



1. **Collection** :- This is the first step of forensic process. In this phase data is identified labeled and recorded and gathering the data and physical evidence related to the incident being investigated is done. Simultaneously integrity of the chain is also preserved.
2. **Examination** :- In this phase from the collected data identify and extract the pertinent information using proper forensic tools and techniques and also maintain integrity of the evidence.
3. **Analysis** :- In this phase results of the examination phase are analyzed. From the analysis useful answers to the questions are generated which are presented in the previous phases. Most probably the case gets solved in this phase only.
4. **Reporting** :- In the reporting phase the results of the analysis are done which contains – The information pertinent to the case.

-Actions that have been accomplished actions left to be performed.

-Advocated enhancements to processes and tools.

## RESULTS

Law enforcers sometimes need computer forensics to investigate a crime. The computer system itself may act as a scene of a crime in cases of denial-of-service attacks and hacking. The computer system may also hold evidence of the crime. A lot of people may also store information in computer systems unwittingly or unintentionally. Evidence that computer forensics investigations produces may be in the form of emails, documents and Internet history. There may also be files relevant to crimes such as kidnapping, drug trafficking, money laundering or fraud. Examples of common situations in which computer forensics is used include: When corporate information is disclosed without permission, either by accident or by design, When an employee steals intellectual property from their employer and passes it to a competitor or uses it to set up a competing company, General criminal and civil cases. This is because criminals sometimes store information in computers.

## DISCUSSION (PROS AND CONS)

The exchange of information is taking place everyday over the internet. Although this may be convenient for us, it can also pose as an opportunity for criminals. Phishing, corporate fraud, intellectual property disputes, theft, breach of contract and asset recovery are some of the situations wherein computer forensics can be used. Computer forensics' main advantage is its ability to search and analyze a mountain of data quickly and efficiently. They can search keywords in a hard drive in different languages which is beneficial since cyber crimes can easily cross borders through the internet. Valuable data that has been lost and deleted by offenders can be retrieved which becomes substantial evidence in court. Legal professionals are able to produce data in court that were previously impossible.

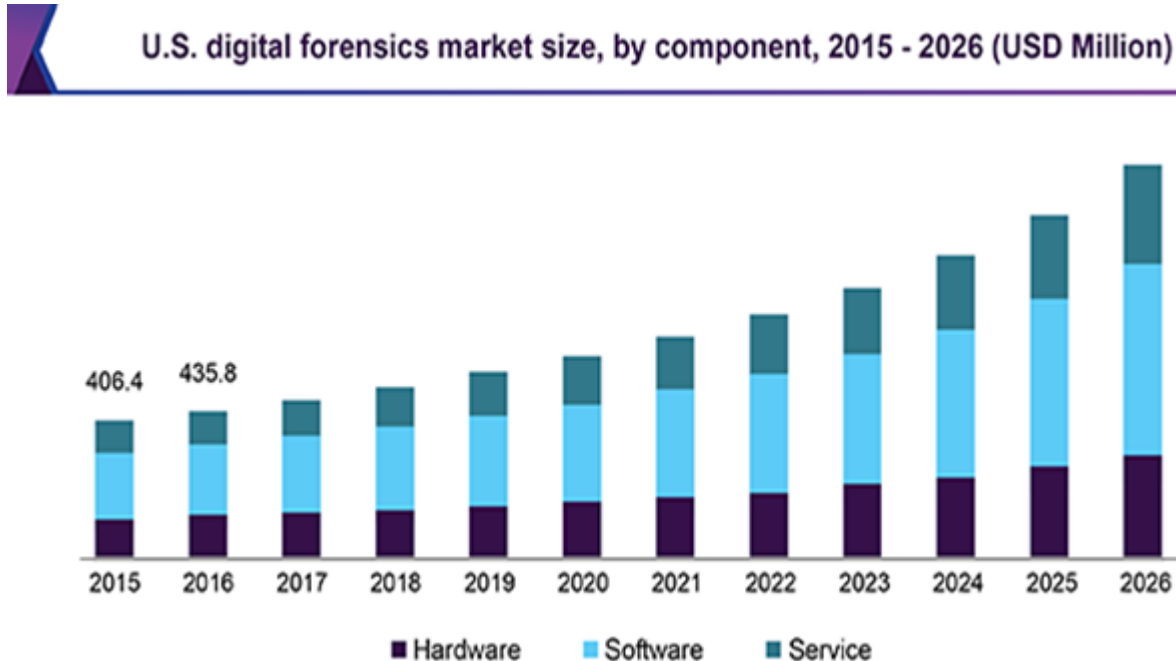
The main disadvantage is the cost of when retrieving data. Computer forensic experts hire per hour. Analysis and reporting of data can take as long as 15 hours but it will also depend on the nature of the case. Another one

is that when retrieving data, analyst may inadvertently disclose privilege documents. Legal practitioners involved in the case must also have knowledge of computer forensics. If not they will not be able to cross examine an expert witness. This also applies to the judge, solicitors and barristers. Computer forensics is still fairly new and some may not understand it. The analyst must be able to communicate his findings in a way that everyone will understand.

### CONCLUSION

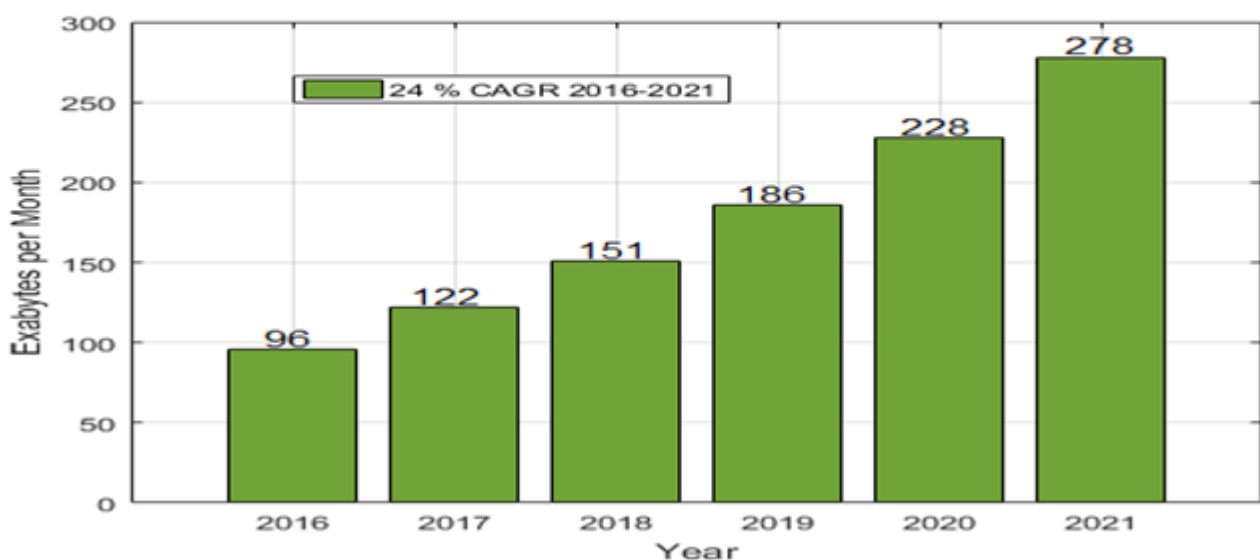
Computer forensics is quickly becoming used for many different areas of criminal investigations and there is now a methodology that is used. Computers have been widely known for being used in committing a crime but now the tables have turned and forensics has the edge using computer forensics to catch criminals who believe they do not leave an imprint when committing certain crimes.

### FIGURE AND FIGURE CAPTIONS



Source: [www.grandviewresearch.com](http://www.grandviewresearch.com)

## Cyber security and network forensic





# Digital forensics



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**ARTIFICIAL INTELLIGENCE AS THE CORE TECHNOLOGY FOR THE ACADEMIC LIBRARIES**

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**Mr. Sunil T. Ubale<sup>1</sup> and Mr. Snehal S. Sambhar<sup>2</sup>**Librarian<sup>1</sup> and Assistant Librarian<sup>2</sup>, Chandrabhan Sharma College of Arts, Science and Commerce, Mumbai-76**ABSTRACT**

*This article gives a deep insight of usage of Artificial Intelligence in academic libraries. Artificial Intelligence technology plays an important role for libraries and is offering various opportunities and services for libraries to connect their users. These days most of the academic libraries are moving towards artificial intelligence technology and made changed in its functioning processing of the information retrieval system. The adoption of AI in virtual reference services is considered to be a new online service model for libraries.*

*In this paper authors try to highlight the components, types and general application of artificial intelligence. Apart from the basic knowledge about artificial intelligence, the authors have also explored the various possible AI application in academic libraries like expert system, natural language processing, robotics, machine learning, radio frequency identification and with some insights on skills required for librarians and the role of librarians in this artificially intelligent era.*

*Keywords: Artificial Intelligence, Academic Library, Expert System, Natural Language Processing, Robotics, Machine Learning.*

**1. INTRODUCTION**

Artificial Intelligence is one of most important technologies in computer science that emphasizes the development of intelligent machines, thinking and working like humans. Artificial Intelligence technology is growing very fast nowadays and we are getting attached with different new technologies day by day. It is one of the fascinating and one of the universal fields of computer science. It has a tendency to cause a mission to work as a human. At present Artificial Intelligence working with principle of subfield means, whatever you dealing nowadays with so many technologies, so many gadgets that are using completely based on AI, the people around the globe might experience. Artificial intelligence presence is there in almost all the areas of human life. Some examples of AI in our life is our daily computing activities, from browsing the web pages to finding spam email in mailbox, speech recognition technologies such as Apple's SIRI, Microsoft's Cortana, Google Assistant, and Amazon's Alexa are allows us to talk to a computer or device that interprets what we're saying in order to respond to our queries, the advent of AI helps self-driving cars and robots to navigate the streets and sidewalks, in hospital many surgeries are done through AI technology which can't do manually, and in teaching process smart boards is used as one of the AI technology etc.(Gundakanal, 2019) These developments in recent times have been facilitated by the growing demand of access to the information, and libraries are the prime source in providing this access.

**2. WHAT IS ARTIFICIAL INTELLIGENCE?**

The term AI was first introduced in the year 1956 by John McCarthy at Dartmouth conference he defines, AI as science and engineering of making intelligent machines, especially intelligent computer programs.(Gundakanal, 2019)

Artificial Intelligence can be defined as an approach of creating an automatic robot, or a system, or a software, having intelligence the same as humans and performing tasks with the same efficiency as humans do.

According to (Copeland, 2021) Artificial intelligence is all about the simplest human behaviour is ascribed to intelligence, while even the most complicated insect behaviour is never taken as an indication of intelligence.

In other words, artificial intelligence is field that seeks to advance the science and engineering of intelligence, with the aim of creating machines with human-like qualities. This includes creating machines that have a wide range of human-like qualities, including as communication, perception, planning, reasoning, knowledge representation, object movement and manipulation, and learning. AI uses tools and techniques from a wide range of domains, including probability and statistics, symbolic computation, search and optimization, game theory, information engineering, mathematics, psychology, linguistics, and philosophy to tackle challenges.

**3. COMPONENTS OF ARTIFICIAL INTELLIGENCE**

- **Logic and Rules Based:** Computers make decisions based on a decision tree, logic rules, predefined process with calculated result.

- **Pattern bases (Machine Learning):** Computer learns overtime by using data and algorithms to detect patterns.
- **Deep Learning:** It is subset of machine learning that enable the computer to make decisions on its own
- **Neural Networks:** A neural network allows an AI to make its own conclusion. Where a simple pattern only based AI must rely solely on data. A neural network allows deep learning to function. (Singh, 2019)

#### 4. TYPES OF ARTIFICIAL INTELLIGENCE

- **Artificial Narrow Intelligence (ANI):** It is also known as weak AI involves applying Artificial Intelligent only to specific tasks now many currently existing systems that claim to use artificial intelligence are operating as a weak AI focused on a narrowly defined specific problem. For example, Alexa, Google maps, face verification in smartphones etc. As they operate within a limited range of pre-set functions, there is no real intelligence or no self-awareness despite it being a complex example of artificial narrow intelligence.
- **Artificial General Intelligence (AGI):** It is also known as strong AI, it involves machines that have the ability to perform any intellectual task that a human being can perform. Machines don't have human-like abilities. We have a strong processing unit that can perform high level arithmetic but they are not yet capable of thinking and reasoning like a human being.
- **Artificial Super Intelligence (ASI):** In this type of AI systems, machines are considered more intelligent than humans in almost every aspect. This is an imaginary scenario that may be possible, but given the current state of AI such machines are not around yet. (Shnurenko, 2020) ASI is seen as a hypothetical situation as depicted in movies and science fiction books where machines will take over the world.

#### 5. APPLICATION OF ARTIFICIAL INTELLIGENCE

- **Expert System:** In artificial intelligence, an expert system is a computer system which imitates the decision-making capability of a human expert. Expert systems are designed to resolve complex problems by reasoning through knowledge bodies, represented primarily as if-then rules rather than through conventional procedural code. Expert systems are the computer applications developed to solve complex problems in a domain, at the level of extraordinary human intelligence and expertise. (Vijayakumar & Sheshadri, 2019)
- **Natural Language processing (NLP):** This is the processing of human language by a computer program. One of the older and best-known examples of NLP is spam detection, which looks at the subject line and text of an email and decides if it's junk. Current approaches to NLP are based on machine learning. NLP tasks include text translation, sentiment analysis and speech recognition, information retrieval and information extraction. (Mogali, 2014)
- **Pattern Recognition:** Pattern Recognition (PR) is a process of developing a close connection between the new stimulus and previously-stored stimulus. PR is studied in various areas, which include Psychology, Cognitive Science, Ethnology, and Computer Science. It is based on prior knowledge of extracted information from the patterns. The patterns to be classified are usually groups of measurements or observations. The components of PR are data acquisition, preprocessing, feature extraction, model selection and training, and evaluation. (Gundakanal, 2019)
- **Robotics:** The field robotics is often described as the subfield of AI that is concerned with machines that move and act independently in the physical world with the purpose of automating physical tasks like those done by humans. Robots are programmable mechanical devices that can exert physical force in the world; they take input from sensors, reason internally about the input to determine actions, and then execute those actions. (Vijayakumar & Sheshadri, 2019)

#### 6. APPLICATION OF ARTIFICIAL INTELLIGENCE IN ACADEMIC LIBRARIES

It is important for any library to adapt new tools and techniques to serve their users better for their sustainability. The sources and services is being the major focus of a library, need to have great attention towards innovations to provide users what they have not expected. The field of Artificial intelligence in the area of library and information centers can't remain untouched. Following are some areas where the AI can be used potentially. (Arora, Bansal, Kumar, & Suri, 2020)

- **Expert Systems in Library Service** Expert System helps the librarian in realizing the need for an improvement in the library operations and services. A well programmed Expert System improves the quality of the operations and services. (Singh, 2019)

- a. Reference service is the leading activity of the library and the expert system will serve as an auxiliary for reference librarians and for locating reference resources and factual data REFSEARCH, POINTER, Online Reference Assistance (ORA), AMSWERMEN, PLEXUS all of these systems are considered as advisory systems.
  - b. We know cataloguing is considered one of the oldest library techniques. Many attempts have been made to automate cataloguing through expert systems have focused on descriptive cataloguing because it is based on AACR2 rule. Artificial Intelligence techniques in cataloguing can be apply in two ways: (a) Human-machine interfaces, where intellectual work is divided between the intermediary and the support system. (b) An expert system with full cataloguing capabilities associated with electronic publishing systems.
  - c. Classification is the primary activity of any library. Classification is a prominent system that organizes knowledge or resources in libraries and information centers. Coal SORT, EP-X, and BIOSIS are the application of expert systems in the field of library classification.
  - d. Indexing is another area of the library where expert systems can be implemented. Indexing a periodical involves identification of concepts, to translate the concepts into verbal descriptions, & selecting and assigning controlled vocabulary terms that are conceptually equivalent to verbal descriptions. (Vijayakumar & Sheshadri, 2019) The main purpose to automate the indexing system is to strengthen its uniformity and superiority. Based on the provided data by the indexer, the systems can reach appropriate terms. The systems can come to a conclusion based on the assumptions and can take necessary action. The 'Med Index' is the best example of the library indexing system. (Gundakanal, 2019)
  - e. Library users play an important role in the collection development of the library. The suggestions made by library users may help librarians to develop library resources, especially online resources. Many systems have been adopted by the library to acquire the resources. Monograph Selection Advisor, a pioneering effort in applying this emerging technology is another area in the collection development. Specifically, the task modelled is the item-by-item decision that a subject bibliographer makes in selecting a monographic. The requirement is that the knowledge base has to be broad enough and the interfacing aspect must be easy enough for the library to get the desired information from the machine. (Gundakanal, 2019)
- **Natural Language Processing in Library Services:** Natural Language Processing (NLP) is the ability to speak or write a complete sentence and have a machine process of requesting and speaking. NLP can be applied to the field of library and information science, specifically, to search databases such as the Online Public Access Catalogue (OPAC). Indexing which is the foundation of document retrieval, the purpose of the index is to improve the precision of retrieving parts of the relevant documents; and to reduce the proportion of recalls and retrieve related files. (Vijayakumar & Sheshadri, 2019)
  - **Pattern Recognition in the Library Services:** The information needs of users are increasing day by day and one of the major challenges which lie in front of knowledge managers is information retrieval from the ocean of the web. Several fundamental retrieval techniques such as voice recognition, speech recognition, segmentation, and automatic indexing are widely being used. Semantic Analysis of texts, machine learning, clustering, artificial neural networks is among the highly popular techniques. Artificial Intelligence analyses data from previous searches in many different ways and finds patterns that are based on patron usage. (Oname, 2020)
  - **Machine learning in Library Services:** Libraries procure, acquire, and process many resources. Library professionals create thousands of pieces of metadata to make it easy for users to search for acquired resources through the library database. In recent years every piece of information is born digital. Machine learning offers an array of potential mechanisms to assist libraries in creating metadata for digital resources. Machine learning allows cataloguing not only to increase the speed of metadata generation but also to expand the depth and extent of subject terms. (Gundakanal, 2019)
  - **Robotics in the Library Services:** The application of robotics in library activities is one of the current trends in the application of artificial intelligence in libraries. Tracing these books in libraries is laborious and often time consuming. Book shelving and retrieval robots are now being developed to undertake this task. Example is the enhanced robotic library system for off-site shelving which gains comprehensive access to printed materials on shelves, and retrieves books from the shelves to an off-site scanning station. The robotic system was designed to allow users gain comprehensive access to printed library materials, on demand that are off-site, through a web interface. The bookBot is a book-delivery system that

automatically retrieves books for users on demand through the library automated catalogue. (Oname, 2020)

- **Radio Frequency Identification (RFID) in Library Activities:** Libraries are embedding Radio Frequency Identification (RFID) tags into their collections. These tags in form of barcodes, contain unique identifying labels for each book in the library, and are used to quickly scan the library's collection using wireless, handheld RFID scanners/readers. Smart shelves containing several RFID antennas can automatically register when books are removed from their stacks or returned. This can be used for automatic shelving reading and generating reports for miss-shelved or missing books. (Oname, 2020)
- 7. **How Artificial Intelligence Can Benefit Academic Libraries:** Artificial Intelligence plays several roles in libraries and has the potential to transform the way they function. (Gujral & Shivarama, 2019) Some of the roles performed by AI in libraries are explained below-
  - **Decision Making Tool** - The AI system will process the circulation data of the library which will help in analyzing the important authors and publishers to the librarians which leads to decision making tool for the Librarian. The AI will not only suggest readers for books authored by the same author but also will help librarians to identify the books of the same author for further procurement at his end.
  - **Technical Services** - When the books are procured in the library, the AI system will help in automatically floating the data and details like vendor, purchase history, etc. Classification and cataloguing of the book will also be done by the AI system and details will be updated in the OPAC.
  - **Circulation Services** - The AI system can understand the users' need and behaviour and help in decision making in providing relevant and timely services. For example, if a user has issued no. of books, the AI system can suggest regarding sending reminders, calculation of fine, alert librarian regarding no further issuing, and if the books are lost, the system can also suggest the possible places from where purchase can be made.
  - **Information Services** - Understanding the reading habits of users library can develop AI systems which recommend relevant books and other documents such as journal articles, patents, standards, etc., accordingly and also analyse the highly read books in a subject through data mining in the library and can recommend to the readers interested in that subject. Conversational AI refers to the use of messaging apps, speech-based assistants and chatbots to automate communication and create personalized customer experiences at scale. A library can answer query through chatbots and serve its users better. This will be highly useful in reference services of the library.
  - **Better Understanding and Text Summarizing** - Here with the help of advanced artificial intelligent system large number of articles can be reads and understands which help users to recommend highly relevant information. Also AI not only can understand the text but can also summarize, so it will be helpful for librarians who can give summaries of large text in advance and if user is interested, he can provide the full text.
  - **Service for Visually Challenged People** - The 'Seeing AI' app of Microsoft, is a useful app for people who are vision impaired. In the library scenario, with AI capabilities around facial recognition the visually impaired can point their mobile, and can get information regarding signage displayed in the libraries such as entry-exit, books, periodicals, reference books, circulation counter, washrooms, silence zones, cafeteria, etc. (Arora, Bansal, Kumar, & Suri, 2020)

#### 8. SKILLS REQUIRED FOR LIBRARIANS ADOPTING ARTIFICIAL INTELLIGENCE

Nowadays with increased interest in ICT skill, which covers the active practice of Artificial Intelligence. Although most libraries might apply AI technology, librarians should not be totally dependent on technology. Librarians should carry on making their efforts to offer services to their users with the human touch.

An intelligent librarian should have the personal, interpersonal and technical skills. The technology skills include electronic communication, knowledge of hardware and software, core operating systems, Internet applications, content creation and development, computing and networking, security and server management, project preparation and management, framing policies, and technological training.

Artificial Intelligence will impact the way information can be accessed and analyzed. AI has already given insights for the library and information professionals that how the library users may search for the required

information. Librarians can come up with the points at which data could be transformed or delivered entirely in new ways. (Gundakanal, 2019)

## 9. CONCLUSION

The Collaboration between artificial intelligence and libraries can be a foremost step towards the future libraries. The relationship between libraries and AI goes beyond the application of AI for library functions. Academic librarians can learn how to effectively use artificial reference, circulation, classification, and indexing services to serve academic library patrons from other libraries and the field of education. Also, libraries could help create those community spaces where the patrons can interact with information safely and privately. Librarians should embrace these ideas and champion agent technology and artificial intelligence for the entire academic community. This has proved that applications of AI save time and money in almost all sectors and in libraries too. AI is here to stay, so the sooner the libraries include AI in their operations, the better the outcomes.

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**ENVIRONMENTAL FACTORS INFLUENCING CAREER DECISIONS OF STUDENTS IN MUMBAI****Ms. Taqdees Faruk Shaikh**

Research Scholar, Shri Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu, Rajasthan-333001

**ABSTRACT**

*This study attempts to explain the environmental factors influencing student's career choice in Mumbai. The study adopted a qualitative approach. While a total of 124 respondents were selected using simple random sampling, the research instrument was a structured questionnaire having both open and closed ended questions. In the present scenario when there is a major challenge of finding jobs and making a wise career choice the study provides insights on the influencing factors which impact the career choice of the students today. It was found that parents, the social environment and economic background had an influence on the student's career choices. Identifying these factors will assist academicians and industry experts to find the true motives of the students in selecting a career option and will steer the guidance in the right direction. The study recommended that there should be better effort put into counseling and guidance on career choice by the government, and that parents should endeavor to identify personal qualities in their ward and encourage them to pursue a career along that line. The academicians and industry encourage and prepare youth for more sustainable careers in the coming times.*

*Key words: Career, Environment, parents, students*

**INTRODUCTION**

Career choice has become a complex science with the advent of information technology, the new challenges in the pandemic and job competition. Various environmental factors influence on career choice. The complexity of career decision-making increases as age increases (Gati and Saka, 2001). External situations and internal individual dynamics shift (as they always have—but with greater complexity and speed) across the lifespan (Erikson, 1980; Hall 2002; Kegan, 1994), thus making sustainability an even greater challenge

Youngsters are more have a many answers and doubts of their ideal career which may represent their intended achievement and impressive perceptions about what they want to do when they step out of their academic years. Students today describe their career choice as a dynamic interplay of their developmental stages and the prevailing environmental circumstances (Howard and Walsh, 2011). Youth career decision-making is required to go through a process of understanding by defining what they want to do and exploring a variety of career options with the aid of guidance and planning (Porfeli and Lee, 2012). Proper handling of the process affirms individual identity and fosters wellbeing, job satisfaction and stability (Kunnen, 2013).

This study focus on the sources of advice that help shape career decisions According to Britannica (2002) defined that the environment is a complex physical factors that make up our surroundings and in turn act upon us. For the purpose of this study, environmental factor include the forces of family members, Peer group, political issues, social and economical issues that students may deal with daily basis who influence their opinion and decisions for future. Business factors coupled with several sociocultural changes have led to changing career preferences among young people in Sri Lanka. An individual's choice of career is likely to be influenced by several factors, including personal and cultural values, family background, career expectations, etc. Studies have been conducted in different cultural contexts to determine the range of factors that influenced students in making career choices (O'zbilgin et al., 2005; Kyriacou et al., 2002; Ozkale et al., 2004).

Career choice is a significant issue in the developmental live of youth because it is reported to be associated with positive as well as harmful psychological, physical and socio-economic inequalities that persist well beyond the youthful age into an individual's adult life (Robertson, 2014; Bubi'c and Ivanišević, 2016). Identifying these factors would give parents, educators, and industry an idea as to where students place most of their trust in the career selection process. It would also allow students to examine processes they use for career selection. The literature review has provided recommended models in career choices. The review of the literature showed that three areas of a student's life affect the career choices they make: environment, parents, and gender. All three played varying roles in career outcomes.

**LITERATURE REVIEW**

(Krueger et al. 2000) Concerning environmental or contextual factors (of cultural, social, political and economic nature) as determinants of career choice, only a few aspects have been scrutinised to date. The most relevant influence seems to be the perceived social pressure from family, friends or significant other „people of reference. Smithson (1999) suggests that young people's occupational choices are influenced by the way in

which they prioritize their work and family roles and that they tend to place a high value on both work and family rather than on one or the other. (Agarwala, 2008) Observed 'father' as the most significant individual influencing the career choice of Indian management students. Moreover, his study also exposed the importance of (culture) collectivism and its impact on career selection. (Salami & Aremu, 2007) Family influences are proposed to play a significant role in career decisions of adolescents in collectivist societies. With this in mind, Salami and Aremu (2007) explored the role of parental attachment and separation with career indecision, career information seeking behavior, prediction of satisfaction with career exploration experience of adolescents in 242 senior secondary school students in Nigeria. (Kapur, 2018) Career decision-making is not something that occurs only one time in a person's life but, rather, it is a continuous process that may take place at any age. . Parents feature prominently both as sources of advice and as motivators (Granger et al., 2007; Huang et al., 2008; Myburgh, 2005; Rettenmayer et al., 2007; Sheard et al., 2008; Zhang, 2007). In addition, friends, teachers and counselors are employed to give a career advice but the rate is low in terms of how important their advice is. Rettenmayer et al. (2007) found that guidance high school teachers and counselors were ranked lowest of all sources of advice. Other people believe that our family and socio economic background really matter when it comes to making our careers (Stebbleton, 2007). The first factor in choosing a career is the environment factors that influence students' career choice. Students tend to choose career that is directly linked to the surrounding environment and try as much as possible to solve the existing challenges in the surrounding (Splaver (2011). For example, students who have lived their entire lives on an island will most likely choose a career dealing with the environment around them which is mostly to do with water, or alternatively choose to have nothing to do with the island, on no occasion to have anything to do with the environment around water again (Perrone, 2011).

## OBJECTIVES

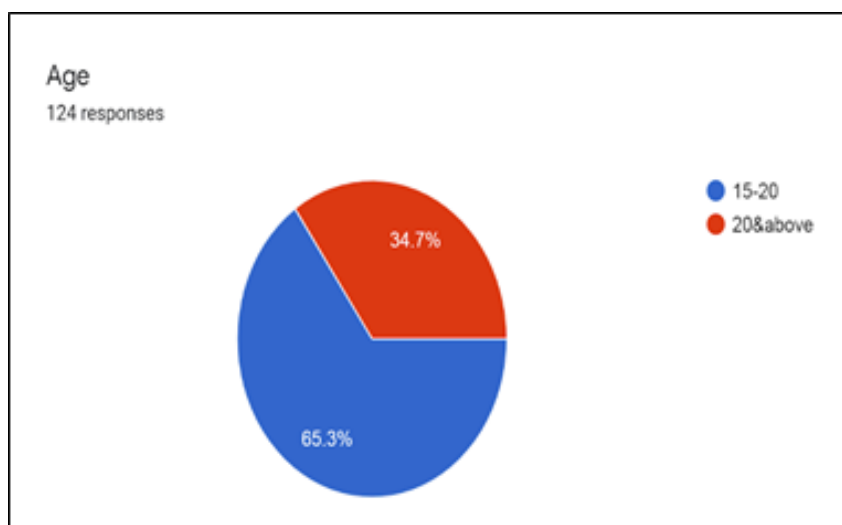
- To explore the environmental factors which influence student's career choice
- To discover the role of parents in the choice of career of students.
- To explore the cultural factors that influence student's choice of career.
- To recommend mechanisms which can enable the students to make better career choices in the present times

## RESEARCH METHODOLOGY

- The study is based on secondary sources of data information collected from Different Newspaper, books and relevant websites in order to make the study more effective.
- Primary data is collected through well- structured questionnaire.
- Samples of 124 respondents in the area of Mumbai have been selected by using random sampling method.

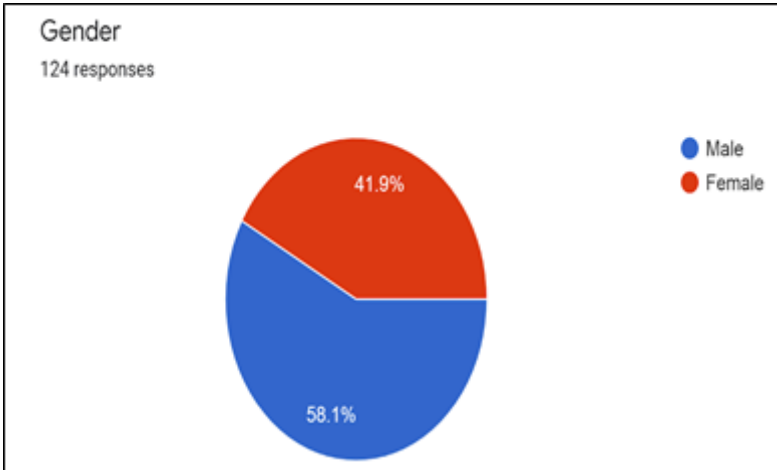
## DATA ANALYSIS, INTERPRETATION AND DISCUSSION

### 4.2 Demographic Profile of Respondents

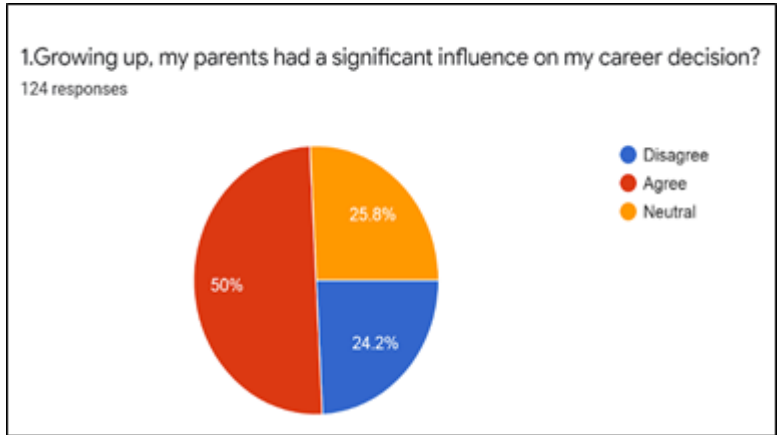


From this Questionnaire we came to find out age group who have filled the forms, so we can see that the majority of responses have been received from age group in blue i.e. between 15-20.

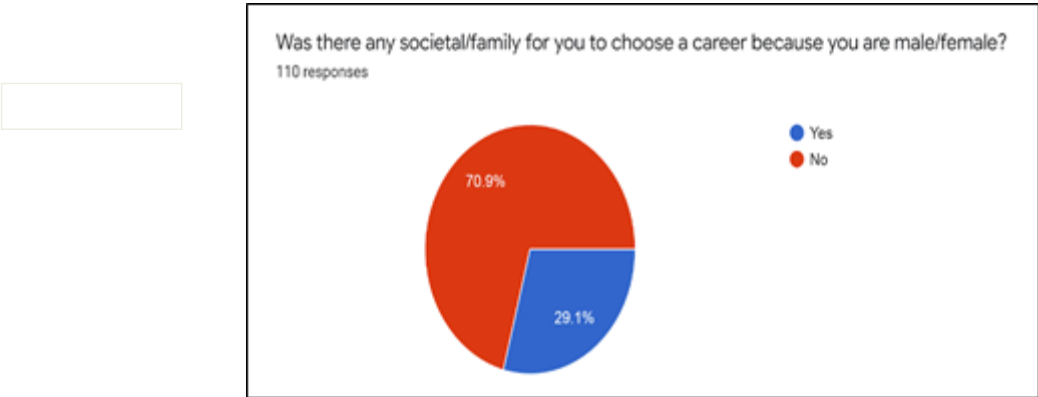




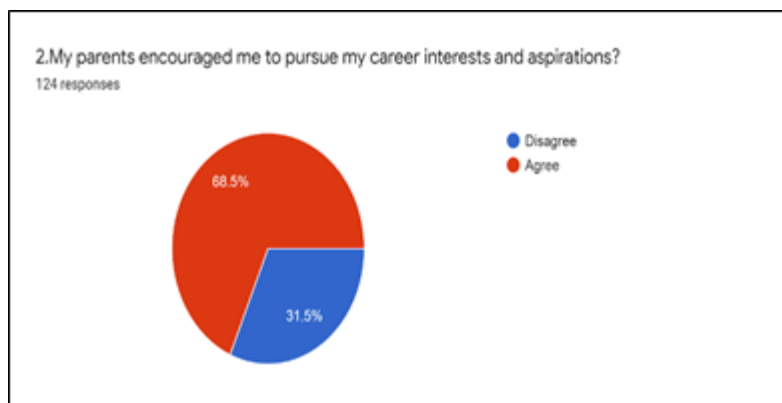
In response to this question we came to know that response on base of gender, so we figure out that male response was more than the response received from female i.e 58.1% Male & 41.9% female



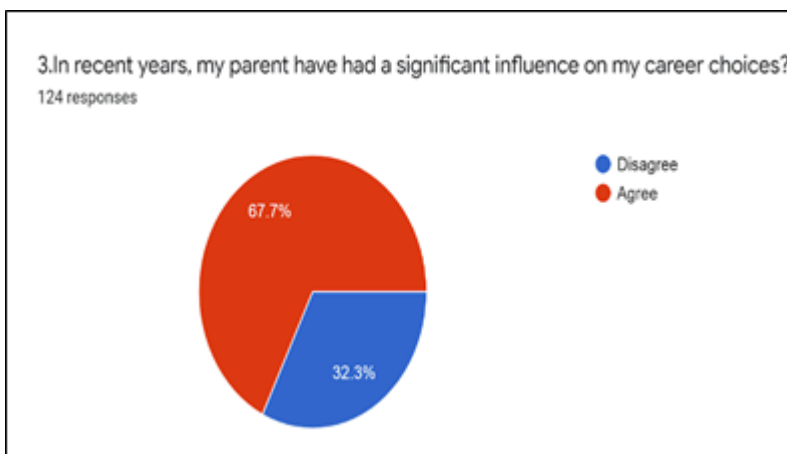
In response 50% of the students said that parents had a significant influence on their career choices. 25.8% students said that their responses was neutral & 24.2% students said that they were disagree with question as parents had a significant influence on career choices and parents allow them to take decision on their own choice. This response shows that parents have a role to play in the life of the youth today when he decides on his career. Asian American students with stronger adherence to Asian values had a high sense of obligation to parents (Polenova et al., 2018) and were more likely to perceive family support than their counterparts who were more acculturated to American values (Hui and Lent, 2018).



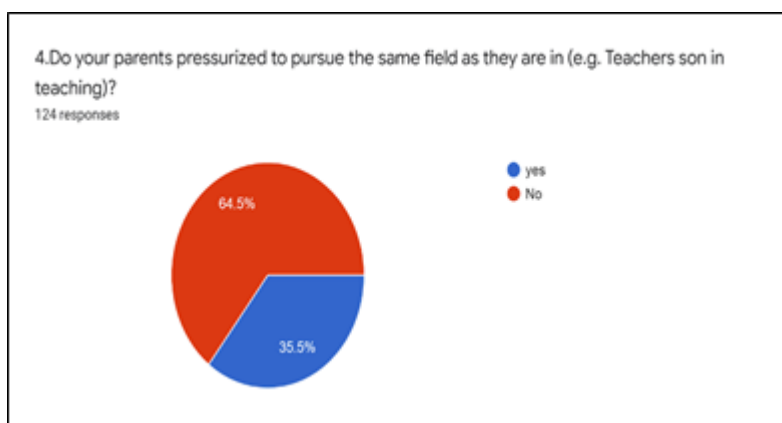
The above information 70.9% students believes that societal and family pressure to choose career for male and female where as 29.1% doesn't believe that .As per data family has major role to help in career choice of the students. Females appear to value advice more than male students (Zhang, 2007) with general reports saying that there is a contradiction between what students say (that advisors are important influences in their decisions regarding courses and careers) and the actual situation, as in fact career choice is not directly influenced by this advice (Sheard et al., 2008).



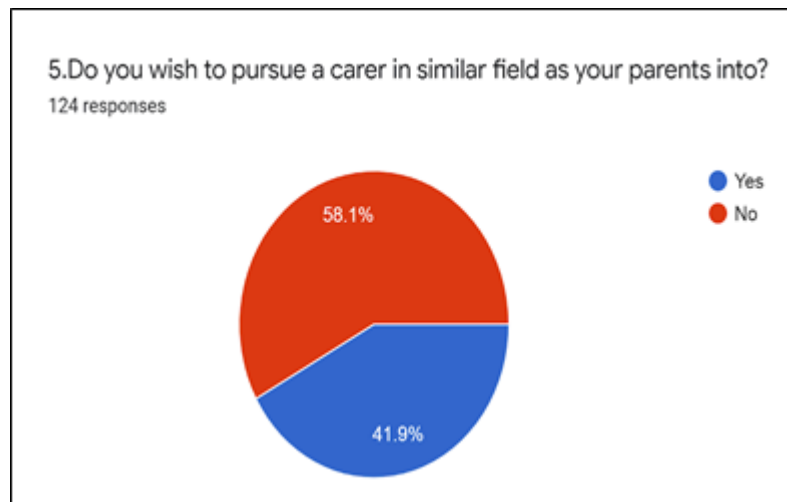
In response 68.5% of student responded that their parents encouraged them to pursue career in their interest and aspiration. On other hand 31.5% were disagree and informed that parents didn't encouraged them to pursue career in their interest and aspiration. (Natalie, 2006), research suggests that adolescents' own aspirations are influenced by their parents' aspirations or expectations. Parental support and encouragement are important factors that have been found to influence career choice.



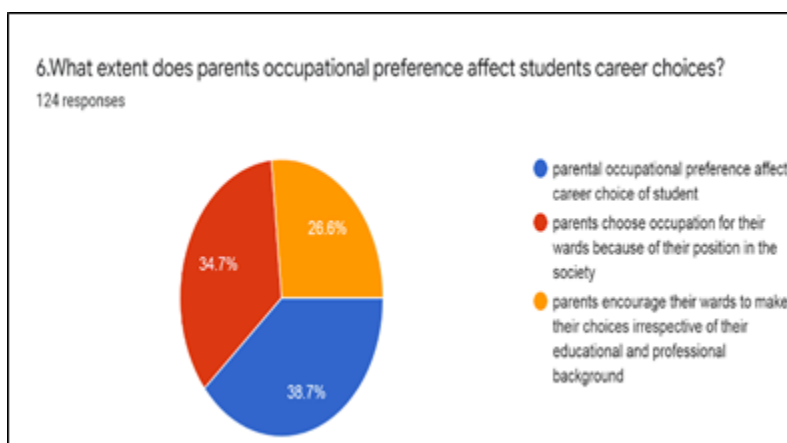
From this question we came to know that 67.7% of student confirm that their parents had a significant influence on their career choice. On other hand 32.3% informed that they were disagree from the question that parent had a significant influence in their career choice. Numerous studies. (Knowles, 1998; Marjoribanks, 1997; Mau & Bikos, 2000; Smith, 1991; Wilson and Wilson, 1992) have found that college students and young adults cite parents as an important influence on their choice of career.



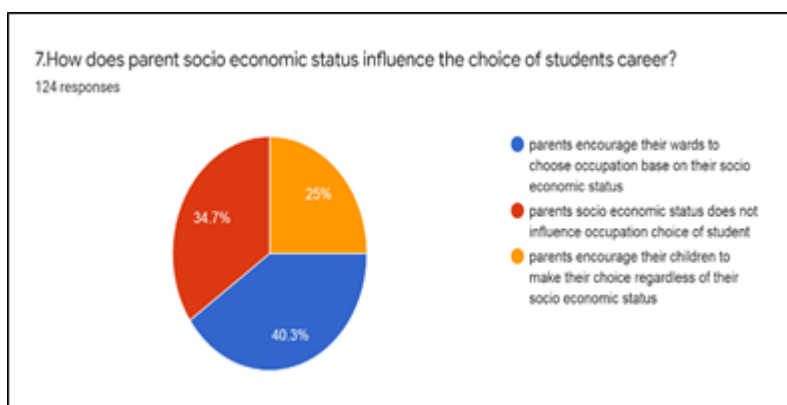
In response 64.5% student said that their parents didn't pressurized them to pursue to choose same field as they parents. On other hand 35.5% said parents pressurized them to pursue to choose same field in which they are. In the present scenario parents provide autonomy to their wards for choosing the career of their choice. The new Gen Z believe in opting for careers that provide them the opportunity to be creative and challenge their limitations, also they seek opportunities where they get a chance to explore places. (Kirchmayer, 2017) Generation Z expect their jobs to yield internal satisfaction and consider reward a strong factor of both job retention and work satisfaction



In response 41.9% student said that they want to pursue career in similar field of their parents. On other hand 58.1% said they don't want to pursue career in similar field of their parents. With globalization and non conventional fields gaining importance students wish to explore career paths which are new and provide them opportunities to stay competitive hence students were seen not very keen on pursuing the profession of their parents another reason could be their observations w.r.t the challenges faced by their parents while pursuing their careers.

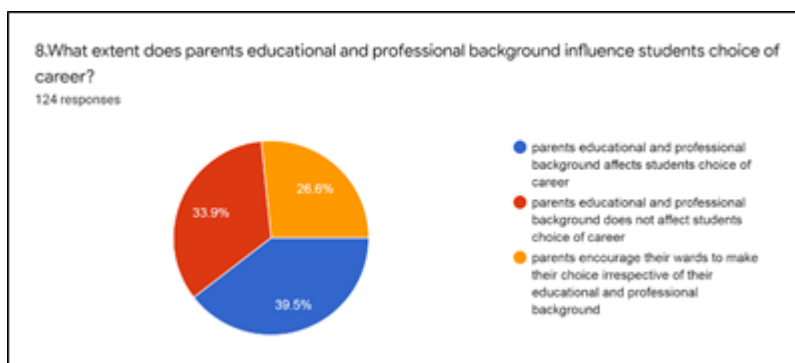


In response we came to know that 38.7% students said that parental occupational preference affect career choice of student whereas 34.7% student said parents choose occupation for their wards because of their position in the society & 26.6% parents encourage their wards to make their choices irrespective of their educational and professional background. Parents' career aspirations aid children in selecting occupational goals, influence their knowledge of occupations, and familiarize them with occupational roles and requirements (Hairston, 2000)

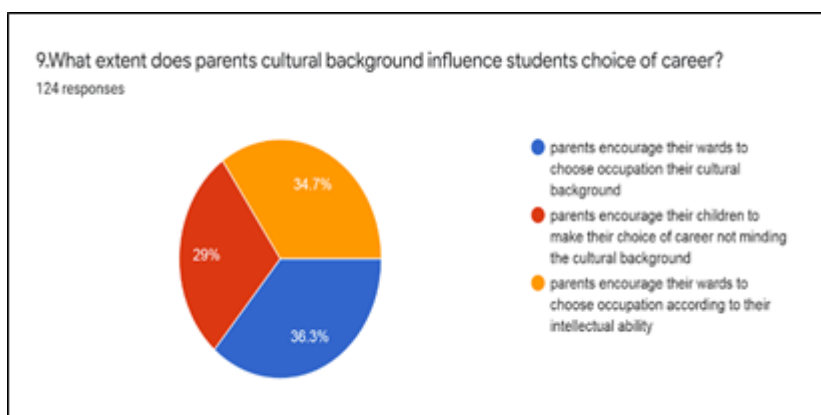


In response 40.3% students said parents encourage their wards to choose occupation base on their socio-economic status where 34.7% said parents socio-economic status does not influence occupation choice of student & 25% said parents encourage their children to make their choice regardless of their socio-economic status. Goldrick-Rab (2006) argued that there is a significant difference in college attendance among students

with low and high socioeconomic backgrounds. The study found that students with low socioeconomic backgrounds found delayed university admissions, interrupted university attendance, university transfer trends, and two- to four-year schooling. Students who get more financial resources from their families are less likely to postpone enrollment and have fewer interruptions in attendance.



In response 39.5% students said that parents educational and professional background affects students choice of career where 33.9% said parents educational and professional background does not affects students choice of career & 26.6% said parents encourage their wards to make their choice irrespective of their educational and professional background. The education level of parents determines their children educational success and also parental cultural capital strongly associated with the selection of specific career selection for their children (Goyette, 2008). It is also observed that the parent's occupational fields are strongly associated with their children major subjects' selection process at tertiary level education (Dustmann, 2004). Parents' profession influences career choice as children from agricultural backgrounds tend to take on their parents' job, while those from industrialized settings have more autonomy and career decidedness (Howard et al., 2009).



In response 36.3% parents encourage their wards to choose occupation their cultural background where 29% parents encourage their children to make their choice of career not minding the cultural background & 34.7% said parents encourage their wards to choose occupation according to their intellectual ability. Studies have shown that cultural values have an impact on the factors that influence the career choices of youths (Mau, 2000; Caldera et al., 2003; Wambu et al., 2017; Hui and Lent, 2018; Tao et al., 2018).

## RECOMMENDATION AND CONCLUSION

From the above findings it is evident that the environment in which an individual resides has a significant influence on his/her career choice. Career management today is an important function which ensures retention of fresh graduates in organizations as part of career planning and succession planning. This is a key part of Human Resource Management; however, it has become imperative for young people to start preparing themselves for their life long careers while still at college (Nor Harlinda Binti Harun 2006). The higher education institution should have career guidance centers to assist students from their first semester until they graduated on career decision making. To develop excellent human resource for an organization, millennial talents ought to be motivated and encouraged to nourish their employability through advanced learning opportunities, Hossain and Siddique, (2012). Borchert (2002) asserts that on-the-job experience early in one's tenure plays a significant role in the development of affective commitment.

The study also significantly points out the influence of parents on the career choices of students. The parent's opinion, culture, financial background and education was found to influence most of the respondents in making a career decision.

With maximum students being influenced by parents and the social environment the academicians and industry people need to step in and provide the much needed guidance to the students during their early academic years to make a career choice which will enable them to get a sustainable growth and help them fulfill their aspirations. This sustainability in the student's career can be bought through some vital initiatives of continuous feedback and mentoring to the parents and students on upcoming career options, internships and on job learning will bridge the skills gap for future, upgrading their skills through various open forum discussions and workshops which will make them more competitive in the job hunt. Moreover encouraging entrepreneurship will be key to sustainability of the youth in today's dynamic environment.

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**IMPACT OF COVID-19 PANDEMIC ON THE MICROFINANCE SECTOR IN INDIA**

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**Prof Tushar Shah**

Chandrabhan Sharma College of Commerce

**ABSTRACT**

*Microfinance in India plays a major role in the development of India. It act as an anti-poverty vaccine for the people living in rural areas. It aims at assisting communities of the economically excluded to achieve greater level of asset creation and income security at the household and community level*

*The pandemic and its multi-pronged effects are no more a secret topic for any country around the globe. This research focuses on COVID-19 effect on microfinance sector in India.*

*The microfinance institutions appear to have survived the first impact of the pandemic relatively well, although some had to make significant adjustments to their internal operations and make some difficult decision, like reducing their lending activities at the time when liquidity was most needed by the borrowers or reducing salaries for their employees. The clients, on the other hand, do not appear to have fared equally well. Many micro- and small businesses have been forced to close which consequently reduced their ability to earn revenue. They were also subject to the indirect impacts from the disrupted supply chains and often inconsistent and insufficient public support during the pandemic. Only a small percentage of clients report improved revenue during the crisis.*

*The paper ends with a set of other specific recommendations for various stakeholders which would help the MFI clients to stabilize and return to normality and help MFIs to strengthen their capacity to respond more effectively to a systemic crisis like the COVID-19 pandemic.*

**1. INTRODUCTION**

Medical experts brought in an effective solution to contain this pandemic; that is voluntary Social Distancing further leading to complete Lock Down where situation is beyond self-discipline. Microfinance sector also got hit by this pandemic and is facing another big crisis after 2010 AP amendment bill and 2016's demonetization. Small and micro loans serve large segment of population running small and micro enterprises mostly in unorganized livelihood domains. These financial institutions play a key role between commercial lending institutions ready to take moderate risk for better returns and clients who are in need of non-collateralized loans to finance their livelihood activity.

Latest report published by MFIN, shows that as on the sector caters 3.22 crore clients with gross loan portfolio of Rs. 74,371 crore. This converts to average loan amount of Rs 22,000 plus for all active accounts, which shows 6% YoY increase. The sector holds a strong position, when it comes to return on investment in monetary and social returns. The amount of money deployed in this industry reaches out huge number of customers, with sustainable and traceable livelihood options and making it more impactful for social scientists and for financial investors. The reports also mention that the industry received Rs. 42,140 crore as debt and Rs. 16,140 crore as equity which is 33% higher (respectively under both categories) than previous year, showing increase in demand of loans and increase in trust from lenders. Microfinance industry works on a crude principle of 'Close Contact, Trust and Financing Sustainable Livelihoods'. On one hand it fuels micro and small enterprises; while on other hand generates employment opportunities in unorganized and organized sector. It is estimated that even during pandemic this sector employs more than 2 lakh individuals working at field level, organizing virtual meeting with clients and resolving their queries related to business sustainability, finances, convergence of government support and even personal health management related to COVID-19. Other than internal employment, the sector gives employment and entrepreneurial opportunity to almost all those who take loan i.e. 3.22 crore individuals. In other words each income generating loan given is for changing the life of all family members, an average of five.

Complete lockdown brought halt to almost every business, but worst affected were those with small or no reserves and operate in high liquid model. Most micro and small businesses are impacted except the ones engaged in activities coming under essential goods and services as announced by government from time to time.

Diminishing earning capacity of MFI clients is now becoming threat to MFI existence, although government is trying to smooth out its operations through rescheduling of loans. MFIs have their own debt obligations and liquidity needs; post pandemic scenario is certainly going to put pressure on sector with surge in demand for more income generating loans and more gestation period. The scenario is building for new mergers and acquisition in the sector with lots of financial restructuring.

Affected cash flows of business enterprises in turn affected their microfinance service providers and hence the commercial banks at higher level. Unemployment in unorganized sector surpassed all levels till date, affecting migrants in big cities, enterprise owners in cities and towns, rural entrepreneurs and semi/skilled labour all across the MSME ecosystem. Microfinance providers are expected to face serious liquidity crunch during COVID-19, gap between revenue and operational expenditures are increasing with depleting reserves. This shrinking liquidity may not create problem for large MFIs or those with strong stable backup, but is sufficient to haunt small and mid-size MFIs. MFIs with stable financing, well-established technology platforms and strong hold on communities have higher probability to survive during and after this pandemic. Criticality of microfinance operations is not limited to this sector only; slowly it will start effecting large financiers of these MFIs including commercial banks (private and public), donors and investors.

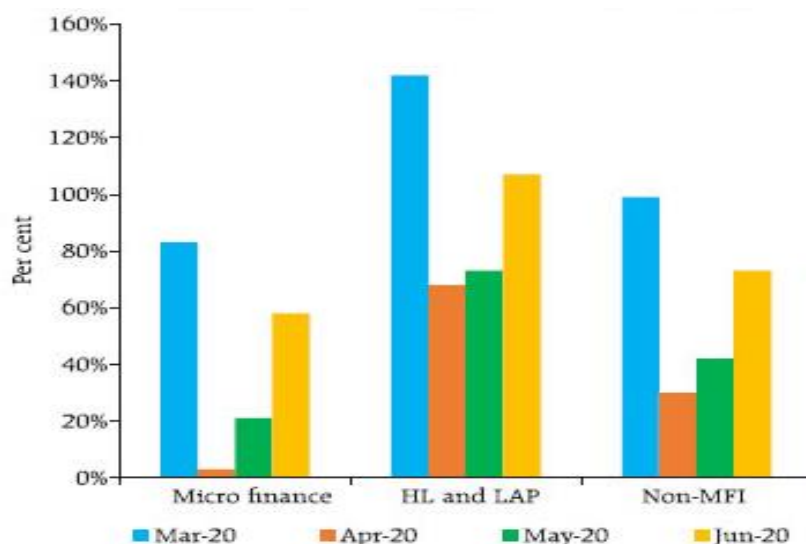
Reserve Bank of India, being a regulator of financial sector announced various steps to limit macro effect of pandemic on overall financial system of country, including increase of moratorium period for loans, part rebate of interest rate, special package etc; but most of these announcements from RBI are focussed on commercial banks and remained vague for MFIs and its customers in particular.

## 2. COVID-19 AND MICROFINANCE: A INDIAN PERSPECTIVE

The inherent specialized nature of NBFC-MFIs' loan portfolio, which is largely unsecured, makes them particularly vulnerable to systemic risks posed by COVID-19. In comparison, other microfinance players have relatively more diversified portfolios and have access to low cost deposits, market financing and lender of last resort (LOLR) facility of the Reserve Bank.

The hit to the labor market has been particularly acute for low-skilled workers who do not have the option of working from home. Income losses also appear to have been uneven across genders, with women among lower-income groups bearing a larger brunt of the impact (IMF, 2020). Small traders, hawkers and daily wage laborers who constitute a large chunk of microfinance borrowers were the worst hit by the lockdown in April 2020. This category of employment accounted for about 32 per cent of the total employment but it suffered 75 per cent of the hit in April 2020. However, with gradual lifting of lockdowns the employment situation improved in the succeeding months, with overall unemployment rate recovering from 26.19 per cent on April 19, 2020 to 8.13 per cent on August 30, 2020

Credit costs for MFIs are expected to rise. Further, credit discipline may get impacted by disruption to MFI operations. Although MFIs have moved towards cashless disbursements over the years, loan collections are still cash intensive and are, therefore, prone to disruptions in collection infrastructure. Also, in view of difficulty in making loan repayments, a significant proportion of microfinance borrowers have availed loan moratorium. Against this backdrop, recent evidence points to a precipitous fall in collection efficiency of microfinance securitization pools. The collection efficiency first fell to 83 per cent in March 2020 and then moved sharply to a low of 3 per cent in April 2020 before recovering to 21 per cent in May 2020 and 58 per cent in June 2020. As compared to microfinance pools, other securitization pools (HL- housing loans, LAP- loans against property, Non-MFI- commercial vehicle loans, gold loans, personal loans etc.) fared better where the drop in collection efficiency was less pronounced.



Source: ICRA structured finance ratings- July & August 2020.

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**CONCLUSION**

COVID-19 event is perhaps the biggest tail risk event in a long time. Owing to the disruptions in supply chain and business operations, the likelihood of loss of livelihoods and consequent drop in household incomes is high. NBFC-MFIs, being specialized institutions extending collateral free loans to low-income groups, are particularly exposed to credit risks in this scenario. Further, repayment rates have dropped significantly, posing liquidity risks. Smaller NBFCs-MFIs are particularly vulnerable to credit rating downgrades, which may hamper their ability to raise fresh capital and access liquidity.

At the cusp of the transition to the new decade, the microfinance sector is perhaps experiencing a déjà vu moment. COVID-19 is expected to afflict the microfinance sector with financial risks in the near term. However, it may also incentivize digitization. Efforts to migrate loan collections to digital platforms may greatly improve operational efficiency and help in minimizing event-based disruptions. Further, data analytics may be leveraged for predicting portfolio behavior, building risk models and designing customer centric products. At this juncture, when the risk of spread of misinformation is high, it is important that credit discipline be maintained. Increasing engagement with borrowers through virtual/telephonic means and sensitizing staff on fair practices code would go a long way in restoring confidence in borrowers and rebooting the credit cycle. Further, responsible lending practices need to be adopted to ensure that loan amounts are commensurate with borrower's ability to repay and that there are no instances of multiple/over-lending. As past events have demonstrated, portfolio diversification across geographies is essential due to recurring localized disruptions, which impact MFI operations. Further, NBFC-MFIs, especially smaller ones, need to diversify their sources of funds for sustaining healthy portfolio growth. Going forward, building capital buffers and managing liquidity would be crucial for MFIs in fortifying their balance sheets against COVID-19 led disruptions. In this milieu, it is imperative that the microfinance sector utilize past lessons and work towards transforming the pandemic into new possibilities.

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**A COMPARISON BETWEEN MUTUAL FUNDS & OTHER INVESTMENT OPTIONS**

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**ABSTRACT**

*This paper focus on the entire journey of mutual fund industry in India. Mutual fund industry in India has developed rapidly and gained a lot of popularity from the past couple of decade, especially after incorporation of Unit Trust of India in 1964. One of the most frequently addressed topics in the current literature is Investor's perception and preferences about various mutual funds schemes and the factors which influences different class of investors to invest in mutual funds.*

*A mutual fund, also called an investment company, is an investment vehicle which pools the money of many investors. The fund's manager uses the money collected to purchase securities such as stocks and bonds. The securities purchased are referred to as the fund's portfolio. Study reveals, safety, past return and liquidity are the most influencing factors in inducing most of the investors to opt for the mutual fund schemes.*

*Key words: Mutual funds, financial market, savings, investments*

**INTRODUCTION**

A Mutual Fund is promoted by a sponsor and run by a trust that pools the savings of a number of retail investors who share a common financial goal. The money collected by selling units of mutual funds is invested by the fund manager in different types of securities depending according to the objective of the scheme. These could range from shares to debentures to money market instruments. From its inception the growth of Indian mutual funds industry was very slow and it took really long years to evolve the modern day mutual funds. Primary motive behind mutual fund investments is to deliver a form of diversified investment solution. Over the years the idea developed and people received more and more choices of diversified investment portfolio through the mutual funds. The credit goes to unit trust of India (UTI) for introducing the first mutual fund in India. Recent years, Indian money and capital market has shown tremendous growth and expanded its reach to wider geographical limits.

**LITERATURE REVIEW**

**Jensen Michael (1968)** developed a composite portfolio evaluation technique concerning risk-adjusted returns. He evaluated the ability of 115 fund managers in selecting securities during the period 1945-66. Analysis of net returns indicated that, 39 funds had above average returns, while 76 funds yielded abnormally poor returns. Using gross returns, 48 funds showed above average results and 67 funds below average results. Jensen concluded that, there was very little evidence that funds were able to perform significantly better than expected as fund managers were not able to forecast securities price movements.

**Nalini Prava Tripathy (1996)** concluded that the Indian capital market has been increasing tremendously during last few years. With the reforms of economy, reforms of industrial policy, reforms of public sector and reforms of financial sector, the economy has been opened up and many developments have been taking place in the Indian money market and capital market.

**M. Vijay Anand (2000)** focused on the schemes of Birla Sunlife and the competitor's schemes available in the market. Author studied the analysis of Performance of Equity fund for 3 years and SWOT Analysis of Birla Sunlife by Literature survey and Delphi technique. In depth financial review the author identifies among the selected equity funds that earns higher returns than benchmark and competitors and concluded that Birla Sunlife performs well compared to the benchmarks and competitors.

**Gupta & Agarwal (2009)** found very little research on the construction of best mutual fund portfolio. Their objective of the research was to construct the best portfolio using cluster method, taking industry concentration as a variable and compares the performance of two types of portfolios with selected benchmarks. Results are found to be encouraging, as far as risk mitigation is concerned. The results expected to help in the construction of best portfolio of mutual funds.

**OBJECTIVE OF THE STUDY**

- To explore the preferred investment avenue
- To determine the investor's preference for different investment schemes.
- To study on recent trends of mutual fund investments in India

**DATA SOURCES**

Secondary data were collected from text books, references books, Annual reports and periodicals.

When it comes to saving or investing money, most Indians prefer traditional options such as fixed deposits (FDs), Public Provident Fund (PPF) or gold.

These avenues are well-known for capital preservation and stable returns. However, mutual funds are a good alternative for short-term as well as long-term returns. Let's see how:

- Mutual funds vs Fixed deposits**

Fixed Deposits	Debt mutual funds
2 reasons for investing in FDs: 1) Capital preservation 2) Good returns	Debt mutual funds offer similar benefits to investors
Constant returns	Returns can vary but they help to beat inflation
Less liquid: you cannot exit an FD any time you wish	Highly liquid. You can exit a debt fund any time you wish

Capital preservation and regular returns: two of the biggest reasons why people put their money in FDs. Debt mutual funds offer similar benefits to the investor.

- Mutual funds vs Public Provident Fund**

As the year draws to a close, many investors start looking for tax-saving investment options like PPF. Equity Linked Saving schemes (ELSS) offer the same benefit to investors. Under Section 80C of the Income Tax act, you can claim a maximum deduction of up to Rs 1.5 lakh

Public Provident Fund	ELSS mutual funds
Minimum lock in period is 15 years	ELSS has a 3 year lock in period
Offers low-risk steady returns	Returns linked to equity market: So market exposure is higher but possible to earn higher returns
Minimum investment: Rs 500 per year	Minimum investment: Rs 500
Maximum investment: Rs 1.5 lakh	Maximum investment: No limit

- Mutual funds vs Gold**

The allure of gold has captivated Indians for centuries. Every family buys and invests in the yellow metal in the form of jewellery and gold coins. However, gold Exchange Traded Funds (ETFs) are a good alternative to physical gold.

Gold	Gold ETFs
Pricing is not uniform. It varies from one jeweller to another	Pricing and transaction of gold ETFs are completely transparent
Making charges (20-30%) form a significant expense	Brokerage charges (around 0.5%) and expense ratio (1%) are much lower
Safety issues: loss or theft of physical gold is possible	No danger of theft since they are traded in demat form
Tough to liquidate physical gold for cash in short time	Easy to sell gold ETFs when required

- Mutual Funds vs Real Estate**

Mutual funds vs real estate has been one of the most widely debated subjects in the realm of personal finance. While mutual funds have gained traction of late, real estate for long has been viewed as a safe and prudent investment option.

Parameters	Mutual Funds	Real Estate
Ease of investment	Quite easy. Once you are KYC-compliant, you can invest in mutual funds of your choice.	The emergence of property portals has made investments in real estate easy. However, there are many legal nitty-gritty that you need to take care of.
Liquidity	Highly liquid. You can easily redeem when required.	A non-liquid asset. Money invested in real estate can't be easily converted into cash.
Risks	Investments in mutual funds are subject to market risks. Returns vary depending on the type of fund and market performance.	You need to ensure that the builder has followed all the compliance and the papers are in place. If not, there could be legal trouble.
Returns	Returns are not fixed and depend on various internal and external factors. However, in the long run, returns are positive and can even be in double digits.	Though returns are not fixed, investment in a property well-researched with all the amenities generally fetches good returns in the long term.

#### • Mutual Funds vs Direct Equity

As an asset class, equity has the potential to deliver inflation-indexed returns in the long term. There are two ways to do so, investing directly through stocks or opting for mutual funds. We have compared mutual funds vs direct equity investment on parameters such as ease of investment, knowledge required, and risks involved among others.

Parameters	Mutual Funds	Direct Equity
Ease of investment	Pretty straightforward. All you need to be is KYC-compliant and you can invest in mutual funds of your choice.	You need a Demat account and need to opt for the services of a stockbroker. The stockbroker can either charge a flat fee or a certain percentage for every transaction.
Knowledge required	If you are opting for direct plans of mutual funds, you need to know about the markets. On the other hand, for regular plans, there are professional fund managers to take care of your investments.	If you are using the services of a traditional broker, you can expect professional guidance. On the other hand, for discount brokers, you need to do your research and analysis.
Risks and returns	Returns are not fixed and being market-linked the quantum of risk is high. However, mutual funds provide diversification that brings down the overall risks, and with systematic investment plans (SIPs), the risk is further spread out.  With a long-term view, you can expect decent returns.	Involves high levels of risks and unlike mutual funds, your investments are not diversified. Go for it if you have a high-risk appetite.  If you have invested in a fundamentally-sound stock, you can expect good returns from it.

#### • Mutual Funds vs Bank Deposits

Bank deposits for long have been seen as a safe investment avenue by majority of investors. We have compared mutual funds and bank deposits on parameters such as returns, risks and liquidity, among others that will help you make an informed choice.

Parameters	Mutual Funds	Bank Deposits
Returns	Returns aren't fixed. However, returns are higher compared to bank deposits in the long run.	Returns are assured but quite low. Of late, they have plummeted, and there are chances of them going down further.
Risks	Performance of mutual funds is subject to various systematic and unsystematic risks.	They are latent to market risks and the vagaries of the stock market.
Liquidity	You can easily redeem your mutual fund and the money is credited into your bank account the next day.	If you have invested in a tax-saving bank deposit, you can't withdraw before the tenure ends. For regular deposits, you can withdraw after paying a certain penalty.

### CONCLUSION

While most Indians still prefer the traditional investment avenues, the scenario is slowly changing. Over the past few years, the mutual fund industry has gained traction in the country. The organization tries its level best to satisfy their customers by providing prompt services. The investors today are more sophisticated more selective and more demanding than ever before. Hence understanding the customer requirements can help the organization to survive and sustains and through in the long run.

The reason is simple: there are a variety of mutual funds in the market that can help you reach your financial goals.

Open a Demat account with us and start your investment journey today!

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## INDIAN PRIMARY MARKET &amp; SECONDARY MARKET AFTER COVID -19

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**EXECUTIVE SUMMARY****PRIMARY MARKET**

*In a primary market, securities are created for the first time for investors to purchase. New securities are issued in this market through a stock exchange, enabling the government as well as companies to raise capital.*

*For a transaction taking place in this market, there are three entities involved. It would include a company, investors, and an underwriter. A company issues security in a primary market as an initial public offering (IPO), and the sale price of such new issue is determined by a concerned underwriter, which may or may not be a financial institution. An underwriter also facilitates and monitors the new issue offering. Investors purchase the newly issued securities in the primary market. Such a market is regulated by the Securities and Exchange Board of India (SEBI).*

*The entity which issues securities may be looking to expand its operations, fund other business targets or increase its physical presence among others.*

**SECONDARY MARKET**

The **secondary market**, also called the **aftermarket** and **follow on public offering**, is the financial market in which previously issued financial instruments such as stock.

In the secondary market, securities are sold by and transferred from one investor or speculator to another. It is therefore important that the secondary market be highly liquid (originally, the only way to create this liquidity was for investors and speculators to meet at a fixed place regularly; this is how stock exchanges originated, see History of the Stock Exchange). As a general rule, the greater the number of investors that participate in a given marketplace, and the greater the centralization of that marketplace, the more liquid the market.

Fundamentally, secondary markets mesh the investor's preference for liquidity (*i.e.*, the investor's desire not to tie up his or her money for a long period of time, in case the investor needs it to deal with unforeseen circumstances) with the capital user's preference to be able to use the capital for an extended period of time.

**OBJECTIVE OF STUDY:**

1. To Study Number of Companies Made Public Issue.
2. To Study due to Pandemic Situation there was increase in demand for Information Technology, many Startup company went for public Issue.
3. To Study the reason of Companies making Public Issue.
4. To Study Profit or Loss on Listing of Companies on BSE or NSE
5. To Study increase in Retail Investment in Secondary market

**RESEARCH METHODOLOGY:**

The study is based on an extensive secondary research. Many news articles, websites and government websites.

**DATA ANALYSIS**

The List of Some Companies made Public issue during 2020 – 2021 & Change of Price from Issue price is given bellow:

No	Company Name	Date of Issue	Industry	Issue Price	Listing Price	% of Earning / Loss	Reason for Public Issue
01	DEVYANI International Ltdy	4 <sup>th</sup> Aug – 6 <sup>th</sup> Aug 2021	FMCG	86 – 90	141	56.666% Profit on Listing	Reduction in Borrowings & Corporate Purpose
02	EXXARO Tiles Ltd	4 <sup>th</sup> – 6 <sup>th</sup> Aug	Ceramics	118 – 120	126	5% Profit on Listing	Reduction in Borrowings,

		2021					Funding Working capital & Corporate Purpose
03	ROLEX Rings LTD	28 <sup>th</sup> – 30 <sup>th</sup> July 2021	Bearing	880 – 900	1,249	<b>38.77% Profit on Listing</b>	Funding Long term Working capital & Corporate Purpose
04	Glen Mark Life Science	27 – 29 <sup>th</sup> July 2021	Healthcare	695 – 720	751.10	4.31 % Profit on Listing	Funding Capital Expenditure, Payment of Outstanding Purchase Consideration to Promoters, Corporate Purpose
05	TATVA Chintan Pharma Chem LTD	16 <sup>th</sup> – 18 <sup>th</sup> July 2021	Chemical	1073 – 1083	2,111.80	<b>95% Profit on Listing</b>	Funding Capital expenditure requirement of our Dahej Manufacturing Facility, Funding R & D plant at Vadodra. Corporate Purpose
06	Zomato LTD	14 <sup>th</sup> – 16 <sup>th</sup> July 2021	E - Commerce	72 – 76	115	<b>51.31% Profit on Listing</b>	Funding Organic & Non – Organic growth initiative, Corporate Purpose
07	GR Infra projects ltd	7 <sup>th</sup> – 9 <sup>th</sup> July 2021	Engineering	828 – 837	1,700	<b>103.10% Profit on Listing</b>	To carry out the Offer for Sale of up to 9,623.34 MILLION Equity Shares by the Selling Shareholders.
08	Clean Science	7 <sup>th</sup> – 9 <sup>th</sup> July 2021	Chemical	880 – 900	1,784.40	<b>98.27% Profit on Listing</b>	To carry out the Offer for Sale of up to 15,466 MILLION Equity Shares by the Selling Shareholders.
09	Focus Business Solution LTD	30 <sup>th</sup> June – 5 <sup>th</sup> July 2021	Miscellaneous	19	29.35	54.47% Profit on Listing	Working Capital & Corporate Purpose
10	INDIA Pesticides Ltd	23 <sup>rd</sup> – 25 <sup>th</sup> June	Chemical	290 – 296	360	21.62% Profit on Listing	New Investments, Working

		2021					Capital & Corporate Purpose
11	Krishna Institute of Medical Science	16 <sup>th</sup> - 18 <sup>th</sup> June 2021	Hospital & Health Care	815 – 825	1008.90	22.29% profit on listing	Reduction in Borrowings by our company & subsidiary & Corporate Purpose
12	DODLA Dairy LTD	16 <sup>th</sup> – 18 <sup>th</sup> June 2021	FMCG	421 – 428	528	23.36% Profit on Listing	Reduction in Borrowings, New Investments, Working Capital & Corporate Purpose
13	SONA BLW Precision & Forging Co.	14 <sup>th</sup> - 16 <sup>th</sup> June 2021	Automobile	285 – 291	302.40	3.57% Profit on Listing & <b>74% Profit from listing as on 1/9/2021</b>	Reduction in Borrowings & Corporate Purpose
14	SHYAM Metalics	14 <sup>th</sup> June – 16 <sup>th</sup> June 2021	Iron & Steel	303 - 306	367	19.9% Profit on Listing	Reduction in Borrowings & from SSPL. Corporate Purpose
15	Power Grid Infrastructure	29 <sup>th</sup> April – 3 <sup>rd</sup> may 2021	Others	99 – 100	104	4% Profit on Listing	New Investments, Working Capital,
16	Macrotech Devlopers	07 April – 09 <sup>th</sup> April 2021	Reality	483 – 486	439	<b>Loss on Listing but 121% Profit after Listing till 1/9/2021</b>	Reduction in Borrowings, Acquisition of Land, Working Capital,
17	Siddhika Coating Ltd	24 <sup>th</sup> – 26 <sup>th</sup> March 2021	Trading	57	55	<b>1% Loss on Listing</b>	New Investments, Working Capital,
18	EKI. Energy Servuces Ltd	24 <sup>th</sup> – 26 <sup>th</sup> March 2021	Miscellaneous	100 – 102	140	<b>1,907% Profit up till 30/8/2021 CMP = 1945</b>	New Investments, Working Capital,
19	Barbeque Nation Hospitality	24 <sup>th</sup> – 26 <sup>th</sup> March 2021	Hospitality	498 – 500	590	18.1% Profit on Listing	To Repay there borrowings & Expansion
20	NAZARA Technology	17 <sup>th</sup> – 19 <sup>th</sup> March 2021	IT – Software	1,100 – 1,101	1971	49.7% Profit on Listing	Promoters sold their shares & Future Expansion
21	Laxmi Organic	15 <sup>th</sup> –	Chemical	129 –	156.2	54.1% Profit	New

	Industries Ltd	17 <sup>th</sup> March 2021		130		on Listing	Investments, Working Capital, Capital Expenditure & Future Expansion
22	MTAR Technology	3 <sup>rd</sup> to 5 <sup>th</sup> March 2021	Engineering	574 – 575	1063.90	77.5% Profit on Listing	To partly or fully repay company's borrowings. To finance companies working capital requirements.
23.	Railtel Corporation of India LTD.	16 <sup>th</sup> – 18 <sup>th</sup> Feb 2021	Telecom	93 -94	104.6	31.4% Profit on Listing	To carry out the disinvestment plan. To achieve the benefits of equity share listing on the stock exchanges.
24	Brookfield India Real Estate Trust REIT (Brookfield India REIT) Detail	3 <sup>rd</sup> – 5 <sup>th</sup> Feb 2021	Real Estate	274 – 275	275.05	0.025% Profit on Listing	To make partial or full payment of existing indebtedness of the Asset SPVs.
25	Stovecraft LTD.	25 <sup>th</sup> Jan – 28 <sup>th</sup> Jan	Consumer Durable	384 – 385	467	31.40% Profit on Listing	To partly or fully repay company's borrowings. To finance companies working capital requirements
26	Indigo Paints	20 – 22 <sup>nd</sup> Jan 2021	Chemical / Paints	1,488 – 1,490	2,607.5	61.9% Profit on Listing	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion
27	Antony Waste Handling Cell Ltd	21 – 23 Dec 2020	Miscellaneous	313 -315	430	36.50% Profit on Listing	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion. To make partial or full payment of



							existing indebtedness of the Asset
28	MRS. Bector Foods LTD	15 – 17 <sup>th</sup> Dec 2020	FMCG	286 – 288	501	74% Profit on Listing	To finance the cost of Rajpura Expansion Project. To meet general corporate purposes.
29	Burger King India LTD	2 <sup>nd</sup> – 4 <sup>th</sup> Dec	Hospitality	59 – 60	115.5	<b>120% Profit on Listing</b>	To finance the roll-out of new company-owned Burger King Restaurants. To meet the general corporate purposes.
30	Nureca Ltd	15 <sup>th</sup> Feb – 17 <sup>th</sup> Feb 2021	Trading	396 -400	634.95	<b>58.7% Profit on Listing</b>	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion. To make partial or full payment of existing indebtedness of the Asset
31	Likhita Infrastructure LTD	29 <sup>th</sup> – 7 <sup>th</sup> Oct 2020	Infrastructure	116 - 120	130	8.33% Profit on Listing	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion.
32	Mazgaon Dock Shipbuilders Ltd	29 <sup>th</sup> Sep – 1 <sup>st</sup> Oct 2020	Ship Building	135 -145	216.25	32.94% profit on Listing	To carry out the disinvestment plan of 30,599,017 equity shares by selling shareholders constitutes 15.17% of pre-offer equity share capital
33	Computer AGE Management Service Ltd	21 <sup>st</sup> – 23 <sup>rd</sup> Sep 2020	IT / BPO / ITES	1,229 – 1,230	1,518	23.41% Profit on Listing	To carry out the Offer for Sale of up to 18,246,600 Equity Shares

							by the Selling Shareholders.
34.	Route Mobile	9 <sup>th</sup> – 11 <sup>th</sup> Sep 2020	IT	345 – 350	708	<b>377% Profit</b>	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion.
35.	Happiest Mind Technologies LTD	7 <sup>th</sup> Sep – 9 <sup>th</sup> Sep 2020	IT	165 – 166	351	<b>304.6% Profit</b>	New Investments, Working Capital, Capital Expenditure & Future Expansion.
36.	Suratwala Business Group LTD	3 <sup>rd</sup> – 5 <sup>th</sup> August 2020	Real Estate	15	16%	<b>333.333% profit till 7/4/2021</b>	Working Capital, Capital Expenditure & Future Expansion.
37	Rossari Biotech LTD	13 <sup>th</sup> – 15 <sup>th</sup> July	Chemical	423 – 425	670	57.64% profit on listing price	New Investments in Capital Expenditure, Working Capital, Capital Expenditure & Future Expansion. To make partial or full payment of existing indebtedness

## FINDINGS

### A. Primary Markets

1. **43** Companies made their Initial Public Offer in the year 2020 - 2021.
2. **More than 30 Companies are Expected in the year 2021 – 2022**
3. Many Start up IT Companies made their shares to Public
4. IT Companies made their public Issue for Capital Expenditure & Working Capital Requirement.
5. Real estate Companies made their Public Issue for Capital Expenditure & Working Capital Requirement
6. Government Companies made Dis – investment.
7. Many Companies made their public issue for repayment of Debt, as it increases burden on their profitability.
8. Chemical & Agricultural Companies made their share Public for Capital Expenditure & Working Capital Requirement
9. Many Companies Promoter sold their shares to Public.
10. FMCG Companies Performed extremely well during their public issue
11. Textile Companies Shares were also issued to Public, due to current situation it doesn't Performed.

12. Oversubscription were Observed during many of the public Issues.
13. Because of heavy demand share price of many companies were on bullish rally.
14. This study observed that NIFTY and Sensex were having positively strong correlation with IPO Index.
15. Secondary market benchmarks NIFTY and SENSEX were not influencing the primary market new issues during the study period.
16. Indian GDP growth rate is having a positive influence.

**B. Secondary Market**

1. The number of individual investors in the market has increased by a whopping 142 Lakhs in FY21: SBI Reports
2. It has increased in FY21, with 122.5 Lakhs new accounts at CDSL & 19.7 new accounts at NSDL.
3. The share of Individual investor in total number on stock exchange has risen to 45% from 39% in March 2020, as shown by NSE data.
4. Household savings investment in Market have subsequently increased.
5. Currency circulation again has increased from 80,501 Crore to 95,181 Crore.
6. The market have progressively improved from 28,265 to 57,338 (SENSEX) & NIFTY 9,859 to 17,058
7. The rate of Bank deposit has also declined, this leads to increase in investors.
8. Additionally, the pandemic which has resulted in people spending more time in their home also be another reason for their tilt towards the stock market trading.
9. There has been significant increase in the market capitalization in stock market across the world in the last one year.
10. Our financial stability Index has improved.

**CONCLUSION:**

We conclude the analysis of Impact of Covid'19 on primary markets & Secondary markets of India. Indian capital markets are having more than 140 years of history, it has attract common man to invest in Indian equity markets. Many Common Investors has shown their interest in Primary market for listing gains & Secondary markets for high returns. The equity markets are largely depend on the movement on Indian economy. This study had proven that Indian equity market is influenced by economy positively. Start Up Companies had opportunity for Expansion, many companies went for expansion which is good sign for Economy. Its positive impact on Investor as well as for company future expansion.

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**MILLENNIUM DEVELOPMENT GOALS-A STEP TOWARDS SUSTAINABLE DEVELOPMENT  
WITH REFERENCE TO INDIA**

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**ABSTRACT**

*After independence of 68 years, India is still facing lots of problems. These problems are barrier in the development of India. So when UN adopted some goals for the betterment for world, India also adopted them. But these Millennium Development Goals (MDGs) reach their December 2015 deadline. In this paper we try to explore the importance of these MDGs and how they are converted into SDGs. It is now the time to take a look at the achievement of the MDGs in India and lessons learned that can be incorporated into the design and implementation of the sustainable development goals to build upon the unfinished MDG agenda. This paper look into India's experience with the MDGs, the analysis reviews MDG achievements and Goal-specific gaps at the national level. India has made notable progress towards reaching the MDGs but achievement across the Goals varies. We also try to provide suggestions to achieve the gap between standard objectives and actual performance. In the last we say that the goals of sustainable development cannot be achieved globally without India. The MDGs can be achieved only with the help of Global Partnership for Development. For 2015 and beyond, the world will be watching how India will implement its new strategic direction and the concrete actions and achievements it can make to provide a sustainable future for all.*

*Keywords: Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs), Strategy, Global partnership*

**INTRODUCTION**

MDGs are people and society development oriented agenda. Through MDGs a road map was prepared to establish peace and healthy global economy. The MDGs focused on income poverty, access to improved sources of water, primary school enrollment, child mortality and gender equality and improvement in health services. Now these MDGs have been shifted the world onto a sustainable path. This new development agenda should apply to all countries, promote peaceful and inclusive societies, create better jobs and tackle the environmental challenges of our time—particularly climate change.

In 1990s some rich countries set some goals to “Shape the 21st Century”. In this concept the primary audience was donor countries. But after a period of time donor countries were not showing their interest in providing aid. Then donor countries realize the advantage of strategic partnership with the developing countries that capitalizes on each partner's intrinsic strength, shared goals and objectives. All 193 member states of the UN signed on to the Millennium Development Goals (a set of eight bold objectives) to improve social and economic conditions around the globe by 2015. The declaration emphasized that every individual has a freedom right, equality, freedom from hunger and violence and to encourage unity and tolerance. The Millennium Development Goals (MDGs) were set up to make governments and international agencies focus on actually meeting the needs and priorities of lowincome groups – by reducing, for example, extreme hunger and poverty, reduction in mortality rates, and the proportion of people without safe water and basic sanitation. Most of the eight MDG targets are meant to be achieved by 2015. The MDGs can be achieved only with the help of Global Partnership for Development.

**OBJECTIVES OF THE STUDY**

1. To explore the necessity for the establishment of MDGs and how they came into existence;
2. To discuss the achievements of targets of the goals;
3. To discuss the policies introduced for achievement of MDGs in India;
4. To explore more suggestions to achieve the gap between standard objectives and actual performance.

**DATA ANALYSIS**

The present paper is primarily based on secondary sources of data comprising of government annual reports, publications, and speeches, research papers published in journal and available on internet.

**Achievement of MDGs**

in India After 14 years of the establishment of Millennium Development Goals (MDGs), this is still a challenge to achieve them by the developing countries. These goals were introduced for saving and improvement in living

style of people. In India, there has been considerable emphasis on all the MDGs and the nation has witnessed significant progress towards the MDGs, with some targets already having been met well ahead of the 2015 deadline. India as a developing country, is also attempting to achieve these MDGs. There considerable progress has been recorded with respect of universal education, gender equality in education and global economic growth. Even government has implanted some schemes and programmes and redesigning the strategies to achieve these targets towards the achievement of goal. The achievement of goal and ongoing projects to achieve that goal as well as suggestions to be followed are as following:

- **Eradicate Poverty and Hunger**

This goal has targets to reduce the proportion of people by half, those living on less than \$1 a day and who were suffering from hunger. According to data, around 1 billion live on less than \$1 per day and 800 million people remain hungry every day. In 2012, it was estimated that around 270 million Indians still remained in extreme poverty. It is a key challenge as Divergent growth experiences and rising urban areas, and deprived groups — Scheduled Tribes, Scheduled Castes, female-headed households, and religious minorities such as Muslims. As per India Report on MDGs 2015, first target of reducing poverty is on track whereas second target of reducing hunger is slow or almost off-track. To achieve this goal some strategies were introduced by the government of India for instance, “Sabka Sath, Sabka Vikas”, Mahatma Gandhi National Rural Employment Guarantee Act, Pradhan Mantri Jan Dhan Yojana, National Rural Health Mission, SABLA, National Food Security Mission, Integrated Child Development Services, Indira Gandhi Awaas Yojana, Aajeevika-National Rural Livelihood Mission Pradhan Mantri Gram Sadak Yojana, The Jawaharlal Nehru National Urban Renewal Mission. Beyond these strategies still some improvement is required to achieve these objectives. Some suggestions are following:

- Skill oriented programmes should be effectively implemented on target groups, especially youth and women.
- Expansion of productive jobs in manufacturing and services sectors
- Vigorously implementation of the “Make in India” programme by leveraging the large domestic market through infrastructure development.
- More emphasis should be given on credit provision, land and labour reforms, stimulating domestic enterprise development,
- More ease way of doing business and FDI should be provided.

**Universal Primary Education:**

According to data, India is on-track on the target of this goal. The target was to ensure that children everywhere, boys and girls will be able to complete a full course of primary schooling. For the achievement of this goal, Strategies adopted by government of India are as follows: Sarv Shiksha Abhiyaan, Mid Day Meal Scheme, National Programme of Nutritional Support to Primary Education, Early Childhood Care and education under ICDS, Anganwadi Centres, National Youth Policy 2003, the Right of Children to Free and Compulsory Education (RTE) Act, 2009. But there is still more scope for improvement in achievement of this goal are as follows:

- More attention should be paid towards teacher’s performance for quality education, their incentives and more appointment of teachers and their regularity.
- More efforts should be made towards deprived sections & to improve accountability of teachers,
- State must increase teacher-pupil ratio in remote and disadvantaged areas,
- improve accountability of teachers, and accord priority to improving learning outcomes,
- Finally, efforts to encourage participation of non-public players, such as civil society and the private sector, parents and communities.

**Promoted Gender Equality and Empowerment of Women:**

India is on track to achieve gender parity at all education levels. This goal was mainly achieved by reducing fertility, population growth, and child mortality; improves nutrition, hygiene and health of households. To achieve this goal, Strategies adopted by government of India are as follows: Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level, The Kasturba Gandhi Balika Vidyalayas, Rashtriya Madhyamik Shiksha Abhiyan, Rashtriya Uchchatar Shiksha Abhiyan, Mahila Samakhya Programme, Saakshar Bharat Saakshar Bharat, Kishori Shakti Yojna, Support to Training and Empowerment Programme, Mahatma

Gandhi National Rural Employment Guarantee Act, Beti Bachao Beti Padhao. More focus should be made on the following

- Priority should be given on women vocational education, promotion in parity of wages, implementation of laws providing women with property and land rights (including the amended Hindu Succession Act).
- For political empowerment, 33% reservation for women in Panchayati Raj Institutions must be passed.
- More efforts should be made to make workplace safe and friendly for women and regulation of informal and domestic work.
- There should be promotion of women's entrepreneurship with specialized capacity-building programmes.
- To change in discrimination of social norms, there should be implementation of legislation to prevent violence against women, implementation of laws preventing under age marriages.
- Efforts must be made to change social norms through education and by scaling up campaigns in coordination with NGOs and Private Sector.
- Vigorous follow up of the government's campaign "Beti Bachao-Beti Padhao" especially in the States with adverse sex ratio.

#### **Reduce Child Mortality:**

This goal has a target to reduce the under-five Mortality Rate by two-thirds between 1990 and 2015. This target is moderately on-track due to the sharp decline in recent years. To achieve this goal, Strategies adopted by government of India for instance: National Policy for Children, 1974, Early Childhood Care and Education, Integrated Child Development Services, Rashtriya Bal Swasthya Karyakram. But still there is some more scope for the achievement of this goal. Some suggestions are as follows:

- Major gaps in health spending at the centre and states must be filled,
- To reduce the shortage of health personnel by appoint new personnel,
- There should be active support of communities and civil societies to improve health outcomes.
- More emphasis should be on women's education and empowerment as well as better water quality and sanitation.

#### **Improve Maternal Health:**

For this goal target was to reduce the maternal mortality ratio by three quarters. This target is slow or off-track to achieve. To achieve this goal, Strategies adopted by government of India are as follows: National Health Mission, Janani Suraksha Yojana, Janani Shishu Suraksha Karyakram, Centre, Village Health and Nutrition Days, Accredited Social Health Activists (ASHAs), Maternal Death Review, Prevention of PPH, Integrated Child Development Services, Indira Gandhi Matritav Sahyog Yojana. Beyond these strategies, still there are more areas to be covered to achieve this goal. These areas are as follows:

- More emphasis should be given on existing facilities and skilled help provided at the time of delivery;
- Setting up of Skill Labs with earmarked skill stations for different training programs to enhance the quality of training in the States;
- Guidelines and counseling sessions with the pregnant women should be conducted by ASHAs and ANMs, emphasis is laid on the need to register for ANC and deliver at institutions;
- Quality Assurance Manuals and Supportive Supervision tools should be rolled out to strengthen quality of care in service delivery. For safe care of pregnant women, especially in labour room and maternity wards.

#### **Combat Hiv/Aids, Malaria and Other Diseases:**

It has basically two targets. First is to halve the halted by 2015 and begun to reverse the spread of HIV/AIDS and second to have halted by 2015 and begun to reverse the incidence of malaria and other major diseases. The first target is on-track and reversal in HIV has been achieved. The prevalence of HIV among Pregnant women aged 15-24 years is showing a declining trend from 2005 and it has declined from 0.89 % in 2005 to 0.39% in 2010-11. The second target is moderately on-track as trend reversal has been achieved for Annual Parasite Incidence of Malaria and for prevalence of TB. To achieve this goal, Strategies adopted by government of India for instance: National AIDS Control Programme, Urban Malaria Scheme, Revised National TB Control Programme, Universal Health Assurance Scheme, National Rural Health Mission (NRHM), Rashtriya Swasthya

Bima Yojana. Beyond these strategies, still there are more areas to be covered to achieve this goal. These areas are as follows:

- There should be more emphasis on health for all oriented schemes.
- Performance of existing health facilities and systems must be improved with the cooperation of public-private partnership. .
- In cooperation with centre and states, there should be procurement of price regulation and supply systems of essential drugs and more awareness should be made about generic medicines.
- To identify the infectious patients who need treatment the most & good quality anti-TB drugs must be available.
- In the RNTCP, a box of medications for the entire treatment should be earmarked for every patient registered and ensuring the availability of the full course of treatment the moment the patient is initiated on treatment. Hence in DOTS, the treatment can never interrupt for lack of medicine.

#### **Ensure Environmental Sustainability:**

This goal has first target to integrate the principle of sustainable development into country policies and programmes and reverse the loss of environmental resources which is moderately on-track. Its second target is to reduce the proportion of people without sustainable access to safe drinking water and basic sanitation by halve. This target is on-track for drinking water but slow for the indicator of sanitation. Its third target is to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020. For this particular target pattern is not statistically discernable. For achievement of this goal some strategies were introduced and implemented by the Government of India. For instance, Namami Gange or Ganga, National Disaster Management Authority and Solar Mission, To develop “100 Smart Cities”, recycle waste, investments in development of bio-diversity park, Swach Bharat, Nirmal Gram Puraskar. Besides these strategies, GOI could emphasis on the following areas for achievement of this goal. These areas are as follows:

- More emphasis should be made on other initiatives for conservation of marine and coastal ecosystem and for improvement in air quality in cities.
- The “100 Smart Cities” project can be achieved with the help of public-private partnership.
- More attention should be made towards use of LED lights for energy efficiency.
- There should be more focus on non-timber forests.
- There should be a committee or team to tackle the problems like skilled personnel for toilet construction, inter-personal communication and communication approaches to total sanitation and to monitor and evaluate the programmes.

#### **Develop a Global Partnership for Development:**

This goal has target to make available benefits of new technologies, especially information and communications in cooperation with the private sector is on-track. For achievement of this goal some strategies were introduced and implemented by the Government of India. These are as follows: National Knowledge Network, National Telecom Policy-1994, National Telecom Policy-2012, Telecom Regulatory Authority of India, Internet Service Providers (ISPs), Broadband Policy, Telecommunication Tariff Order (TTO) 1999, Mobile Number Portability (MNP), The National e – Governance Plan, State Wide Area Networks (SWAN), “Digital India”. Besides these strategies, GOI could emphasis on the following areas for achievement of this goal. These areas are as follows:

- TRIPS Agreement provisions should be strengthened for transfer of technology,
- There should be more encouragement of enterprise-level research and development activity for harnessing their frugal engineering capabilities for developing products and process with low carbon footprints.
- More learning, absorption and adaptation of imported know-how through joint ventures under the “Make in India” programme. Abhinav National Monthly Refereed Journal of Research In Commerce & Management VOL. 6 4, ISSUE 12 (December 2015) Online ISSN 2277-1166
- India should make more efforts to strengthen cooperation in South Asia covering regional trade, transport connectivity and trade facilitation.
- There should be more focus on development of partnership with other emerging economies through forums such as IBSA and BRICS.

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**CONCLUSION**

The MDG Gap Task Force Report 2010 estimates that, to reach an ODA target of \$300 billion, from 2011 to 2015 an annual incremental increase of \$35 billion is required. The MDGs were criticized for omitting enabling factors and for being one-size-fits-all, imposed top-down. But still there are some shortcomings included ignoring economic growth, inequality, secondary and tertiary education, security, disaster resilience and governance.

In India, considerable progress has been recorded in the field of basic universal education, gender equality in education, and global economic growth. However there is slow progress in the improvement of health indicators related to mortality, morbidity, and various environmental factors contributing to poor health conditions. Even though the government has implemented a wide array of programs, policies, and various schemes to combat these health challenges, further intensification of efforts and redesigning of outreach strategies is needed to give momentum to the progress toward achievement of the MDGs. Hunger remains a tough challenge in India. Also achieving the desired target for ensuring sanitation facility is lagging behind. Similarly, the Country has to strive more to reduce the maternal mortality to reach the desired level. As the Millennium Development Goals (MDGs) reach their deadline as December, 2015, a new set of transformative and universal Sustainable Development Goals (SDGs) will be adopted by the world leaders as a part of the Post2015 Development Agenda at the United Nations General Assembly in September 2015. MDGs in India can be incorporated into the design and implementation of the sustainable development goals to build upon the unfinished MDG agenda. Building on the MDGs, the Sustainable Development Goals (SDGs) propose to end poverty and deprivation in all forms, leaving no one behind, while making development economically, socially and environmentally sustainable.,

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## INDIAN MICRO-FINANCE INDUSTRY - ISSUES AND CHALLENGES IN SUSTAINABLE GROWTH

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### ABSTRACT

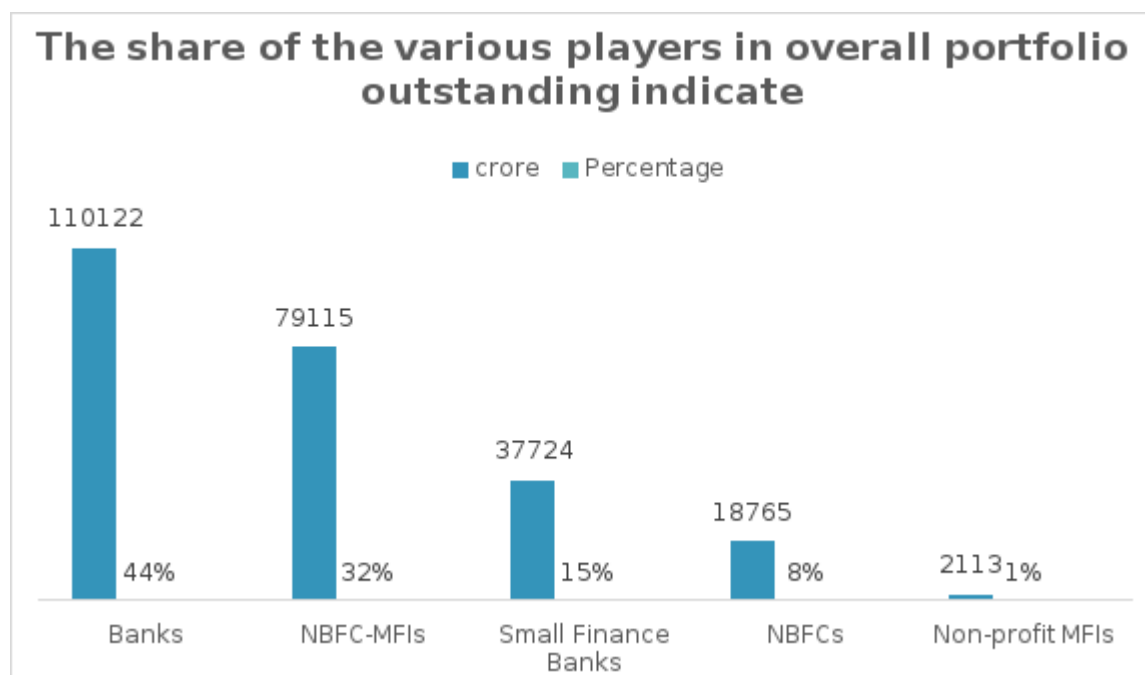
Microfinance is a provision for low-income groups at sustainable rates from government and private institutions. The sector is playing a major role in providing credit to the population fall below the poverty line group. Microfinance started in India in 1980, and one of the major countries in emerging market for microfinance. it has shown the tremendous progress in last five years, the Indian Microfinance Market is anticipated to grow at a brisk CAGR of more than 40% through 2025. Apart from this growth, there are some issues and challenges concerned with it. This study is based on secondary data to identify various issues and challenges pertaining to the sustainable growth of the micro-finance industry in India.

**Key words:** Microfinance, Microfinance institutions, self-help group, sustainable growth.

### 1. INTRODUCTION:

The objective of NABARD was financial inclusion through microfinance. NABARD in its four-decade journey touched 200 million households with its innovative microfinance schemes of providing credit through institutions. This institution received support from NABARD, which enables them to stabilize and grow. Similarly, SIDBI supported the growth story of MFIs through its SIDBI Foundation for Micro Credit (SFMC) in 1999. The India Microfinance Equity Fund (IMEF) later supported MFIs, especially the medium and smaller ones with equity and quasi-equity. The Micro Units Development & Refinance Agency Ltd (MUDRA), a NBFC set up by the GoI in 2015, with focus on microenterprises, extending financial support to MFIs. There are around 184 MFIs (including NBFC-MFIs) operating in India in various forms - trusts, societies, cooperatives, Section 25 companies and Non-Banking Financial Companies (NBFCs).

The MFI industry has shown equally promising growth. As per Sa-Dhan, as on March 31, 2021, the growth of microfinance industry - total loan portfolio of ₹ 2,47,839 crore with a year-on-year growth of 17% overall portfolio outstanding indicates that



Sources: <https://www.nabard.org/auth/writereaddata/tender/1207215910SoMFI%202020-21.pdf>

As per the data shown above, microfinance has grown fantabulous with addition support of NABARD linked banking system with the Self-Help Group. But compared to the success of commercial, microfinance institutions have long way to go. the paper is focusing on challenges faced by the microfinance industry, which restrained their success.

## 2. LITERATURE REVIEW:

As per the interview published in MICROFINANCE BAROMETER (2019), on the digital revolution is profoundly transforming the world of finance and forcing financial service providers to adapt. In this interview, Graham Wright, Executive Director of Microsave, discusses the challenges and risks of this necessary transition for microfinance. He states that the Microfinance face an existential digital threat, they need to embrace it because fintech are disrupting traditional financial market services by new digital revolutionary services.

“The Microfinance promise in Financial Inclusion: Evidence from India “by Naveen K.Shetty and Dr. Veerashekharappa (2009), studies the importance of microfinance in bringing about financial inclusion. According to studies on the impact of the increasing gap in demand and supply of financial services in India, which has led to an increasing population of the country to be excluded from the formal financial credit system

Sibhatullah Nasir (2013), found contemporary issues and challenges in microfinance.

Jatinder Kumar Jha and Manjari Singh (2015), According to researcher Microfinance institutions face challenges of high labour turnover, over the burden of work, low compensation and lack of training and developments.

Sulaiman D. Muhammed (2010), according to the research micro-finance sector has been grown in the world, particularly in Pakistan. Many challenges are there in front of the sector are improper regulations, increasing competition, innovating and diversified products, limited management capacity, stability and profitability.

## 3. OBJECTIVES:

The main objective of this paper is to understand the glaring challenges faced by microfinance industry in India

## 4. RESEARCH METHODOLOGY

### Data sources

The study is descriptive and based on secondary data collected from various websites, magazines, newspapers, Microfinance Information Exchange (MIX) report and publications of recent research papers available on different websites.

## 5. CHALLENGES FACED BY MICROFINANCE INDUSTRY IN INDIA:

### 5.1 Sustainability:

MFI schemes are comparatively costlier as compare to prevailing rate of interest charged by the banks. it's been notice that credit cost is high and loan size is small, hence it is essential for MFIs to develop strategies to increase the range and volume of financial services at a lower cost.

### 5.2 Over-Indebtedness:

The main objective of microfinance is to provide financial services to marginalize sector to uplift their standard of living, hence providing multiple lending without collateral poses the challenge to its growth. The risk of bad debts and insignificant risk management is a factor for stress on microfinance industry in India. Lack of proper control over MFIs is also a reason for over indebtedness, which can be seen from microfinance crisis 2008 in India.

### 5.3 Model based schemes:

Most of the MFIs follow Self-Help Groups (SHG) Model or Joint Liability Group (JLG) model. The model selection is done on a random basis, no strategies are followed for selecting the model.

### 5.4 Lack financial literacy:

The severe lack of awareness of policies and products offered by MFIs makes it difficult for these institutions to sustain in excessively competitive environments in developing nations where the majority of population lack basic literacy too. Due to illiteracy, it is difficult to create awareness of microfinance.

### 5.5 Cost outreach:

MFIs providing financial services to unbanked population with a small loan amount, which leads to unprofitability in the long run and hinder the MFI growth.

### 5.6 Regulatory Issues:

Apex regulatory body for Microfinance in India is Reserve Bank of India, but more emphasis is given to commercial banks and other traditional banking activities. There are some regulations benefiting the MFIs but still there is need for the separate regulatory authority

**5.7 Lack of promotional activities at microfinance institutions:**

MFIs do not have effective marketing department for creating innovative marketing strategies to conduct promotional activities for the awareness of different products and services among SHG.

**6. CONCLUSION:**

Microfinance is an important tool for improving the standard of living of marginalized population. The impact of microfinance is significant in bringing confidence, and courage skill development among poor people. But at the same time MFIs should look for alternatives measures to fix all challenges for their sustainable growth in competitive environment.

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**ELECTRONIC BANKING: THE EFFECT OF E-BANKING ON CONSUMER SATISFACTION****Prof. Arun Kumar Vishwakarma and Prof. Krishnakant Pandey****ABSTRACT**

*To add to the existing knowledge in the electronic banking field of study. To help the banks and policy makers have a better understanding of the internet banking dimensions and their contributions towards customer satisfaction. Especially since not much research has been done in this regard in India which has become the hub of e-banking development after the recent demonetization by the present government, enabling people to go cashless and enhance a Digi economy. Design/Methodology/Approach: An exploratory survey with the help of a Likert based questionnaire was conducted to investigate the impact of Internet Banking service quality on customer satisfaction in Mumbai. Judgmental and convenience sampling was used and various kinds of internet banking customers were approached in Mumbai. Data were collected from a sample of 194 internet banking customers. Findings: The result implicated that the internet banking service quality dimensions have a significant impact on the customer satisfaction of internet banking customers. Each of the dimension namely efficiency, system availability, fulfillment, privacy, contact, responsiveness and contact individually contribute 70% to the overall customer satisfaction in internet banking. Originality/value: The paper provides empirical evidence to show that the internet banking service quality dimensions area an important factor to satisfy the customers since each of them is positively related to customer satisfaction. This paper has extended the e-service quality model of eS-qual-eRec-Squal by zenithal et al. to the banking sector to cater to its needs according to its demands and requirements. Research limitations: The research has contributed to an understanding of the importance of various dimensions that internet banking service quality comprises of and how the impact customer satisfaction. The paper lays a foundation to future research which must not be limited to one geographical area of India but should take into study the other areas where internet banking is widely being adopted given the new economy scenario of India. Practical implications: The research will help the managers of the banks and the policy makers to focus on these factors that tend to have a dominating impact on satisfying the customers. This will result in a better internet banking service quality provided by the banks and that in turn will help retain the existing customers and also gaining the new ones.*

*Keywords: Internet Banking Service Quality; Internet Banking; Customer Satisfaction*

**INTRODUCTION**

The technological innovation of electronic channel of service delivery has brought in a level playing field for businesses by eliminating geographical, regulatory, and industrial barriers . In the words of Backhander, this revolution in the market place has set in motion a revolution in the banking sector for the provision of a payment system that is compatible with the demands of the electronic marketplace. There are four electronic commerce activities internet users perform. These activities require a banking relationship and are: shopping, banking, investing, and online electronic payment for Internet services. The enormous increase of the internet is changing the way businesses interact with consumers as most businesses are now conducted using the internet. It is this introduction of e-commerce as a means of payment that has urged banks to take a leap from the traditional banking services, offering a service strongly through the medium of internet, which has come to be known as internet banking or e-banking.

Existing literature on internet banking in India indicates that despite its growing use and adoption by many banks, no significant effort has been made to understand whether the customers whom the technology is meant for are satisfied or not and what are the demographic characteristics of the ones who have adopted the technology.

Internet banking is an electronic payment system that enables customers of a financial institution to conduct financial transactions on a website operated by the institution, such as a retail bank, virtual bank, credit union or building society. Online banking is also referred as Internet banking, e-banking, virtual banking and by some other terms. This new channel has added a new dimension to the concept of customer satisfaction and how it can be affected in a positive way. All organizations exist and strive to become an integral part of the lives of their customers and therefore always strive harder to keep satisfying their customers through better channels of delivering their offerings. There are many factors which have an impact on customer satisfaction, one of the most important being service quality. Due to the varying nature of the products offered in manufacturing sector and in the services sector the definition and measurement of service quality, it was seen could not be the same for both. Especially, in the present era, with the emergence of internet as a major channel of service delivery, the need for a scale to measure the service quality in electronic media of services was felt strongly. Hence,

service quality was taken up by the research scholars specifically in terms of the e-services which lead to the development of various models that helped in measuring e-service quality in the services sector.

## LITERATURE REVIEW

### Internet Banking

With the rapid and extensive increase in technology, innovation and telecommunications, new distribution channels in the financial sector are coming up rapidly, in numbers as well as in form, from ATMs, telephone banking, with Internet Banking being one of the latest in the chain of technological wonders. According to Accenture (2005), Internet Banking was thought to signal a revolution in banking distribution. Banks invested heavily in the development of the Internet channel. Mols [11] observed that Internet Banking has experienced explosive growth in many countries and has transformed traditional banking practice inevitability. Internet Banking will continue to revolutionize the current traditional banking industry and offer more opportunity to meet better consumer services through enhanced interaction, data mining and customization in the Internet Banking services concludes.

## OBJECTIVES

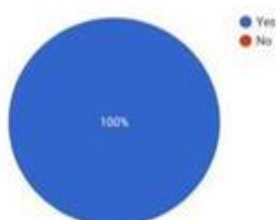
- To identify the various dimensions of internet banking service quality.
- To examine the relationship between the customer satisfaction and the various internet banking service quality dimensions.
- To study the impact of the internet banking service quality dimensions on the satisfaction of customers.

## DATA

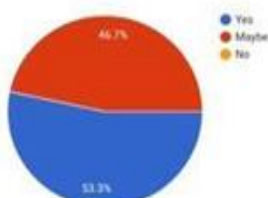
### Primary Method:

We have collected primary data using Google forms as a survey form and by circulating it on social media to my friends and acquaintances That way we collected responses from them which was really helpful in increasing our knowledge about how much e-banking effect consumer satisfaction. The sample size that I chose was my society & my friends. After collecting those responses I made pie charts & bar diagram on the 16 questions that I asked them in the Google questionnaire. It's as follows:

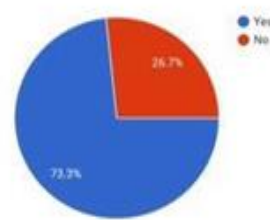
Do you think it Saves time?  
30 responses



Do you feel E-Banking system of the bank is customer friendly?  
30 responses



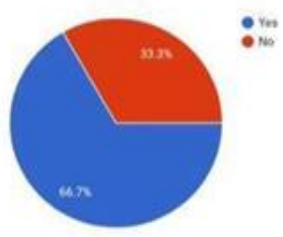
Do you think E-Banking is safe?  
30 responses



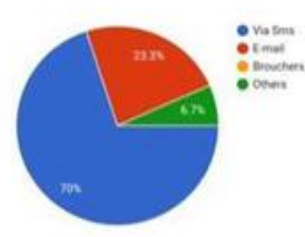
What are the main disadvantages of visiting bank branch?  
30 responses



Are you satisfied with using E-Banking?  
30 responses

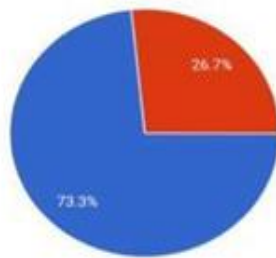


How banks provide E-Banking Details to you?  
30 responses



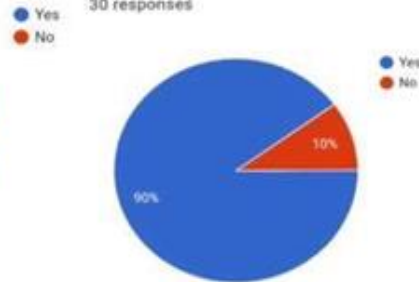
Do you use E-banking?

30 responses



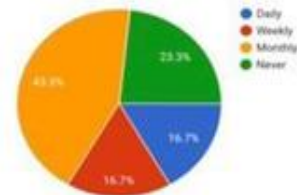
Do you have a knowledge on E-Banking?

30 responses



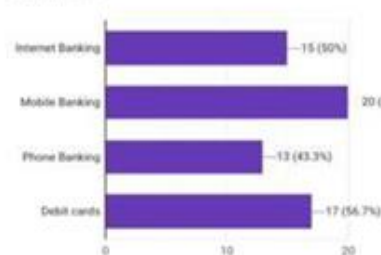
How often do you use E-banking?

30 responses



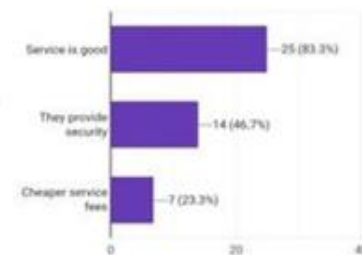
Which of the following E-Banking service you are aware of?

30 responses



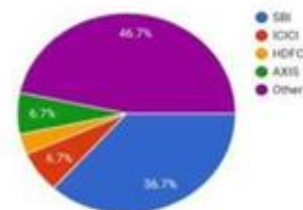
Why this bank?

30 responses



Which bank you prefer?

30 responses



### Secondary Method:

To know more about the effect of E-banking on consumer satisfaction we have collected secondary data. It's as follows:

#### Advantages

- The cost of operation per unit of services is lower for banks.
- Offers convenience to customers since they are not required to go to the bank's facilities.
- There is a very low incidence of errors.
- The customer can obtain funds at any time from ATMs.
- Credit cards and debit cards allow customers to get discounts at points of sale.
- The customer can easily transfer the funds from one place to another place electronically.

#### Disadvantages

- Savings and credit cooperatives, and in particular small local cooperatives, strive to match the level of convenience (ATMs and branches) that many banks offer their customers, although many are part of shared networks that increase channels available to its members
- Some Credit Units are limited in their product offerings
- One must qualify for membership
- One must pay a membership fee to join

### HYPOTHESIS

From the above objectives the following set of hypothesis were framed:

**H1: Efficiency has a significant positive association with on Customer Satisfaction**

**H2: Privacy has a significant positive association with Customer Satisfaction**

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**H3: Responsiveness has a significant positive association with Customer Satisfaction****FINDING**

This study attempts to study effect of e-banking on consumer satisfaction . The sample for this study was selected from among the under graduate students of regular streams in local areas . The sample was drawn from general stream students. Questionnaire is the core research instrument, which was used to gather data for this study. The questionnaire consisted of 16 questions. The questions are self explanatory and simple. It consists of multiple –choice answers, where the respondents were required to choose single answer as a response question and multiple answers as their response other questions. The questions were based on the effects of e-banking on consumer

**RECOMMENDATIONS**

1. Always use genuine anti-virus software
2. Avoid using public Wi-fi or use VPN software
3. Check for latest updates of your smartphone's operating system
4. Change your password regularly and ensure it's a strong one
5. Subscribe for mobile notifications
6. Avoid signing-in to your net-banking account via mailers
7. Do not use public computers to login to net banking
8. Check your account regularly

**CONCLUSION**

This research paper aims to make an original contribution to the existing knowledge by investigating the impact of internet banking service quality on customer satisfaction in India. The various dimensions of the internet banking service quality that were taken into consideration while making the study were: Efficiency, System Availability, Fulfilment, Responsiveness, Privacy, Contact and website design. The study revealed that efficiency, privacy and website design are the major integral determinants of internet banking services quality. The empirical results show that there is a direct relationship between internet banking service quality dimensions and customer satisfaction in the banking industry. An understanding of the factors, revealed in the study, allows bank managers and policy makers to undeviating efforts and resources most effectively and efficiently to increase the bank business in the long run and encourage new customers to adopt internet banking and to retain the existing ones.

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<https://www.britannica.com>

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**RELEVANCE OF CONSUMER SATISFACTION TOWARDS COSMETICS PRODUCTS IN MUMBAI CITY**

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**ABSTRACT**

*The purpose of this study is to investigate the consumer satisfaction towards Cosmetics products. Both primary and secondary data are extensively used in this study. In this study, the secondary data are collected from various journals, books, websites and newspaper in various topics. Then, the primary data is collected through the questionnaire from the respondents of consumers of cosmetic products in Mumbai. A self structured questionnaire has been prepared to collect the primary data. The questionnaire is designed on 5 point likert scale ranging from highly satisfied to highly dissatisfied. The consumers of cosmetics for the study live in Mumbai. Totally 100 consumers are selected in the study. Random sampling was adopted with a view to select a representative sample from the population of cosmetics user. Based on the study, it is concluded that most of the consumer are satisfied with cosmetic products. Most of the consumers are choosing the particular cosmetic products for quality. Most of the sample consumer have been used Himalaya brand of face cream and most of the sample consumer have been used Fogg brand of perfume.*

**KEY WORDS:** Cosmetics, Consumer, Satisfaction and Brand Preference

**INTRODUCTION**

In the last few years the consumption of cosmetics has touched new heights and the curve is shooting upwards and hence the controls sought to be exercised on the drugs which have been extended to a certain extent to the cosmetics”.

Generally, cosmetics products are these products which a consumer uses for their personal purpose. It includes different types of cosmetic and skin care products like talc, cold cream, fairness cream, toothpaste, toothbrush, perfume, deodorant, hair oil, shampoo, soap, and all types of baby care and beauty care products. These are the core product of Fast Moving consumer Goods.

**STATEMENT OF THE PROBLEM**

Consumers are the key factors in promoting the products. The marketing potential of any product is based on consumer purchasing behavior. Now a days in the global business, consumers are filled with having lot of opportunity to use variety of products and they also want to buy innovative and quality products. So, the consumers attitude survey and buying pattern are highly significant in improving market demand and growth. To know the consumers attitude related to various aspects and also to know the influencing factors to buy a specific cosmetic products, such type of researches are highly useful. Hence, considering all the above phenomena this study is significant and relevant.

**OBJECTIVES OF THE STUDY**

1. To assess the consumers brand preference towards cosmetic products.
2. To study the consumers buying pattern in Mumbai.
3. To know the influencing factors in buying FMCG cosmetic products.
4. To analyze the consumers level of satisfaction about the cosmetic products.

**SCOPE OF THE STUDY**

The study would help to understand the consumer satisfaction towards cosmetics products in Mumbai. Now the product of every company is to provide satisfaction as there exists a lot of competition for them. So that the marketing techniques in the modern world is truly the most impotent one and the well advertised goods would reach the consumers properly.

**METHODOLOGY**

Primary as well as secondary data are extensively used in this study. In this study, the secondary data are collected from various journals, books, websites and newspaper in various topics. The main aim of this study is to know the consumer satisfaction towards Cosmetic Products. To analyse the same, results of primary data is used with the help of self structured questionnaire to collect the primary data. The questionnaire is designed on 5 point likert scale ranging from highly satisfied to highly dissatisfy.



**SAMPLING DESIGN**

The consumers of cosmetics for the study live in Mumbai. Totally 100 consumers are selected in the study. Such of those consumers of cosmetics are contacted at places like beauty parlours, bus-stands, railway stations, big departmental stores and places of public gathering and so on. Consumers are composed of youths, men and women, educated and uneducated, businessmen, professionals, housewives, senior citizens and others at random for intensive study.

Random sampling method was used with a view to select a representative sample from the population of cosmetics users.

**LIMITATIONS OF THE STUDY**

The present study is related to the period 2020-2021 only. Most of the consumers are unable to recall their previous experiences in the usage of cosmetics. Hence a longer duration could not be considered for study.

**ANALYSIS AND INTERPRETATION****Table 1 Type of Cosmetic used**

Sl. No	Type of Cosmetic used	No. of Respondents	Percentage
1.	Eyeliner	32	32
2.	Perfume	60	60
3.	Face cream	8	8
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 1 clearly highlights that 32 per cent of the sample respondents have been used eyeliner, 60 per cent of the sample respondents have been used perfume and 8 per cent of the sample respondents have been used face cream.

**Table 2 Brand of Perfume used**

Sl. No	Brand of Perfume used	No. of Respondents	Percentage
1.	Fogg	44	44
2.	First love	14	14
3.	Blue lady	2	2
4.	Engage	10	10
5.	Yardley	30	30
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 2 clearly demonstrates that 44 per cent of the sample respondents have been used Fogg brand of perfume and 30 per cent of the sample respondents have been used Yardley brand of perfume. It is concluded that majority of the sample respondents have been used Fogg brand of perfume.

**Table 3 Number of years using Cosmetic Products**

Sl. No	Number of years	No. of Respondents	Percentage
1.	6 months	60	60
2.	6 months to 1 year	18	18
3.	1 year and above	22	22
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 3 clearly shows that 60 per cent of the sample respondents are using cosmetic products for 6 months and 22 per cent of the sample respondents are using cosmetic products from 1 year and above. It is inferred that majority of the sample respondents are using cosmetic products for 6 months.

**Table 4 Brand of Face Cream used**

Sl. No	Brand of Face Cream used	No. of Respondents	Percentage
--------	--------------------------	--------------------	------------

1.	Fair & Lovely	16	16
2.	Himalaya	56	56
3.	L' Oreal	20	20
4.	Lakme	6	6
5.	Ponds	20	20
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 4 clearly demonstrates that 56 per cent of the sample respondents have been used Himalaya brand of face cream. It is concluded that majority of the sample respondents have been used Himalaya brand of face cream.

**Table 5 Reason for choosing the particular cosmetic products**

Sl. No	Reason for choosing the particular cosmetic products	No. of Respondents	Percentage
1.	Availability	15	15
2.	Quality	78	78
3.	Price	7	7
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

It is understood from the above table that 78 per cent of the sample respondents are choosing the particular cosmetic products for quality. It is inferred that majority of the sample respondents are choosing the particular cosmetic products for quality.

**Table 6 Opinion about the name of the company product was good in quality**

Sl. No	Name of the Company	No. of Respondents	Percentage
1.	Lakme	42	42
2.	Maybelline	18	18
3.	Dazlier	34	34
4.	Nykaa	6	6
5.	NY bae	-	-
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 6 shows that 42 per cent of the sample respondents have opined that the product of Lakme was in good quality. It is inferred that majority of the sample respondents have opined that the product of Lakme was in good quality.

**Table 7 Amount spent on purchasing cosmetic**

Sl. No	Amount spent on purchasing cosmetic	No. of Respondents	Percentage
1.	Below Rs.100	32	32
2.	Rs.100 to 500	59	59
3.	Rs.500 to 1000	9	9
4.	Above Rs.1000	-	-
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 7 clearly shows that 59 per cent of the sample respondents spent between Rs.100 to 500 for purchasing cosmetic. It is concluded that majority of the sample respondents spent between Rs.100 to 500 for purchasing cosmetic.

**Table 8 Level of Satisfaction with cosmetic product**

Sl. No	Level of Satisfaction	No. of Respondents	Percentage
1.	Highly Satisfied	14	14
2.	Satisfied	78	78

3.	Dissatisfied	4	4
4.	Somewhat Satisfied	4	4
	<b>Total</b>	<b>100</b>	<b>100</b>

**Source: Primary Data**

Table 8 clearly shows that 78 per cent of the sample respondents are satisfied with cosmetic product. It is inferred that most of the sample respondents are satisfied with cosmetic product.

**Table 9 Overall Satisfaction on the Cosmetic Product**

Attributes	Highly Satisfied	Satisfied	No Opinion	Dissatisfied	Highly Dissatisfied	Total Score	Rank
Price of the product is low	25(25)	30(30)	10(10)	20(20)	15(15)	330	IV
Availability of the product is easy	35(35)	37(37)	7(7)	11(11)	10(10)	376	III
Quality of the product is good	42(42)	45(45)	5(5)	3(3)	5(5)	416	I
Quantity of the product is upto the level mentioned in the product	38(38)	40(40)	6(6)	6(6)	10(10)	390	II

**Source: Primary data**

It is indicated that Table 9 gives details of the ranks given to the various attributes of overall satisfaction based on the responses of the consumer towards the cosmetic product: the factor that 'Quality of the product is good' ranked first, 'Quantity of the product is upto the level mentioned in the product' which is ranked second, 'Availability of the product is easy' ranked third and 'Price of the product is low.' has been ranked in the last place.

**Table 10 Cosmetic product used – Garrett Ranking**

Sl. No	Cosmetic products	Total Score	Average Score	Rank
1.	EYELINER: Lakme, Maybelline, Dazlier, Nykaa and NY bae	4785	47.85	III
2.	PERFUME: Fogg, First love, Blue lady, Engage and Yardley	5155	51.55	I
3.	FACE CREAM: Fair & Lovely, Himalaya, L' Oreal, Lakme and Ponds	4960	49.60	II

**Source: Primary data**

It is observed from Table 10 that 'PERFUME: Fogg, First love, Blue lady, Engage and Yardley' have been ranked first. Next rank is FACE CREAM: Fair & Lovely. Thus it is evident from Table 10 that PERFUME: Fogg, First love, Blue lady, Engage and Yardley has been ranked first in the cosmetic product used.

### SUGGESTIONS

- Majority of the sample respondents have been used perfume. Hence other type of cosmetic product should attract the consumer more.
- Majority of the sample respondents have been used Fogg brand of perfume. Hence other brand of perfume should take necessary steps to increase their sales
- Majority of the sample respondents have been used Himalaya brand of face cream. Hence other brand of face cream should take necessary steps to increase their sales and attract the consumer

### CONCLUSION

The purpose of this study is to investigate the consumer satisfaction towards Cosmetics products. Based on the study, it is concluded that most of the consumer are satisfied with cosmetic products. Most of the consumers are choosing the particular cosmetic products for quality. Most of the sample consumer have been used Himalaya brand of face cream and most of the sample consumer have been used Fogg brand of perfume.

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**A COMPARATIVE STUDY OF SOCIAL BEHAVIOR OF DIFFERENT LEVEL OF SOCIO ECONOMIC KABADDI PLAYERS**

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**ABSTRACT**

*The purpose of the study was to compare the social behavior of different level of socio economic status kabaddi players. For this purpose researcher has selected the 40 kabaddi players (20 kabaddi players of high socio economic status and 20 kabaddi players of low socio economic status) from various mandals and clubs of Seloo, Wardha with the help of purposive sampling method. Those kabaddi players were selected who were participated minimum in inter-collegiate tournaments or state tournaments. The mean age of the kabaddi players was 22.34 years. Subjects did not use any ergogenic aids or supplementations and also they were all free from any injuries during the collection of data. Socio economic status was measured with the help of Socio Economic Status Scale developed by Divya Singh and Deepa Vinay. Further kabaddi players were divided into two categories high and low socio economic status. The Social Behaviour of kabaddi players was measured with the help of Social Behaviour Inventory developed by M.C. Joshi and Jagdish Pandey. Statistical Analysis was done on the basis of 't' test to compare the social behavior between high and low socio economic kabaddi players and the level of significant was kept at 0.05. Result of the study table reveals that there was difference between the mean score of high socio economic status kabaddi players and low socio economic status kabaddi players as the mean score is 105.4 and 92.2, , and the mean difference was found 13.2, to check this difference is significant or not researcher further calculate 't' test and the 't' value 4.119 which was found greater than the tab. 't' value 2.024. This shows that there is significant difference was found between high socio economic status kabaddi players and low socio economic status kabaddi players. The difference may be attributed that low socio economic status kabaddi players goes through many difficulties and troubles in their family, such as lower educational achievement, poverty and mal nutrition which leads to poor health, ultimately it affect the behavior of kabaddi players and our society also and they were unable to show their better performance.*

*Keywords: Social Behaviour, Socio-economic Status, Kabaddi Players.*

**INTRODUCTION**

Games and sports are psychosocial activities which observed during matches and competition against opponents and co-operation among team mates. While competing with opponents it has been seen a lot of stress and strain arises before and after the competition. And a good co-operation among team mates helps them to handle the stress and strain situation and emerge with more confidence to face the challenges. A social act is an act done by intention, aim, plan, purpose, and so on which encompasses another person. A social action is an action which directed towards accomplishing a social act.

Social behavior can be stated as an act or proposed towards society, or the behavior taking place between members of the same species. Behavior such as perceiving, thinking, belief, honest, intentional, etc; which involves the expectations about the other's acts and actions. Even when an individual is able to live independently, very few people look to live in isolation. Human beings are always social creatures in nature right from the birth. Indeed, without social relations no child would survive. Hence, social relation generally receives social interactions, and no study of behaviour would be complete without taking into consideration to these interactions.

A numerous study shows that early childhood interventions has found short and medium term effects on academic or cognitive outcomes which leads to improvements in pro-social and anti-social behaviours, such as delinquency, risky adolescent behaviour, aggression, employment and earning. The potential of socio economic status affect in a broad range of children's social behaviours, attitudes and skills has strong implications for the development of various policies that may prevent antisocial behaviours of children. As child grows they become more social. This revolution stage is often very problematic for children. During this stage social behaviour is developed. Socio economic status plays vital role in the determination of their social behaviour. The impact of socio economic status on performance of athlete plays vital role. For better performance athlete must take a balance and nutritious diet, but many athlete were unaffordable because of the poverty level.

Psychological preparation not only helps players to overcome from the ill effects of health but also helps him adjust with his teammates to give his best performance. In a team sport such as kabaddi game the kabaddi player has to act together with his teammates and has to perform with integration or oneness. Social behaviour

also plays vital role for top notch performance, because kabaddi game is a team game which requires high level of group cohesion and integration. By observing the entire situation researcher has conducted the study entitled 'A comparative study of social behavior of different level of socio economic kabaddi players'.

### METHODOLOGY

The purpose of the study was to compare the social behavior of different level of socio economic status kabaddi players. For this purpose researcher has selected the 40 kabaddi players (20 kabaddi players of high socio economic status and 20 kabaddi players of low socio economic status) from various mandals and clubs of Seloo, Wardha with the help of purposive sampling method. Those kabaddi players were selected who were participated minimum in inter-collegiate tournaments or state tournaments. The mean age of the kabaddi players was 22.34 years. Subjects did not use any ergogenic aids or supplementations and also they were all free from any injuries during the collection of data.

**Socio economic status:** Socio economic status was measured with the help of Socio Economic Status Scale developed by Divya Singh and Deepa Vinay. Further kabaddi players were divided into two categories high and low socio economic status. The Social Behaviour of kabaddi players was measured with the help of Social Behaviour Inventory developed by M.C. Joshi and Jagdish Pandey

### STATISTICAL ANALYSIS

Statistical Analysis was done on the basis of 't' test to compare the social behavior between high and low socio economic kabaddi players and the level of significant was kept at 0.05.

**Table Comparison of Social Behavior of Kabaddi Players**

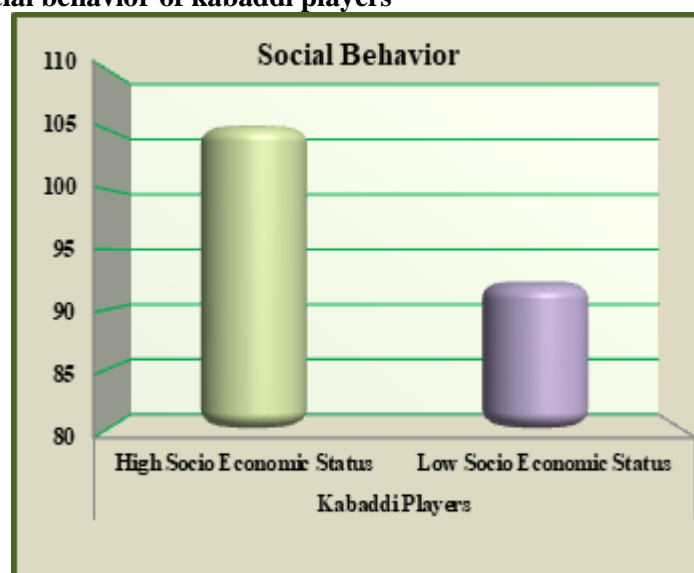
Kabaddi Players	Mean	S.D	S.E	M.D	D.F	Obt. 't'	Tab 't'
High Socio Economic Status	105.4	10.531	3.204	13.2	38	4.119*	2.024
Low Socio Economic Status	92.2	9.716					

\*Significant at 0.05 Level

Above table reveals that there was difference between the mean score of high socio economic status kabaddi players and low socio economic status kabaddi players as the mean score is 105.4 and 92.2, and the mean difference was found 13.2, to check this difference is significant or not researcher further calculate 't' test and the 't' value 4.119 which was found greater than the tab. 't' value 2.024. This shows that there is significant difference was found between high socio economic status kabaddi players and low socio economic status kabaddi players.

### Graph

**Mean comparison of social behavior of kabaddi players**



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**CONCLUSION**

In conclusion it reveals that there was difference found between the mean score of high socio economic status kabaddi players and low socio economic status kabaddi players and it also found to be significant. The high socio economic status kabaddi players shows high and better social behavior as compared to low socio economic status kabaddi players, the difference may be attributed that low socio economic status kabaddi players goes through many difficulties and troubles in their family, such as lower educational achievement, poverty and mal nutrition which leads to poor health, and affect the behavior of kabaddi players as well as our society. Kabaddi players with low socio-economic status were unable to show their better performance.

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## A STUDY ON CORPORATE SOCIAL RESPONSIBILITY BY SELECT CPSES IN NORTH EAST INDIA

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### ABSTRACT

*Central Public Sector Enterprises play a detrimental role in the development of our country. It acts as a vehicle for economic and social transformation of our nation. Corporate Social Responsibility on the other hand has added assumed significance in India especially in regard to Public Sector Enterprises. It is a mechanism through which the corporate houses are discharging their social responsiveness in various segments. Corporate Social Responsibility has become a buzzword in the country, it is no longer a mere philanthropic activity but has now become more of a mandated practice which has its influence in the North Eastern Region of the Country as well. This paper is thus an attempt to bring forth the social responsiveness of select Central Public Enterprises operating in North Eastern Region of India and further highlights the guidelines framed by Ministry of Corporate Affairs as per the New CSR Rules, 2014 for acting socially in the development of the country.*

**Keywords:** *Central Public Sector Enterprises (CPSEs), Corporate Social Responsibility (CSR), North Eastern Region (N.E.R.) and Ministry of Corporate Affairs (MCA).*

### I. INTRODUCTION:

Corporate Social Responsibility (CSR) refers to the social responsibility of the corporate houses or business houses towards the various stakeholders it deals in a direct or indirect manner. It is a continuous commitment of the organizations to behave morally and responsibly for development of the society. It is the sense of the corporate houses to act towards the ecology and society in a considerate manner in which it operates. The term CSR is also termed as Corporate Business Citizen, corporate responsibility, corporate conscience and corporate citizenship.

Central Public Sector Enterprises (CPSEs) on the other hand are those enterprises in which the direct holding of the Central Government or other CPSEs is 51% or more. These CPSEs are controlled and managed by Ministry of Heavy Engineering & Public Sector Enterprises under Government of India.

As on 31st March 2019, there were 348 CPSEs (excluding insurance companies). Of these, 86 enterprises were yet to commence commercial operations and 13 CPSEs are under closure/liquidation. Remaining 249 were operating enterprises (including 180 scheduled CPSEs).

At present, there are 10 Maharatnas, 14 Navratnas, and 73 Miniratnas (Category I and II).

#### **The Companies (Corporate Social Responsibility Policy) Rules, 2014:**

The Companies (CSR Rules), 2014 came into existence on 27<sup>th</sup> February, 2014. It complies with the draft rules presented by the Ministry of Corporate Affairs in the Companies Act, 2013 (Under Clause 135). The “CSR Policy” relates to the activities to be undertaken by the Company as specified in Schedule VII to the Act and the expenditure thereon, excluding activities undertaken in pursuance of normal course of business of a company.

According to the Act every company having

- (i) A net worth of rupees 500 crore or more; or
- (ii) A turnover of rupees 1000 crore or more; or
- (iii) A net profit of rupees 5 crore or more

during any financial year shall constitute a Corporate Social Responsibility Committee and is compelled to shed 2 per cent of its average net profits of preceding three years on CSR activities.

### II. REVIEW OF LITERATURE:

Singh Kumar Niranjana and Choudhary Nita (2014) in their paper “Role of Maharatna companies in Indian Economy” highlights the journey of Maharatna CPSEs towards building of the nation due to economic reforms and their market capitalization.

Mukherjee and Bordoloi (2014) in their paper “Corporate Social Responsibility of Central Public Sector Enterprises” has discussed the CSR activities of two crucial CPSEs of North Eastern Region, i.e. NEEPCO and NHPC, both the enterprises being of prime importance for electricity generation in the entire region. The paper also highlights the various regulatory guidelines governing the CPSEs for CSR practices.



Singh Satinder and Sharma Ashwarya (2015) in their paper “Corporate Social Responsibility Practices in India: Analysis of Public Companies” explains the CSR practices framework for companies and analyzed the CSR practices of selected public companies i.e. GAIL and CIL. The study concludes with the findings that both the companies have been contributing to CSR by addressing some of the major areas with their individual methods of intervention.

Ray Srirupa (2017) in her paper “Corporate Social Responsibility: An Analysis on Central Public Sector Undertakings in Indian Context” aimed at analyzing the new CSR compliances of the top profit making CPSEs in tune with the Companies Act, 2013 as well as the guidelines provided by DPE on CSR and Sustainability for CPSEs, published by the Ministry of Heavy Industries as revised with effect from 1<sup>st</sup> April, 2014. The paper further reviews the accounting of the companies surveyed for their investment in CSR activities in accordance to the Guidelines Note on accounting for CSR expenditures as issued by the Institute of Chartered Accountants of India (ICAI).

Athma Prashanta and Yarragola Narrendar (2017) in their paper “CSR Guidelines: CPSE vs Companies Act 2013 (A Case Study of Maharatna Companies)” highlighted that the CSR under CPSE guidelines on CSR and sustainability is by or large equal to the CSR liability under Section 135 of Companies Act 2013 as per the Financial Year 2014-2015. As per that the provisions of section 135 are flexible to Maharatna Companies.

### Need of the Study:

It is visible from the above reviewed literatures that significant studies have been done in the field of CSR on CPSEs in India. However, there are relatively less literature available supporting the contribution of CPSEs in India with respect to CSR especially in reference to the CPSEs headquartered in the North Eastern States of India. Thus, the present study attempts to know the contribution of select CPSEs and identify the CSR practices of the select CPSEs operating in North East Region of India.

### III. OBJECTIVES OF THE STUDY

The present study has been conducted with the following objectives:

1. To identify the CSR initiatives undertaken by select CPSEs of North East Region of India.
2. To analyse the financial implications of the select CPSEs with reference to the CSR Policy Rules, 2014.

### IV. RESEARCH METHODOLOGY:

1. Nature of Research – Descriptive Research
2. Sampling Technique – Judgmental Sampling
3. Population of the Study- The population of the study comprises of 10 CPSEs which has their headquarters and operations in N.E.R.
4. Sampling Frame - The Sample Units has been chosen through judgmental sampling based on the volume of CSR activities performed in the region and their annual net profits during the period (2012-2016) for the study. The Net Profit/Net Loss (-) of the select 10 CPSEs from 2010-2011 to 2015-2016 (6 Years) are highlighted below –

**Table No. 1: Net Profit/Net Loss (-) of the CPSEs with their Headquarters in N.E.R (in lacs)**

SL No.	Name of the CPSE	Headquarter	Year of Incorporation	2012-2013	2013-2014	2014-2015	2015-2016
1.	Brahmaputra Valley Fertilizer Corporation Limited (BVFCL)	Namrup, Assam	2002	-3264	-15829	64612	2850
2.	North Eastern Regional Agricultural Marketing Corporation Limited (NERAMAC)	Guwahati, Assam	1982	-282	-444	-589	-589
3.	Oil India Limited (OIL)	Duliajan, Assam	1959	358934	298130	251020	233011
4.	Numaligarh Refinery Limited (NRL)	Numaligarh, Assam	1993	14426	37109	71831	122234
5.	Assam Ashok Hotel	Guwahati,	1985	-22	35	-119	-155

	Corporation Limited	Assam					
6.	Donyi Polo Ashok Hotel Limited	Itanagar, Arunachal Pradesh	1985	4	23	-3	1
7.	Loktak Downstream Hydro Electric Corporation Limited	Imphal, Manipur	2009	-	-	-	-
8.	North Eastern Electric Power Corporation Limited (NEEPCO)	Shillong, Meghalaya	1976	24230	23152	31854	37255
9.	North Eastern Handicraft & Handloom Development Corporation Limited (NEHHDC)	Shillong, Meghalaya	1977	-150	-232	-440	-196
10.	Nagaland Pulp & Paper Corporation Limited	Mokochung, Nagaland	1971	-1458	-1473	-1538	-1739

**Source: Public Sector Enterprise Survey Report 2010-2011 to 2015-2016**

The above table depicts that out of total ten listed CPSEs only three CPSEs have recorded Net profit consistently throughout the four Financial Years (i.e. from 2012-2016), which is essential for performing CSR activities. Therefore, the following three CPSEs only have been considered for the study.

**Table No. 2: List of the Select CPSEs for the Study**

SL No.	Name of the CPSE	Headquarter	Date & Year of Incorporation	Status	Products	Ministry
1.	Oil India Limited (OIL)	Field-Duliajan, Pipeline-Guwahati Assam	18.02.1959	Navratna	Crude oil, LPG and Natural Gas	Ministry of Petroleum & Natural Gas
2.	Numaligarh Refinery Limited (NRL)	Numaligarh, Assam	22.04.1993	Miniratna Category -I	Petroleum and White Oil Products	Ministry of Petroleum & Natural Gas
3.	North Eastern Electric Power Corporation Limited (NEEPCO)	Shillong, Meghalaya	02.04.1976	Miniratna Category -I	Power and Electricity	Ministry of Power

**Source: Self Compilation**

The above table exhibits that only OIL is a Navratna Category CPSE, whereas NRL and NEEPCO are Miniratna, Category – I CPSE. OIL and NRL are headquartered in the state of Assam, whereas NEEPCO is headquartered in Meghalaya.

**5. Sources of Data collection –**

- Primary information were collected through personal interviews and questionnaires with the select CPSE Personnel's.
- Secondary information were collected through various journals, websites, books and annual reports of the select CPSEs.

**6. Limitations of the Study –** The present study has been carried out to view the level of various CSR activities performed by the select business entities with some of the following major limitations-

- It is confined to a limited period of time i.e. 2012-2013 to 2019-2020 only.

- (ii) It is also confined only to three select business entities (CPSEs) operating and head quartered in North Eastern Region of India.

## V. DATA ANALYSIS AND INTERPRETATION:

### Objective 1: Corporate Social Responsibility Practices by the Select CPSEs:

#### Oil India Limited (OIL):

The major CSR initiatives of OIL includes -

**Table No. 3: CSR initiatives of OIL:**

Sl no.	Focus Area	Project Name	Year of Operation	Key CSR Initiatives
1.	Healthcare	OIL SPARSHA	1980's	Mobile dispensary services in OIL operational areas. Health Camps conducted in remote areas.
2.	Capacity Building and Women Empowerment	-	1984	Handicraft Training and Production Centre (HTPC) at Duliajan through 9-month stipendiary training on weaving, cutting and tailoring, embroidery and knitting to young women, post training assistance by way of looms, sewing machines, thread, etc. on successful completion
3.	Capacity Building and Women Empowerment	-	1991	General Nursing and Midwifery (GNM) training. A nursing school in Duliajan for young women. Trainees are given stipend along with hostel, uniform and protective clothing. It's a 3 years certificate course certified by Assam Nursing Council.
4.	Agriculture Based Livelihood	Social Welfare Project	1991	Implemented by Oil India Rural Development Society (OIRDS). OIRDS is one of the foremost social welfare project of projects of OIL conceived with the idea of promoting sustainable growth of rural economy. With organic manure, farming tools and implements.
5.	Sustainable Livelihood	OIL RUPANTAR	2003	Engage unemployed women and youth in EDPs and Self-employment in primary, secondary and tertiary sector. Computer Centre (2004) at Duliajan with subsidized short-term courses (trained in Basic, DTP, Tally, Language, C++, etc. to unemployed youths/students of Rs.500 per month.
6.	Education	OIL UTKARSH - SUPER 30	2010	Underprivileged section of society is provided with 11 months free residential coaching on IIT entrance examination to IIT's and other leading educational institutions of the country. 5 Super 30 Centres are in Guwahati, Jorhat, Dibrugarh, Jodhpur and Itanagar.
7.	Education	OIL DIKHYA	2012	Educational Programs and computer education to students or rural schools via state -of - the art mobile computer education buses/vans that visit each of the schools. The project is implemented in 30 Schools (VI to VIII) in operational areas of Assam.

				<p>Another program Knowledge-Yan with k-class, OIL distributed 350 AV educational devices and DVD players to understand difficult courses.</p> <p>Primary school teacher Training of rural schools on innovating teaching methodologies. Adult Literacy Programs are also held under the project in various operational areas of OIL.</p>
8.	<b>Healthcare</b>	OIL AROGYA	2012-2013	<p>Reduction on Infant Mortality Rate (IMR) and Maternity Mortality Rate (MMR) in and around OIL's operational areas.</p> <p>It includes pre and post natal health check-ups, sensitizing women on maternal ,child health and benefits of institutional delivery, tracking and counseling of pregnant women, training and awareness on community health for better hygiene, sanitation and family planning. Combating HIV Aids, Malaria and TB.</p>
9.	<b>Environment Protection</b>	PROJECT SEUJI	2013-2014	Tree Plantation of 100 saplings through a tie up with NGO
10.	<b>Sustainable Livelihood</b>	PROJECT KAMDHENU	2013-2014	Dairy Project
11.	<b>Skill Development</b>	OIL SWABALAM BAN	2013-2014	<p>Sustainable employment opportunities to the unemployed youths from operational areas. Short term courses/trades such as construction industry (carpentry, plumbing, welding, etc. House – keeping and hospitality , food and beverage, electrician, BPO, Sewing machine operator, etc.</p>
12.	<b>Swachh Bharat Abhiyan</b>	ANUBHAV	2014	<p>Training of sanitation workers in Oil field headquarters.</p> <p>Adopted Kamakhya Temple as part of Swachh Iconic Place.</p>
13.	<b>Eco-Tourism Projects</b>	N.A.	<p>2014</p> <p>2016</p> <p>2013-2014</p>	<p>Hoolock Gibbon and Rainforest Biodiversity Conservation</p> <p>Kaziranga Eco-Tourism Project, OIL and Assam Tourism Development Corporation Limited.</p> <p>Adoption of Rhino Calves in Kaziranga National Park. Undergoing rehabilitation. Supports Sasoni Merbeel Eco-Tourism Project with solar lighting, pedal boats, etc.</p>
14.	<b>Education</b>	OIL SIKSHA RATNA PURASKAR	2014	<p>Meritorious Awards and recognition to the eminent teachers of provincialized schools and colleges under Government of Assam (Elementary to Secondary).</p>
15.	<b>Environment Protection</b>	SMOKELESS VILLAGE	2015-2016	<p>OIL has adopted 5 Villages and distributed free LPG connection to rural households using firewood/biomass for cooking</p>
16.	<b>Environment</b>	OIL URJA	2016-2017	Reduction of Carbon Emissions through use of

	<b>Protection</b>			renewable energy and use of fuel efficient techniques. Also, solar solution in alignment.
17.	<b>Skill Development</b>	OIL JEVKA	2016-2017	A community cluster based sustainable livelihood aims at imparting skill development and up-gradation training to the targeted beneficiaries on bee-keeping, mustard, buckwheat and local pulse.
18.	<b>Education</b>	OIL SAKSHYAM	-	OIL Merit Scholarship Scheme, and monetary support to students with disabilities Mrinaljyoti Rehabilitation Centre (Duliajan) and Moran Blind School (Moran). Others include Assam Association of the Deaf and Rural Blind Society (Bihpuria).

**Source: Compiled from the Annual Reports of OIL**

Some of the other CSR initiatives undertaken by OIL includes the following -

- (i) For promoting Rural Sports OIL have been supporting and promoting local youth clubs and school children for promoting games and sports and organizing rural sports and have been encouraging young athletes for participating at district, state and national levels. OIL has also supported district, state and national level sports associations and has felicitated eminent sports persons in the national and international sports. Also support to socio cultural events are promoted by OIL for promoting Art, culture and Heritage.
- (ii) OIL has further, invested on infrastructural development by way of constructing roads, bridges, public stages, waiting sheds, rural hospitals, playgrounds, libraries, lecture halls, computer centers, etc.in several parts of the country.

**Numaligarh Refinery Limited (NRL):**

The major CSR initiatives of NRL includes -

**Table No. 4: CSR initiatives of NRL:**

Sl no.	Focus Area	CSR Project	Nature of Activities
1.	<b>Livelihood Opportunities</b>	SWA-NIRBHAR	Livelihood Opportunities for the educated unemployed youth through Self Help Groups(SHG's)
2.		UTTARAN	Skill development of educated unemployed youth
3.	<b>Education</b>	GYANDEEP	Recognizing merit- Scholarships to meritorious students of nearby schools.
4.		PRERONA	Encouraging education of the girl child-scholarships to promising girl students in an effort to encourage them to continue with their studies.
5.		DHRONACHARYA	Incentivizing Schools performing well in Class X exams
6.		UTKARXA	Enhancing teaching skills of teachers in Golaghat District through refresher courses and teaching aids.
7.		LIBRARY FOR ALL	Fully equipped school libraries in nearby schools.
8.		XAMPURNA XAXARTA	Endeavour towards 100% literacy within 5 km radius of refinery.
9.		NIRAMOY	Holistic healthcare to the needy at their doorsteps through mobile medical camps
10.	<b>Health</b>	NRL Helping Hand	Aid and appliances to the differently abled in the State to enable them to live a life of dignity.
11.		DRISHTI	Free eye screening and cataract operation camps in Golaghat district.
12.		PARICHINNATA	Hygienic sanitation by construction of toilets blocks for BPL households
13.		JEEVANDHARA	Safe drinking water to villages

		NUMALI	Fully equipped boat clinic for marginal river population of Sonitpur
14.	Environmental Sustainability	SURYAJYOTI	Solar power to nearby schools as part of Environment Sustainability
15.	Sports	KHEL PRASHIKSHAN	Nurturing budding rural players by setting up football academy and badminton coaching centre in Golaghat District
16.	Community Development	SAJALDHARA	Revival of defunct pipe water schemes

Source: Compiled from the Annual Reports of NRL

#### North Eastern Electric Power Corporation Limited (NEEPCO):

The major CSR initiatives of NEEPCO includes -

Table No. 5: CSR initiatives of NEEPCO Ltd.:

Sl no.	Focus Area	Nature of CSR Activities
1.	Education:	<p>Classroom extensions and electrification of Schools in N.E.R.</p> <p>Distribution of School dress to the students of Government schools in N.E.</p> <p>Donation of furniture's and school equipment's to various schools.</p> <p>Scholarship policy adopted to encourage and motivate economically backward deserving students residing within a radius of 20 km of project areas to pursue higher education and technical studies.</p> <p>Book grants are provided to the universities of the N.E.R. such as NEHU Meghalaya, Dibrugarh and Assam University, etc.</p> <p>NEEPCO sponsors few kindergartens functioning in the project sites besides had been sponsoring four Vivekananda Kendra Vidyalaya (VKV) Schools in four of its Operational plants. The Vivekananda Kendra Siksha Vibhag is the nodal agency for managing the corporation's schools. These are English medium schools of good academic standards affiliated to CBSE. Namely – VKV Umrangso (Assam), VKV Bokuloni (Assam), VKV Doyang (Nagaland), VKV Yazali (Arunachal Pradesh)</p>
2.	Environment:	<p>Prepared a feasibility report on alternate water transport for the local people through the reservoir of Tuirial H.E. Project of Mizoram</p> <p>Installed a Solar Plant in Agartala for 20 MW. The project was completed on March, 2015</p> <p>Sewage Water contamination through water management at Shillong.</p> <p>Rain water harvesting for consumptive use at Agartala Gas Turbine Plant</p> <p>Afforestation for creation of green belt at Ranganadi H.E. Plant.</p>
3.	Health:	<p>Free Health Camps and distribution of medicines in various states of N.E.R.</p> <p>Donation of ambulance to medical equipment's to Medical Colleges</p>
4.	Rural Development Projects:	<p>Constructed Water filter tanks and ring wells.</p> <p>Construction of roads, footpaths, culverts, parks, community halls, market places, etc.</p>
5.	Employment Training Programme:	Organizing of Tailoring classes, Steel fabrication training programmes, etc.
6.	Swachh Vidyalaya Abhiyan (SVA):	<p>In response to the call made by Honorable Prime Minister Narendra Modi on 15th August, 2014, "All schools in the country should have toilets with separate toilets for girls", NEEPCO has constructed 664 toilets in seven states of NER.</p> <p>Donated waste management Appliance to "Kamakhya Board" on 13th June, 2015.</p>

Source: Compiled from the Annual Reports of NEEPCO

Table No. 6: Focus Areas of CSR by OIL, NRL and NEEPCO

SL No.	Focus Areas	OIL	NRL	NEEPCO	Frequency
1.	Healthcare	✓	✓	✓	03
2.	Education	✓	✓	✓	03
3.	Environmental Sustainability	✓	✓	✓	03
4.	Equality & Empowerment	✓	✓	✓	03
5.	Protection of Culture & Heritage	✓	✓	✓	03
6.	Sports	✓	✓	✓	03
7.	Slum & Rural Development	✓	✓	✓	03
8.	Technology Up-gradation	✓	✓	✓	03
9.	Benefits to Veterans & their families	x	X	X	00
10.	Contribution to PMNRF	x	X	✓	01
11.	Swachh Vidyalay Abhiyan(SVA)	✓	✓	✓	03

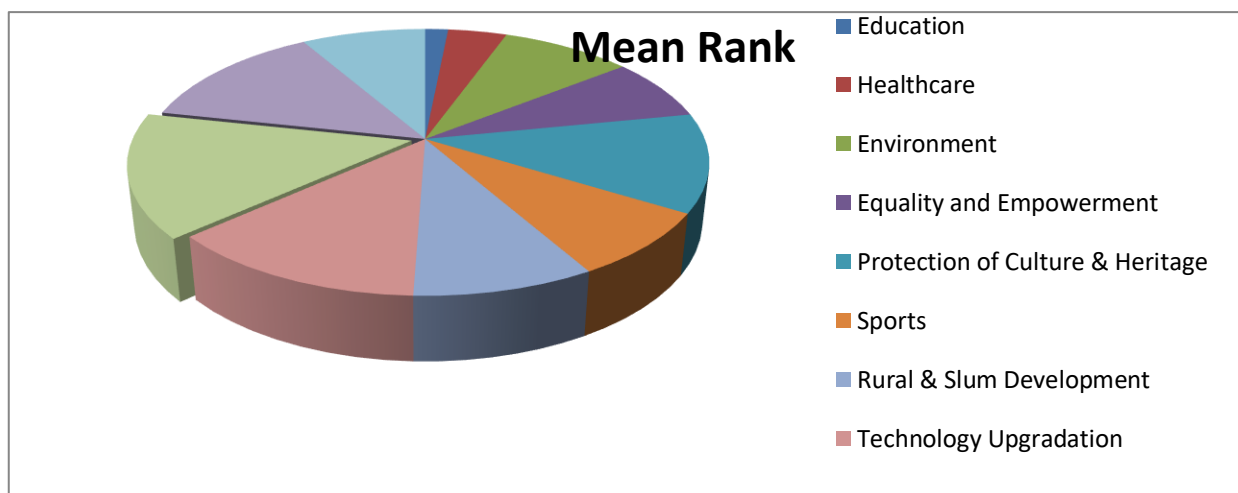
Source: Primary Data

The above table highlights the focus areas of CSR activities practiced by all the three CPSEs i.e. OIL, NRL and NEEPCO. However, benefits to veterans and their families is not practiced by any of the CPSEs. Also Contribution to PMNRF has been made only by NEEPCO and not by OIL and NRL.

Table No. 7: Ranking of the Major Thrust Areas of CSR (as per importance given) by OIL, NRL and NEEPCO

SL No.	Focus Areas	Mean Rank
1.	Education	1.17
2.	Healthcare	3.00
3.	Environment	6.67
4.	Equality and Empowerment	5.67
5.	Protection of Culture & Heritage	9.00
6.	Sports	6.00
7.	Rural & Slum Development	6.67
8.	Technology Upgradation	9.67
9.	Benefits to Veterans & their Families	11.33
10.	Contribution to Prime Minister's National Relief Fund/Disaster Relief (PMNRF)	10.00
11.	Swachh Vidyalaya Abhiyan (SVA)	6.33

Source: Primary Data



Source: Primary data

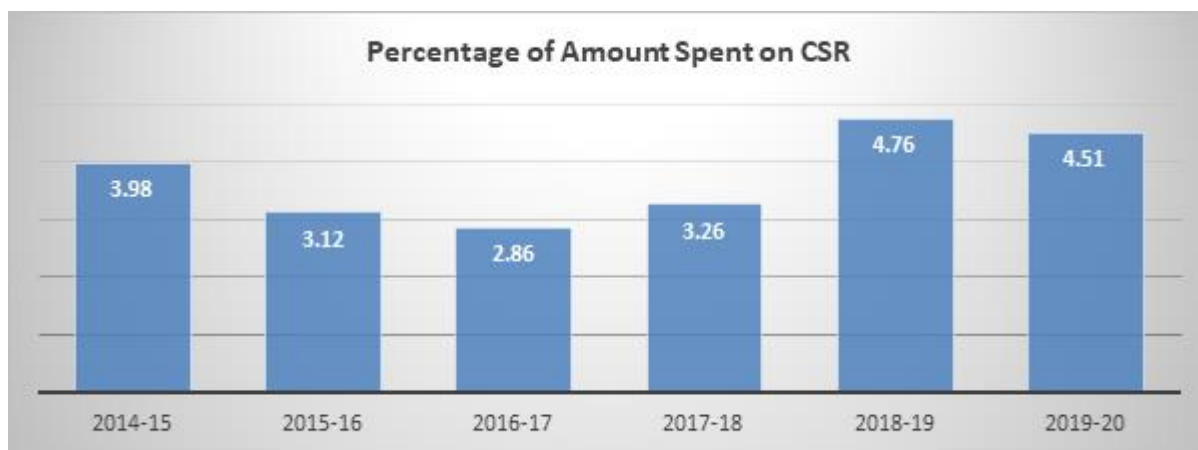
**Figure No. 1: Ranking of the Major Thrust Areas of CSR by OIL, NRL and NEEPCO**

From the above table it can be implied that the mean rank for education is 1.17, followed by healthcare with the mean rank of 3.00 and 11.33 for benefits to veterans and their families being the lowest mean rank.

**Objective 2: Financial Implications of CSR by OIL, NRL and NEEPCO****I. OIL INDIA LIMITED****Table No.8: CSR EXPENDITURE OF OIL INDIA LIMITED**

Serial No.	Financial years	Average Net Profit for Last 3 Years (in Crores)	Prescribed CSR Expenditure (2% of 3 years Average Net Profit (in crores)	Amount Utilized in the FY for CSR by the Company (in crores)	Percent age of Amount Spent in the FY on CSR	Below/ Above the Prescribed Limit (2%)
1	2014-15	3339.22	66.77	133.31	3.98	Above the prescribed limit of 2 %
2	2015-16	2966.71	59.34	92.21	3.12	Above the prescribed limit of 2 %
3	2016-17	3790.3	75.81	108.37	2.86	Above the prescribed limit of 2 %
4	2017-18	3087.95	61.76	100.58	3.26	Above the prescribed limit of 2 %
5	2018-19	2803.13	56.16	133.39	4.76	Above the prescribed limit of 2 %
6	2019-20	2783.63	55.76	125.41	4.51	Above the prescribed limit of 2 %

(Source: Self Compiled from the Annual Reports of Oil India Limited)

**Figure No.2: CSR EXPENDITURE OF OIL INDIA LIMITED (OIL)**

The above table and figure depicts that the annual expenditure on CSR by OIL in the year 2014-2015 was Rs.133.31 Crore, in the year 2015-2016 it was Rs.92.21 Crore, in the year 2016-2017 was Rs.108.37 Crore, in the year 2017-18 it was Rs.100.58 Crore, in the year 2018-2019 it was Rs.133.39 Crore and Rs.125.41 Crore in the year 2019-2020 respectively. However, the highest percentage spent for CSR by OIL was recorded in the year 2018-2019 i.e. 4.76 % and the lowest was recorded in 2016-2017 i.e. 2.86 %.

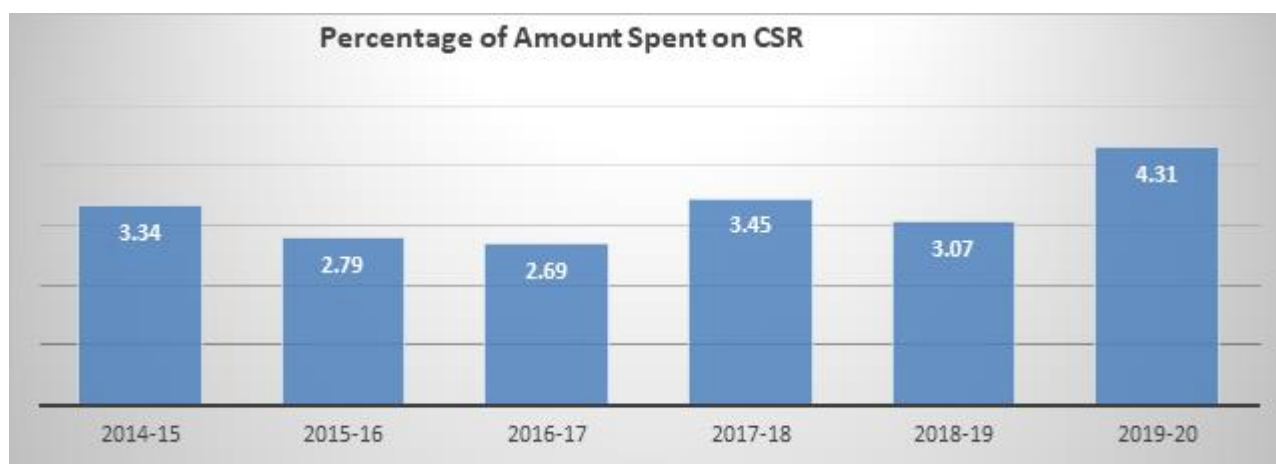
**II. NUMALIGARH REFINERY LIMITED****Table No.9: CSR EXPENDITURE OF NUMALIGARH REFINERY LIMITED**

Serial No.	Financial years	Average Net Profit for Last 3 Years (in Crores)	Prescribed CSR Expenditure (2% of 3	Amount Utilized in the FY for CSR by the	Percentage of Amount Spent in the FY on	Below/ Above the Prescribed Limit (2%)



			years Average Net Profit (in crores)	Company (in crores)	CSR	
1	2014-15	233.02	4.66	7.79	3.34	Above the prescribed limit of 2 %
2	2015-16	411.22	8.22	11.51	2.79	Above the prescribed limit of 2 %
3	2016-17	766.73	15.33	20.7	2.69	Above the prescribed limit of 2 %
4	2017-18	1341.94	26.84	46.25	3.45	Above the prescribed limit of 2 %
5	2018-19	1783.09	35.66	54.85	3.07	Above the prescribed limit of 2 %
6	2019-20	2036.04	40.72	87.61	4.31	Above the prescribed limit of 2 %

(Source: Self Compiled from the Annual Reports of Numaligarh Refinery Limited)



**Figure No.3: CSR EXPENDITURE OF NUMALIGARH REFINERY LIMITED (NRL)**

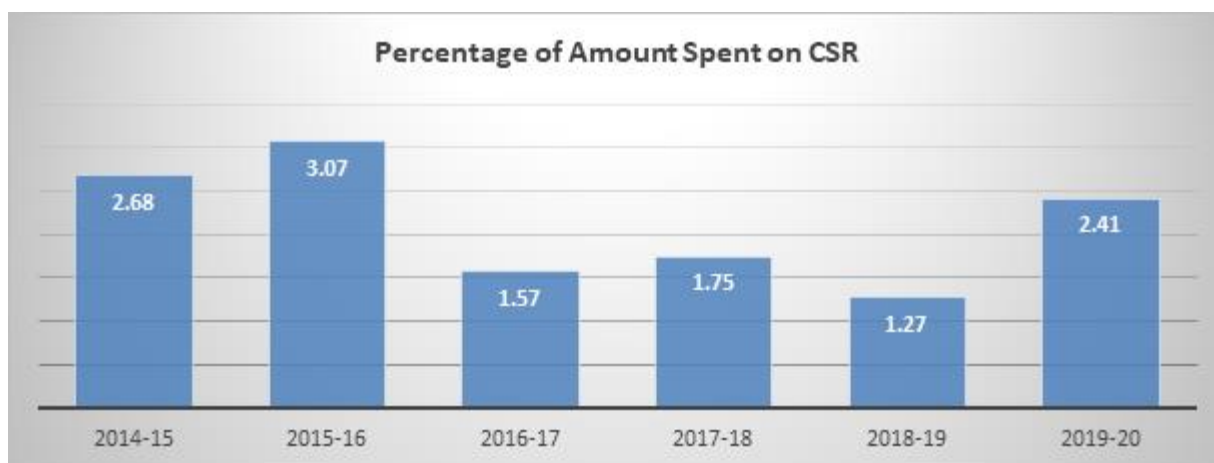
The above table and figure depicts that the annual expenditure on CSR by NRL in the year 2014-2015 was Rs.7.79 Crore, in the year 2015-2016 it was Rs.11.51 Crore, in the year 2016-2017 was Rs. 20.7 Crore, in the year 2017-18 it was Rs. 46.25 Crore, in the year 2018-2019 it was Rs.54.85 Crore and Rs. 87.61 Crore in the year 2019-2020 respectively. However, the highest percentage spent for CSR by NRL was recorded in the year 2019-2020 i.e. 4.31 % and the lowest was recorded in 2016-2017 i.e. 2.69 %.

### III. NORTH EASTERN ELECTRIC POWER CORPORATION LIMITED

**Table No.10 : CSR EXPENDITURE OF NORTH EASTERN ELECTRIC POWER CORPORATION LIMITED**

Serial No.	Financial years	Average Net Profit for Last 3 Years (in Crores)	Prescribed CSR Expenditure (2% of 3 years Average Net Profit (in crores)	Amount Utilized in the FY for CSR by the Company (in crores)	Percentage of Amount Spent in the FY	Below/ Above the Prescribed Limit (2%)
1	2014-15	282.57	5.65	7.62	2.68	Above the prescribed limit of 2 %
2	2015-16	334.57	6.69	10.306	3.07	Above the prescribed limit of 2 %
3	2016-17	384.58	7.69	6.07	1.57	Below the prescribed limit of 2 %
4	2017-18	413.49	8.27	7.27	1.75	Below the prescribed limit of 2 %
5	2018-19	403.58	8.07	5.15	1.27	Below the prescribed limit of 2 %
6	2019-20	408.98	8.17	9.89	2.41	Above the prescribed limit of 2 %

(Source: Self Compiled from the Annual Reports of North Eastern Electric Power Corporation Limited )



**Figure No.4: CSR EXPENDITURE OF NORTH EASTERN ELECTRIC POWER CORPORATION LIMITED (NEEPCO)**

The above table and figure depicts that the annual expenditure on CSR by NEEPCO in the year 2014-2015 was Rs. 7.62 Crore, in the year 2015-2016 it was Rs.10.306 Crore, in the year 2016-2017 was Rs. 6.07 Crore, in the year 2017-18 it was Rs. 7.27 Crore, in the year 2018-2019 it was Rs. 5.15 Crore and Rs.9.89 Crore in the year 2019-2020 respectively. However, the highest percentage spent for CSR by NEEPCO was recorded in the year 2015-2016 i.e. 3.07% and the lowest was recorded in 2018-2019 i.e. 1.27 %.

#### IV. FINDINGS OF THE STUDY:

Some of the major findings of the study are as follows –

1. It be noted that besides the prominent focus areas of CSR activities several other projects on CSR in different fields have been conducted by the three CPSEs for the select financial years.
2. It can further be seen that there is uniformity in the focus areas/category for CSR activities amongst the 3 CPSEs (both inter and intra) in the select Financial Years and heterogeneity under various focus areas for CSR does exist which varies amongst the select CPSEs.
3. It is further found that Education sector has the highest the Mean Rank of 1.17 amongst the three CPSEs, followed by others such as Healthcare with the mean rank of 3.00 followed by others. The sector with the lowest Mean Rank amongst the three companies is the sector for benefiting Veterans and their family members.
4. In terms of the spent on CSR activities it can be seen that from the average net profit of 3 years for OIL was maximum in the year 2018-2019 i.e. 4.76%, in case of NRL it was 4.31 % in the year 2019-2020 and in case of NEEPCO was maximum 3.07 % in the year 2015-2016.
5. Further, the lowest percentage spent by all the three CPSEs was in the year 2016-2017 with OIL 2.86 %, NRL 2.69 % in the year 2016-2017 and NEEPCO 1.27 % in the year 2018-2019.
6. It can further be noted that OIL and NRL has been fulfilling the MCA mandate on CSR of a minimum of 2% spend annually considering 3 years Average Net Profit and have been consistently spending beyond the norms of minimum 2% annually on CSR activities.

#### CONCLUSION :

Thus, it can be concluded that the select CPSEs extensively performs CSR activities in its operational areas of North Eastern Region and has profusely contributed to the social, economic and ecological upliftment of the region by its CSR practices. Further, after the statutory mandate of spending 2% for CSR activities as per The Companies Act, 2013, with effect from 2014-2015, companies have been more responsible towards their interest for the society in terms of CSR spent as compared to the previous years. However new initiatives should be undertaken in order to increase the thrust areas on CSR for benefiting the region in which the CPSEs operate.

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## USE OF CLOUD COMPUTING IN RESEARCH AND ANALYSIS BY RESEARCHES AND STUDENTS

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### ABSTRACT

*Cloud computing become the most enticing field of computing. Cloud computing provides the computing infrastructure, storage and any type of applications from audio to word processors etc. The clients don't need any charge for computing infrastructure building or maintenance cost of any hardware or software that eliminates the huge financial stress. The evolution to cloud computing in academies is an vital in education, financial, globalization, and constantly changing necessities, Cloud computing plays a very vital role in solving the problems faced by academies during Expressive method and survey technique were used in the research and analyse the data. Proportion and occurrence are used in the study. This paper indicated on the value of this technology and examined the level of awareness and usage of cloud computing among academic staff in colleges of education. Next-generation sequencing techniques notoriously create a lot of data but also gives solutions to a lot of questions. The study provides holistic insights future research directions.*

### INTRODUCTION

In the informative age, academies use new information technologies (IT) in line with the requirements of age and prospects of their users. Universities must be in an effort to figure themselves according to the necessities of the new IT and to renew themselves scientifically. Cloud computing will enable academies with limited finances to benefit from information services without making any new monetary investments for information and communications technology (ICT) resources. Software as a service. It offers the software as a service on the cloud. Clients may access any software requests as they require or may run their applications or programs in the cloud via internet that may be hosted and upheld. A important load shift takes place in cloud computing which is allocated by the computer of the network that shapes the cloud.

### LITERATURE REVIEW

Cloud computing means providing faster advanced, lithe resources and financial scaling by providing computing facilities over the cloud. Cloud computing is a dispersal model that permits applications and facilities to be opened self-reliantly from time, space, and platform in a enormous data center organization. Cloud computing allows data facilities to be presented as progressive and accessible applications by taking advantage of a dependable and accessible substructure.

#### *Classification Based on Service Provided by Clouds*

- **Infrastructure as a Service (IaaS):** These providers host a large set of computing possessions like computing possessions including servers, networking, storage and data centre planetary on a pay-apiece-use base.
- **Platform as a Service (PaaS):** These services propose a cloud-based environment that provisions the complete lifespan of construction and bringing web-based needs without buying and handling the vital hardware, software and hosting charge.
- **Software as a service (SaaS):** It offers the software as a facility on the cloud. Patrons may admission any software requests as they require or may run their requests or programs in the cloud via internet that may be presented and preserved.
- **Database as a service (DaaS):** This is almost like IaaS, but is more of a kind of enthusiastic storage which offers database ability as a facility.

#### *Calcification of Location Built Cloud: -*

- **Public Cloud:** It is retained by the cloud service provider corporations. The clients have no agreement to switch the cloud rather they just enjoy the facilities provided by the cloud though it seems to the patrons that everything is running efficiently at their own computer due to the virtualization of the cloud organization.
- **Private Cloud:** This cloud is either owned by the corporation itself for its use or it may be hosted by third party but used by numerous lines of occupational and essential collections.

- **Hybrid Cloud:** When both the private and public cloud composed is used, is called hybrid cloud or also called Cloud Bursting.
- **Community Cloud:** In community cloud, computing substructure is being shared by the administrations fitting to the same community.

*Characteristics of cloud computing are listed below:*

- **On-demand Self-service:** The capability to use data resources repeatedly in accord with the usage rates and presentations of computing resources.
- **Broad Network Access:** The capability of users to admission cloud resources not only through computers but also through all types of devices and computer networks.
- **Resource Pooling:** The aptitude to share data resources, such as computer network, server, operating system, database, and computer software, between numerous cloud users.
- **Rapid Elasticity:** Resources can be accessible to users by cloud computing when they are needed the most. With this feature of cloud computing, users can use possessions when they need and release them for other users when they are done.
- **Measured Service:** The capability of users to enhance resource consumption based on their use of cloud resources and their presentation. With this feature, cloud services can be stimulating at the same time. In this way, users only wage for the cloud resources they use.

#### **Cloud Computing used by Academies**

All performers in the material society are molded according to data, which is the most vital and basic resource of the material society. In the age of acquaintance in which data has gained a deliberate worth in its own right, It is seen that as long as growth and change in IT continue, the manufacture and exhibition of data services are an unavoidable fact.

- To advance the level of practical and scientific data,
- To train fit personnel required by civilization,
- To surge the knowledgeable power and culture of the pupils, and
- To increase the common ethos and typical of the society in which it aids.

#### **ICT Organizing at Academies**

- **Network/System:** It refuges the parts where practical works such as network connection, computer conservation, smart card, and camera-related facilities are provided.
- **Software/Web Projects:** It comprises units accountable for software and web developments.
- **Administrative Financial Affairs:** It comprises organizational units related to economics, secretarial, and so on.
- **Help Desk:** It refuges the elements to which users connect with for their hardware and software snags.
- **Project and Personnel Management:** It covers the elements related to plan and personnel administration.

#### **Current Usage of Cloud Computing in institution for researchers**

Community institutions have developed initial adopters of the cloud computing expertise. Researchers used the Technology Acceptance Model to inspect whether community institution pupils would accept cloud computing technology. Observations were done in a small virtual lab in a community institution setting. A real option refers to the right but not the responsibility to make a executive decision to take proprietorship of a real advantage or board on a project at a imminent point in time.

#### **Google drive in academies for researchers**

This is used in a numerous way by instructors across the university levels. It provides users with the skill to share files online with anyone any time. It allows the formation of mind maps using a demonstration and this permits scholars and scientist to work on the demonstration with others alongside. This agreed with Microsoft Office crops so there is exchange of documents with ease. This smooths group work whereby pupils can work on a particular project, apprising it from different sites concurrently with all the changes being conserved in a review history.

**Benefits of cloud technology in research and academic study**

This is the key features of cloud computing is its ability to be retrieved anywhere where there is a dependable Internet link. It is so adaptable so as to indorse on-demand self-facility which permits an end user to have computing abilities empty of the need of human interface with a service provider. These speculative household tasks range across the university levels instigating with the capability to work on files anywhere, anytime, and the delivery of quick response from numerous people parallelly and asynchronously. This not only allows users to correct faults of today but faults that are as old as the article as well. Using cloud-based results has one benefit that is often ignored: its capability to easily share data.

**Applications of Cloud-Based Machineries in Medical Study and Research**

In current decades, data has become significantly focused on how to professionally and properly analyse genome data. Cloud BLAST was among the first cloud-based machineries to solve such categorization analysis problems, with more machineries being launched since then. Cloud-based knowledges target a range of genomic claims, such as arrangement alignment, short read mapping (e.g. Cloud Aligner), SNP documentation (e.g. Crossbow), genome note, and RNA differential advent analysis. In drug research, understanding molecular and protein exchanges is important. To study entire proteomes, their receptor sites, and their communications with ligands, one high performance computing approach is the cloud computing-based request called Cloud-PLBS.

**Benefits of Cloud Computing for Researchers in Institutions**

**Personalized Learning:** These prospects help for greater student choice in knowledge. Using an Internet-connected device, students can access a wide range of possessions and software tools that ensemble their learning styles and comforts.

**Reduced Costs:** Cloud-based services can help establishments reduce costs and fast-track the use of new knowledges to meet growing informative needs. Students can use workplace applications for free without having to acquisition, install and keep these applications up to date on their computers. It also offers the ability of Pay and use for some services.

**Accessibility:** Convenience of the amenities is the most significant and anticipated by the user using the education cloud. 24X7 is the accessibility that is needed by the system without catastrophe. From wherever one can login and admittance the data.

**No Extra Infrastructure:** Academies and managements are now free to focus on their goals that is making more research conveniences available to the pupils and making the environment global without wasting time on perturbing about the constructions, labs, educators etc.

**Go Green:** Teaching cloud will surely condense the carbon footprint.

**User Friendly:** This new ability is user friendly and no need to worry about the difficulty. It is easy to appreciate and easy to function.

**CONCLUSION**

Cloud computing is the new knowledge and new tendencies. With cloud computing request are running as a service over the internet on climbable substructure. Cloud computing has the ability to cut costs and at the equal time creates a modern cooperative environment for academics.

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**AN OVERVIEW OF LIFE INSURANCE INDUSTRY IN INDIA WITH SPECIAL REFERENCE TO LIFE INSURANCE CORPORATION OF INDIA**

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**Dr. Aruna Singham**

**ABSTRACT**

*The original insurer of life was the marine insurance underwriters who started issuing life insurance policies on the life of master and team of the ship as well as the merchants. The first insurance policy was issued in the year 1583, on the life of William Gibbons for a period of one year. In India, Oriental Life Insurance Company is the first insurance company which was started in the year 1818 by Europeans at Kolkata. The Indian Life Insurance Companies Act, 1912 was the primary constitutional measure to manage life insurance business. In the year 1928, the Indian Insurance Companies Act was enacted to ease the Government to collect statistical data about both the life as well as non-life business transacted in India by both Indian and foreign insurers. This also includes provident insurance societies. In the year 1938, with a view to guard the interest of the Insurance public, the earlier legislation was consolidated and amended by the Insurance Act, 1938 with inclusive provisions for effective control over the proceedings of insurers. In the year 1956 the life insurance companies was nationalized. Life Insurance Corporation of India absorbed 154 Indian, 16 non-Indian insurers and 75 provident societies. Altogether it was 245 Indian and foreign insurer. Up to 1990 LIC alone had control when the Insurance sector was reopened to the private sector.*

*Keywords: New policy of LIC, Growth of LIC, Market Share of LIC.*

**I. INTRODUCTION**

Currently the insurance industry of India has 57 insurance companies out of which there are 24 life insurance companies and 34 non life insurance companies. Out of this 24, one is Life Insurance Corporation of India which is the public sector Insurance Company and 23 private Life Insurance companies in India. The chief objective of life insurance companies is to share the risk of day to day life of human being. It give safety and security from the unpredicted happening like death, old age benefit, disability, illness or business risks both unexpected and uncertain like fire, earthquake, theft, accident etc. Life insurance industry in India is performing a range of economic activities like manufacturing, trading, banking, transportation and insurance. The Indian Government permitted Foreign Direct Investment up to 49 percent. In India insurance sector is divided into two part, Life insurance and General insurance. The life insurance business is expected to increase at a CAGR of 5.3 percent between the year 2019 and 2023. India's insurance penetration was pegged at 3.76 percent in FY20, with life insurance penetration at 2.82 percent and non-life insurance penetration at 0.94 percent. In terms of insurance density, India's overall density stood at American Dollar 78 in FY20.

The market share of private sector companies in India in the general and health insurance market increased from 47.97 percent in FY19 to 48.03 percent in FY20. In the life insurance section, private players held a market share of 33.78 percent in premium underwritten services in the FY20. In FY22 (until May 2021), premiums from new of life insurance companies in India stood at American Dollar 3.0 billion.

In India, gross premiums written of non-life insurers reached American Dollar 26.52 billion in FY21 from American Dollar 26.49 billion in FY20 driven by strong expansion from general insurance companies. Gross direct premium of non-life insurance companies rose 11.4 percent on a yearly basis to Rs. 12,316.50 crore in May 2021. The general insurance industry is expected to increase by 7-9 percent in terms of gross direct premium income in FY22, backed by healthy growth from the health and motor segment. 6 standalone private sector health insurance companies registered a jump of 66.6 percent in their gross premium at Rs 1,406.64 crore in May 2021, as against Rs. 844.13 crore in the past.

In March 2021, health insurance companies in the non-life insurance sector increased by 41 percent, driven by rising demand for health insurance products amid COVID-19 surge.

According to S&P Global Market Intelligence data, India is the second-largest insurance technology market in Asia-Pacific, accounting for 35 percent of the American Dollar 3.66 billion insurtech-focused venture investments made in the country.

**II. OBJECTIVES OF THE STUDY**

- To identify the expansion of public and private life insurance sector in India
- To study the market share of life insurance in India.



- To find out the claim settlement ratio of different insurance sector
- To identify the new life insurance policies of LIC
- To study the major private life insurance players in India.

The research is based on the secondary data. For the purpose of research, data is collected from various sources such as books, internet, magazines and newspaper

### III. REVIEW OF LITERATURE

**Aditya Nath Jha, (2014)** studied appropriate analysis of varied distribution channels in life insurance industry in India has been done. Prior to privatization only individual insurance agent was permitted to sell life Insurance. But After the IRDA Act, distribution channel further expanded.

**Arvind Kumar Singh, (2014)** studied this scenario of life insurance sector has been taken up. At present the market is moving quickly and aggressively. There is competition and force to move ahead. The features of this expansion plan are hunting for new business looking up for possible and grabbing it.

**Kavita Mahajan, (2013)** studied class of service in insurance sector is analyzed and significance of delivery of quality service is stressed upon. Service is the input for superior performance. It is simple to get new business from existing customers by delivering good service to enlarge new business.

**Arup Mazumdar, (2011)** analyze the broking arrangement, challenges & opportunities are discussed and new marketing concept as Relationship Model approach has been argue. Indian insurance industry is increasing fast after privatization.

**Bhagabat Barik, (2014)** states that a general study of life insurance sector in India has been completed. Life insurance is not just an investment but it is also a protective tool. The protection of human being against calamity and financial compensation in term of death is the basic idea of life insurance. Insurance is the fastest growing industry within the country.

**Yogesh Jain, (2013)** studied economic reforms in India by 1991 and world economic crisis in 2008-09 and its impact on life insurance sector has been studied. After opening up economic depression, Indian life insurance developed with constant rate of growth

### IV. MAJOR LIFE INSURANCE PLAYERS IN INDIA

Sr.	Name of the Company	Sector	Founded
1	Life insurance corporation of India	Government	1956
2	HDFC Standard Life Insurance Company Limited	Private	2000
3	Max Life Insurance Company Limited	Private	2000
4	ICICI Prudential Life Insurance Company Limited	Private	2000
5	Aditya Birla Sunlife Life Insurance Company Limited	Private	2000
6	TATA AIG Life Insurance Company Limited	Private	2001
7	SBI Life Insurance Company Limited	Private	2001
8	Exide Life Insurance Company Limited	Private	2001
9	Bajaj Allianz Life Insurance Company Limited	Private	2001
10	Kotak Mahindra Life Insurance Company Limited	Private	2001

### V. Best selling policies of Life Insurance Corporation of India

**1. Jeevan Umang Plan** offers a mixture of income and protection to family unit. This policy give for yearly survival benefits from the end of the premium paying term till maturity plus a lump sum payment at the time of maturity or on loss of the policy holder during the policy period. In adding together, this policy also takes care of liquidity needs through loan facility.

**2. New Endowment Plan** is a participating non-linked policy which offers an attractive mixture of protection and saving features. This mixture provides financial hold for the family of the deceased policyholder any time prior to maturity and good lump sum amount at the time of maturity for the surviving policy holders. This policy also takes care of liquidity needs through its loan facility.

**3. New Jeevan Anand Plan** is a participating non-linked policy which offers an attractive mixture of protection and savings. This mixture provides financial protection against loss of life all through the lifetime of the policyholder with the provision of payment of lump sum at the end of the chosen policy term in case of his/her survival. This policy also takes care of liquidity needs through its loan capability.

**4. Single Premium Endowment Plan** is a participating non-linked savings cum protection policy, where premium is paid in lump sum at the time of taking the policy. This mixture provides financial protection against loss of life during the policy term with the stipulation of payment of lump sum at the end of the chosen policy term in case of his/her survival. This policy also takes care of liquidity requirements through its loan facility.

**5. Jeevan Lakshya Plan** is a participating non-linked policy which offers a mixture of protection and savings. This policy provide for Yearly Income benefit that may help to achieve the requirements of the family, primarily for the benefit of children, in case of loss of life of Policyholder any time prior to maturity and a lump sum amount at the time of maturity irrespective of survival of the Policyholder. This policy also takes care of liquidity requirements through its loan facility.

**6. Jeevan Labh Plan** is a limited premium paying, non-linked, with-profits endowment policy which offers a mixture of protection and savings. This policy provides financial support for the family in case of loss of life of the policyholder any time prior to maturity and a lump sum amount at the time of maturity for the surviving policy holder. This policy also takes care of liquidity needs through its loan facility.

**7. New Bima Bachat Plan** is a participating non-linked savings cum protection policy, where premium is paid in lump sum at the time of taking the policy. It is a money-back policy which provide financial shield against loss during the policy period with the provision of payment of survival benefits at specific durations during the policy period. In addition, on maturity, the single premium shall be return along with Loyalty Addition, if any. This policy also takes care of liquidity wants through its loan facility.

**8. Jeevan Umang Plan** offers a mixture of income and protection to your family. This policy provide for yearly survival benefits from the end of the premium paying term till maturity and a lump sum payment at the time of maturity or on loss of life of the policy holder during the policy period. In addition, this policy also takes care of liquidity wants through loan facility.

**9. Tech-Term Plan** is a Non-Linked, Without Profit, Pure Protection "Online Term Assurance Policy" which provide financial protection to the insured's family in case of his/her untoward demise. This policy will be accessible through online application process only and no mediators will be involved.

**10. Jeevan Amar Plan** is a Non-Linked, Without Profit, pure protection policy. The policy offers the flexibility to decide from two loss of life benefit options viz: Level Sum Assured and increasing Sum Assured. Under this policy, there are two categories of premium rates viz (1) Non-Smoker rates and (2) Smoker rates. Also lower premium rates will be available for female proposers.

The policy holder has the alternative to choose from Single, Regular and Limited Premium payment option. The policy also offers the flexibility to decide loss of life benefit payment either as a lump sum payment and/or in installments.

**11. New Critical Illness Benefit Rider Plan** is a non-linked rider which will decrease the financial burden in case the Life Assured is diagnosed as suffering from any of the pre-specified critical illnesses. This rider shall only be attached with non-linked policy at the beginning of the base policy and will provide an add-on benefit to the base policy.

## VI. Investments and Recent Developments in insurance sector

The following are some of the key investments and developments in the Indian insurance sector in the year 2021. Insurance companies are now trying to leverage strategic partnership to present various services as follows:

- Premium from new business of life insurance companies in India stood at American Dollar 31.9 billion.
- Life Insurance Corporation of India achieved a record first-year premium income of American Dollar 7.75 billion under individual assurance business with a 10.11 percent growth over last year.
- Gross premiums written of non-life insurers reached American Dollar 26.52 billion from 26.49 billion in FY20 driven by strong development from the general insurance companies.
- Bharti AXA Life Insurance company reported a 10 percent renewal premium increase of Rs. 1,498 crore (American Dollar 200.64 million)

- Life Insurance Corporation of India, Housing Finance announced plans to raise Rs. 2,334.69 crore (American Dollar 312.43 million) through special issue of equity shares to the Life Insurance Corporation of India
- Life Insurance Corporation of India introduced its 'Saral Pension Scheme', which is a non-linked, non-participating, single premium, individual immediate annuity plan.
- Gallagher also announced plan to acquire 100 percent stake in India's Edelweiss Gallagher Insurance Brokers.
- Aditya Birla Sun Life Insurance announced the launch of a replacement Vision Life Income Plus Plan which will provide guaranteed regular income plus flexible bonus payouts to policyholders.
- Ward wizard Group ties up with Bajaj Allianz to offer insurance policies to Joy e-Bike customers.
- Max Life Insurance Co. Ltd. launched 'Max Life Saral Pension', a non-linked, individual immediate annuity plan.
- Health insurance companies in the non-life insurance sector increased by 41 percent, driven by rising demand for health insurance products amid COVID-19 surge.
- Bharti AXA General Insurance launched its 'Health Advant EDGE' health insurance scheme to provide overall cover against accelerating costs associated with medical requirements and other healthcare facilities.

## VII. IRDA Claim settlement ratio (2019-2020)

(In cores)

Sr.	Insurer	LIC	Private	Total
1	Death claim	17,505.36	12,287.92	29,793.28
2	Maturity	1,51,159.70	20,565.77	1,71,725.47
3	Surrender	70,148.12	51,819.01	1,21,967.13
4	Others	13,947.45	13,243.76	27,191.21
5	<b>Total</b>	<b>2,52,760.62</b>	<b>97,916.46</b>	<b>3,50,677.08</b>

Source: IRDA Annual Report 2019-2020

From the above table it can be clearly seen that LIC of India still rule the Indian Life Insurance business

## VIII. CONCLUSION

The life insurance industry plays a significant role in improving economy of the nation. The private life insurer offers a variety of new policies to attract their policy holders. In current competitive era human beings are suffering a lot of health issues. Life insurance Corporation of India and IRDA must focus in introducing new plans for facing health problem of day to day activities of human beings. Life insurance Corporation of India should educate significance of insurance to general public through the agent and through corporate social responsibility

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**CORPORATE SOCIAL RESPONSIBILITIES OF NON-BANKING FINANCIAL COMPANIES  
PROVIDING HOUSING LOAN SERVICES.**

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*Corporate social responsibility generates a sense of humanity among corporate sectors. Companies Act 2013, provides a list of activities in its schedule VII to be undertaken by corporates under CSR. Various CSR activities undertaken by NBFCs (providing housing finance services) are explained in this paper and it also shows the correlation between revenue from operation and expenditure on CSR.*

*Key words: CSR, NBFCs*

**INTRODUCTION**

“Vahi Manushya hai jo Manushya ke liye Mare” a very famous poem of National Hindi poet Shri Maithalisharan Gupt, in which he mentioned that a true human being never thinks only for himself but he always tries to help to other with whatever resources he has. It is the responsibility of every person to help society as society plays a greater role in overall development of an individual. No one can think about their existence without the existence of society. If an individual is responsible for the society why not corporate sector. Corporates gets everything from society in the form of investors, managers, customers, workers etc. It is not wrong to say that growth and development of corporates are directly related with the growth and development of societies. Fulfillment of Corporate social responsibilities are helpful in enhancing the goodwill of a company which in turn have a positive effect on their sales and profit. It was a ethical and moral responsibility of corporates to help society in any manner without any compulsion but later on from 1<sup>st</sup> day of April 2014 it's become mandatory for every company to contribute for the welfare of society with introduction of Companies (Corporate Social Responsibility Policy) Rules 2014.

According to Media Research Users Council (MRUC) CSR is the process by which an organization thinks about and evolves its relationships with society for the common good and demonstrates its commitment by giving back to the society for the resources it used to flourish by adoption of appropriate business processes and strategies. CSR is an integration of economic, social and environmental objectives of companies with their operation and growth. According to the United Nations Industrial Developmental Organization (UNIDO) - “Corporate Social Responsibility is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders”. Carroll (1979) defined CSR as conducting business in such a manner that it is economically profitable, law abiding, ethical and socially supportive.

Concept of CSR was gaining its importance worldwide therefore Section 135 of Indian Companies Act 2013 made it mandatory for those companies whose net worth is five hundred crore or more, or companies' turnover is one thousand crore or more, or net profit is five hundred crore or more during any financial year shall constitute a Corporate Social Responsibility Committee of the Board consisting of three or more directors, out of which at least one director shall be an independent director. Section 135 of Indian Companies Act state that in every financial year, at least two per cent of the average net profits of the company made during the three immediately preceding financial years. Act also insists companies to give first preference to those areas where they operate for spending amount allotted for CSR. If any company fails to spend two percent of their net profit towards CSR then they have to specify the reason of the same. Schedule VII of the companies Act 2013 provided a list of the activities to be undertaken by the companies under CSR.

Activities which may be included by companies in their Corporate Social Responsibility Policies are activities relating to: —

- (i) eradicating extreme hunger and poverty;
- (ii) promotion of education;
- (iii) promoting gender equality and empowering women;
- (iv) reducing child mortality and improving maternal health;
- (v) combating human immunodeficiency virus, acquired immune deficiency

syndrome, malaria and other diseases;

(vi) ensuring environmental sustainability;

(vii) employment enhancing vocational skills;

(viii) social business projects;

(ix) contribution to the Prime Minister's National Relief Fund or any other

fund set up by the Central Government or the State Governments for

socio-economic development and relief and funds for the welfare of the Scheduled

Castes, the Scheduled Tribes, other backward classes, minorities and women; and

(x) such other matters as may be prescribed.

(Source: <https://www.mca.gov.in/SearchableActs/Schedule7.htm>)

### OBJECTIVES:

- 1- To study the relation between interest earned by NBFCs and amount spent towards CSR.
- 2- To find out the ratio of CSR expenditure in different activities by NBFCs.
- 3- To find out difference between budgeted expenditure and actual expenditure of CSR by NBFCs.

### LITERATURE REVIEW

(al, 2012) through his research assessed the development of the fund allocated by bank for philanthropic purpose between 2005 to 2010, with emphasis on the period of financial crises. Funds contributed for philanthropic purpose were compared with economic performance of the selected bank and it was found that the financial crisis did not seriously affect the selected banking institutions.

**Dutt & Grewal (2018)** studied about CSR in banking industry with reference to SBI. In study researcher concluded that SBI plays an outstanding role in building relationship between organisation and society. Health, education and skill development are greater choice of banking sector for investing CSR funds. Skill development and livelihood creations are the major field where SBI contributes 50% of its CSR budget. Researcher also concluded that actual implementation of activities is less than media coverage.

**Reena Shyam (2018)** conducted an analysis of CSR in India and discussed about various CSR initiatives taken by different firms in India. Lack of community participants in CSR activities & lack of transparency are the major challenges before successful implementation of CSR activities in India. Researcher concluded that CSR is really about ensuring that the company can grow on a sustainable basis, while ensuring fairness to all stakeholders and It has successfully interwoven business with social inclusion and environment sustainability.

**Saluja & Kapoor (2017)** studied about various phases and legal framework of CSR in India. Researcher concluded that upliftment of social well being of society is not only the responsibility of government. Researchers also suggested that CSR-focused businesses should proactively promote the public interest by encouraging community growth and development, and voluntarily eliminating practices that harm the public, regardless of legality.

**Kaushal (2019)** reviewed various literature on CSR and mentioned about the burden faced by banking industries due to global financial crises. Researcher also concluded that Social responsibility does not mean that a company must abandon its primary economic mission, and socially responsible firms cannot be as profitable as other less responsible. Researchers also mentioned about various barriers of CSR such as lack of awareness, lack of standard norms for evaluating and spreading social practices, lack of motivational incentives, social accounting, reporting and lack of combined initiatives from governments.

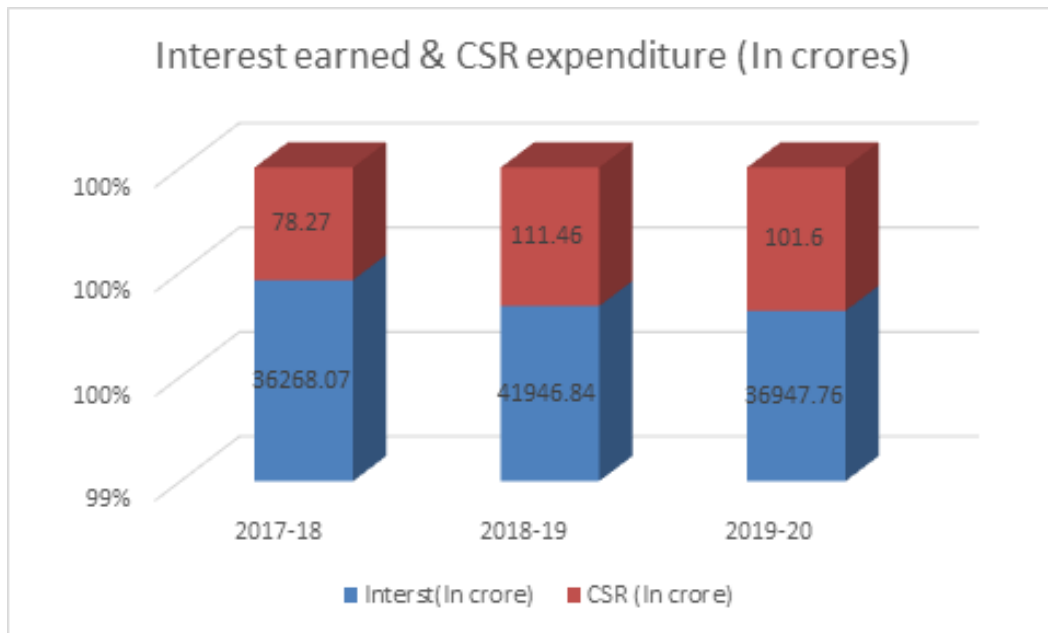
**Dr.M.Somasundaram (2018)** in his research of CSR in NBFCs found that discloser made by companies regarding their expenditure towards CSR but it is not verified independently. More companies are playing a major part in providing relief and rehabilitation in the aftermath of natural disasters. CSR will create new business opportunities, synergies and private-public partnerships, and connects customers, suppliers, stakeholders and communities and will add more values to reputation and image of the company.

### RESEARCH METHODOLOGY

This research is purely based on secondary data. Information related to CSR expenditure and interest earned by NBFCs is collected from the annual report of the companies. Leading NBFCs providing housing finance in

Mumbai & Thane districts are selected as samples. Companies selected for study are Indiabulls housing finance, Deewan Housing Finance (DHFL) and L.I.C. Housing Finance. For study financial data of last three years (2017-18, 2018-19 & 2019-20) are used.

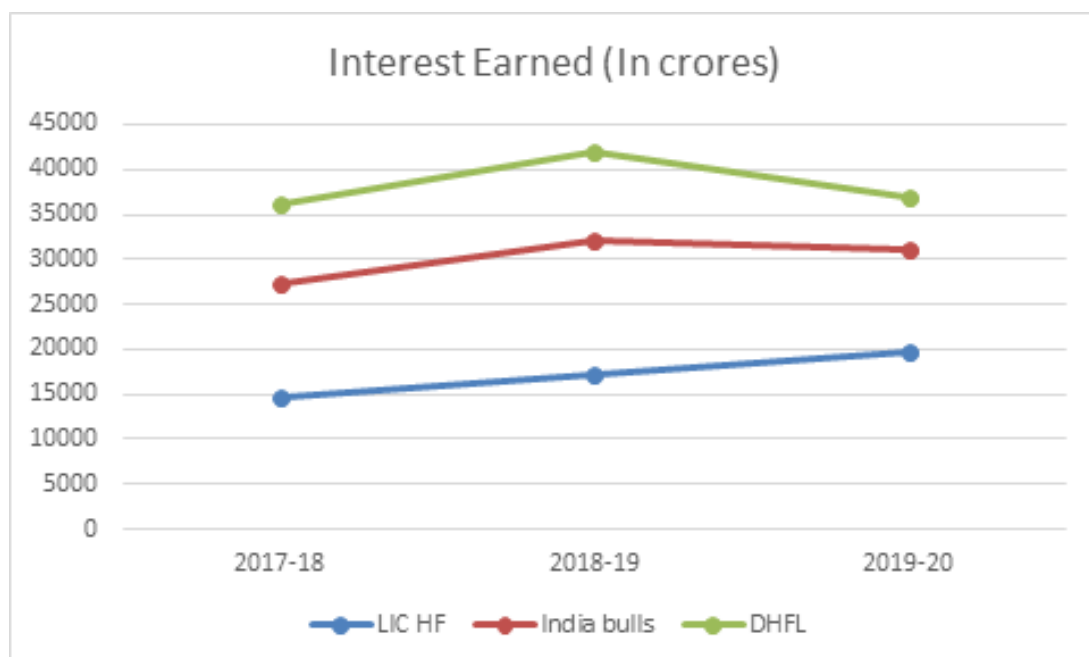
### DATA ANALYSIS

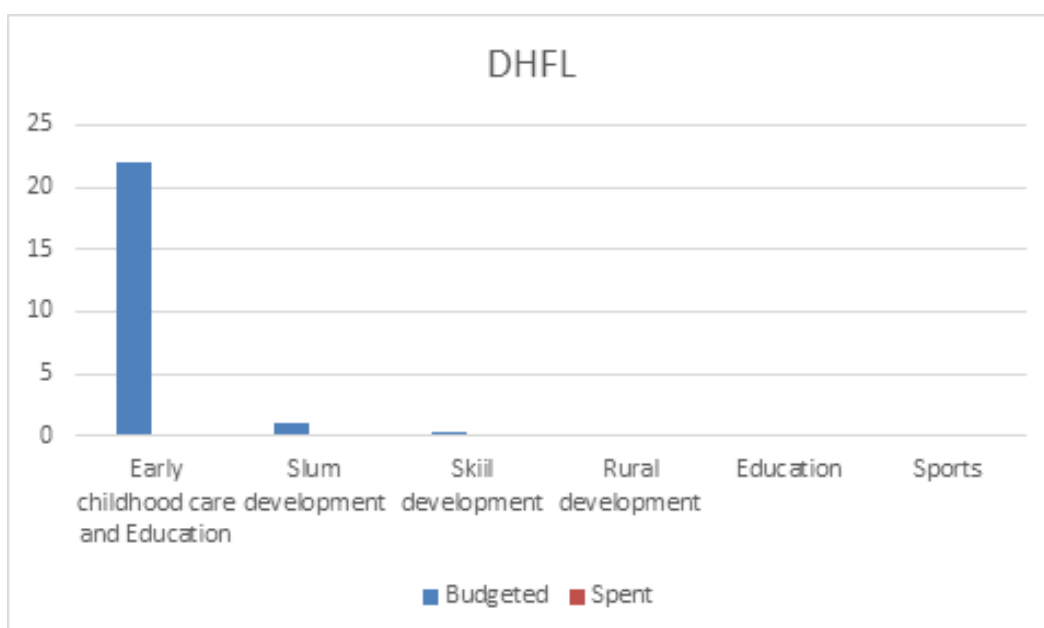
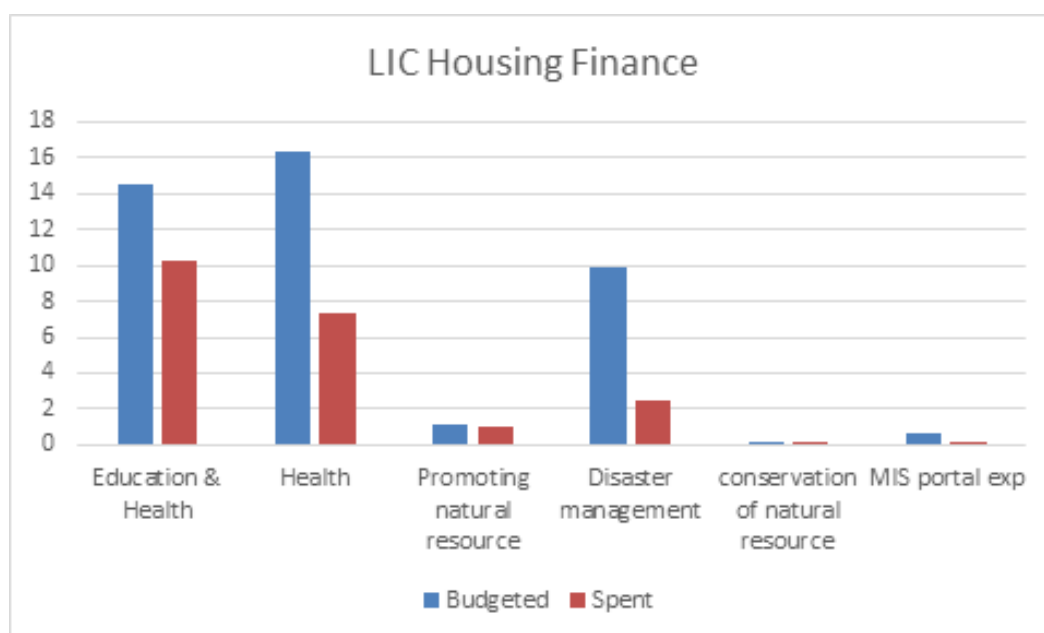
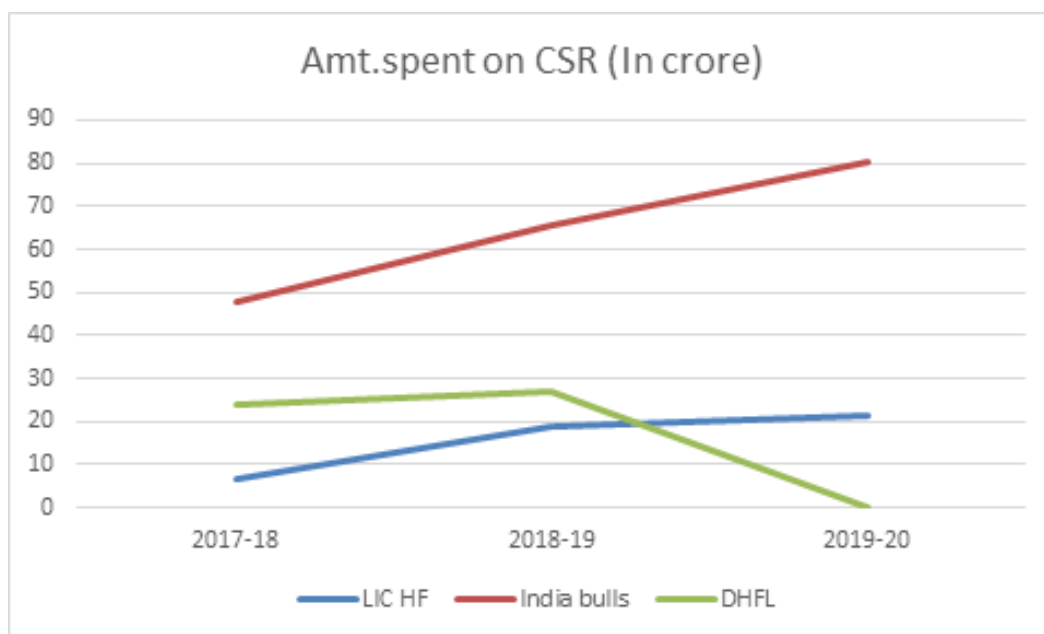


	Interest (In crore)	CSR Expenditure (In crore)
2017-18	36268.07	78.27
2018-19	41946.84	111.46
2019-20	36947.76	101.6

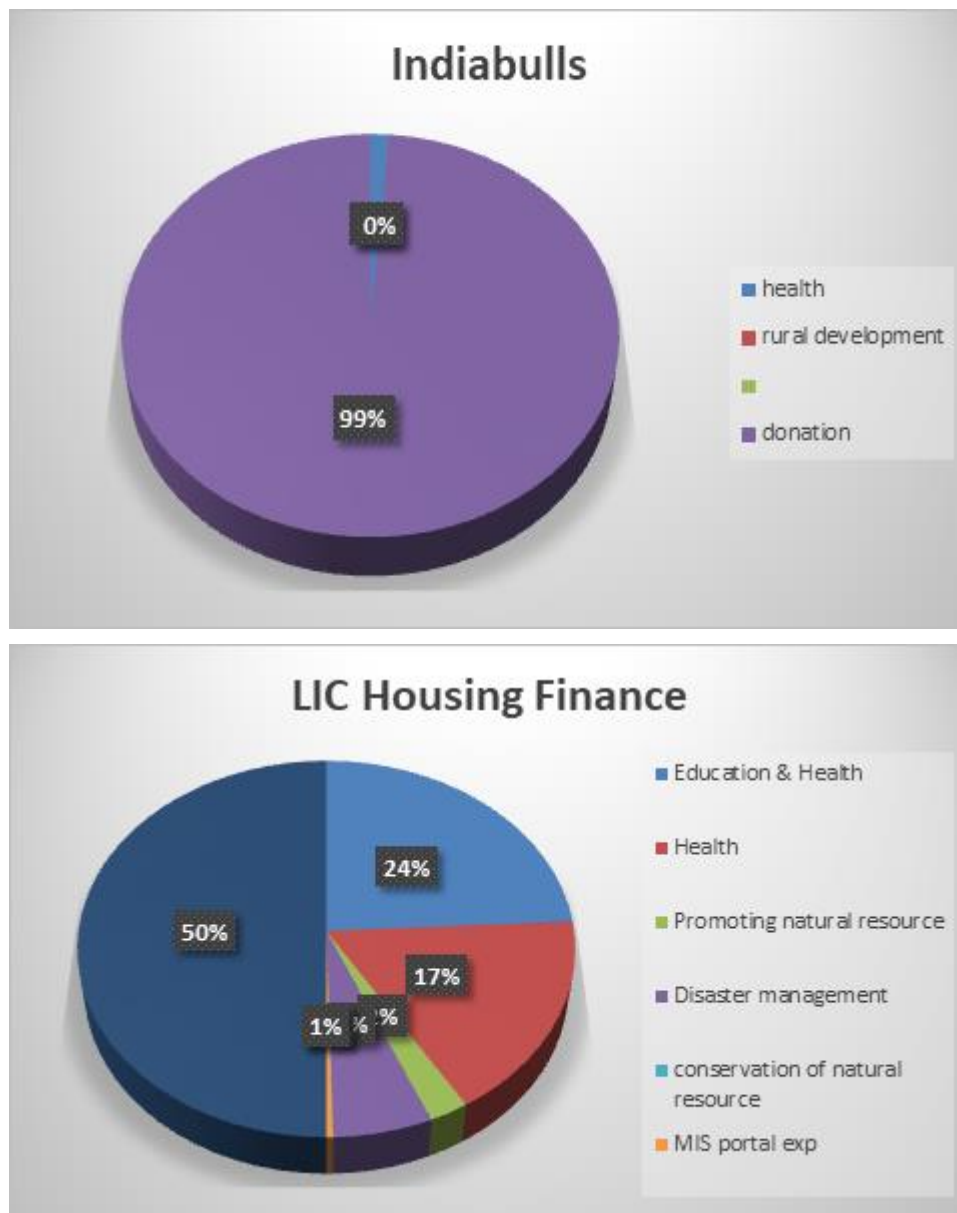
$$r = 0.799729$$

Coefficient of correlation (r) between Interest and CSR is 0.799 approximate 80% which indicates that both variables are highly positively related. Expenditure in CSR is increasing with an increase in interest earned and vice-versa.





The above two bar diagrams show the difference in budgeted amount of CSR and actual amount spent on CSR activities during financial year 2019-20. Difference is observed in budgeted amount and actual amount spent. During 2019-20 DHFL has spent only on slum development and not on any other activities. Only Indiabulls Housing finance spent its total budgeted amount on CSR, whatever amount is left after doing direct spending, it transfers to Indiabulls Foundation and Indiabulls housing finance conduct various CSR activities on its behalf.



Above pie diagram shows the ratio of amount spent by selected NBFCs on different activities under CSR during financial year 2019-20. Indiabulls Housing finance donates around 99% of their total spending to Indiabulls Foundation and very nominal amount around 1% of their total spending they spent directly.

LIC Housing finance spent approximately 50% of its spending amount on health and education and second priority is given to the conservation of natural resource by spending 24% of total CSR spending.

DHFL spent only for slum development during 2019-20.

### CONCLUSION

Mandatory contribution towards CSR is a good initiative taken by government for social well-being of society specially financially deprived people. Contribution towards CSR helps in enhancing the image of companies and have some positive impact on their revenue from operation. Amount spent on CSR and revenue from operation has strong positive correlation. Financial statements of above selected NBFCs shows good financial condition of companies except DHFL but due to pressure of financial crises they fail to spent the budgeted amount on CSR.



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**CUSTOMER SATISFACTION IN THE BANKING SECTOR: “A COMPARATIVE STUDY OF STATE BANK OF INDIA AND HDFC BANK”**

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**Anamika Samnani<sup>1</sup> and Dr. Prem Shankar Dwivedi<sup>2</sup>**Research Scholar<sup>1</sup> and Supervisor<sup>2</sup>, Dr. C.V. Raman University, Kargi Road, Kota, Bilaspur (C.G.)**ABSTRACT**

*In today's scenario customer satisfaction is very useful to retention of customer for the long Period. There are so many banks that can operate the customer with service, and maintain the good service quality. The objective of the study is to define customer satisfaction term and present the study as a comparative analysis of public sector bank and private sector bank (in relation to SBI and HDFC Bank). For the study data used both primary and secondary data. The study demonstrated the need of customer, the quality of service, and fulfilment of expectation of customers. The study presents the working style of both banks. It is Analyse comparison between the public sector and private sector bank. Banking service play a significant role and effective impact on customers and global economy the survival of bank is dependent on customer, this study identify the positive relationship between customer loyalty and satisfaction of customers of private sector bank and public sector bank with special reference to State Bank of India and HDFC Bank.*

*Key Words: Service quality, Customer satisfaction, Customer loyalty and Role of bank*

**INTRODUCTION**

Bank is a financial intermediary to receive deposit and make loan. Banks also provide financial services such as funds management, safeguarding, transferring the fund, exchanging and safe deposit. There are several different banks including retail bank Commercial Bank and corporate bank. In this study only commercial banks are taken. In Indian economy commercial banks play a very important role, the structures of banks are changing and influence by economy of the India. Nationalised banks are affected by the Reserve Bank of India Act 1934 under this non scheduled commercial banks are the one that affect customers. In Indian banking sectors, commercial banks are customer oriented, these banks are fulfilling the various type of requirement of customers. The study selected Bank one representing private sector and other present public sector bank development in banking sector are notable but the major term is also affected customers. In this study researcher present feature of reformed banking sector the term customer is common for both banking sector but the means of both sector distinguish on the basis of facilities service quality ownership and financial development of the nation as we know that a public sector bank is one that is control by government and financial profit from this Bank goes to development of the nation, In other hand private sector banks are owned by individual person and private, it's earned profit directly to the private shareholder. Public sector banks and private sector bank both are important for nation development but apart from that customer satisfaction is nearly a probe that which sector has the highest Global standard. The term of satisfaction relate to banking strategy, innovative product and Technology concept. In this research system of banks are being presented and reflect service quality impact on customer satisfaction with regards to SBI and HDFC.

**State Bank of India:** SBI is the oldest bank in India , it was found 1806 in Kolkata and the rename 1809 in Bengal. State bank of India has 1.57 million accounts in urban area, 2.1 million accounts in rural area. SBI has over 24,000 branches in India and 5 SBI banking subsidiary merge in 2017 are SBI capital market, SBI Card payment services, SBI Life Insurance and SBI Mutual Funds. SBI is a part of 10 public sector banks of India. There are different type of accounts are maintained in SBI Bank, savings account, current account and various kind of loan, home loan, education loan, property loan and two wheeler etc.

**HDFC Bank:** HDFC bank is a leading private sector bank in India. The bank is incorporated in 1994 as a subsidiary of the Housing Development Finance Corporation with its registered office in Mumbai. HDFC bank has 5500 branches across 2764 cities. The bank offer number of services and products including wholesale banking, retail banking, treasury auto loan, two wheeler loan, personal loan against property, Lifestyle loan and credit card etc.

**Customer satisfaction:** Customer satisfaction is defined as measurement of best service quality. It determines how happy customers are with company's services capabilities and products customer satisfaction testing include survey feedback and rating. It helps company to improve or change the product and the services. In simple words we can say customer satisfaction is surpassing of customer expectation by rendering good services and product by the banks.

**OBJECTIVES OF THE STUDY**

- To analysis the banking service quality of public sector bank v/s private sector bank
- To study the level of customer satisfaction towards the services provided by the SBI bank and HDFC Bank
- To identify the factors that influence the selection of SBI Bank services in Bilaspur city
- To examine the expectation and the comparative satisfaction level of the customer toward the service SBI in HDFC Bank

**HYPOTHESIS OF THE STUDY**

**H1** There is a positive relationship between customers' satisfaction and customer loyalty in HDFC Bank.

**H1a** There is a positive relationship between customers' satisfaction and customer loyalty in State bank of India

**H2** Service quality has positive effect on customers' satisfaction in HDFC Bank

**H2a** Service quality has positive effect on customers' satisfaction in State bank of India.

**REVIEW OF LITERATURE**

Ravi Chandran k., Tamil Mani b., Arun Kumar S., Prabhakaran S (2010) has found that the concept of customer satisfaction is based on the basic ethics and the principles service. Assurance is given by government banks; it's a better as compared to private sector bank. Overall customer satisfaction is better in private sector bank as compared to public sector bank

Singh S. Arora R (2011) (2011) in his study arrival that perception of private sector banks customers is better than public sector banks customers. Customers of private sector banks highly satisfied with the services.

Arora D ,Saxena A (2013) his study revealed that the five dimension of service quality i.e. responsiveness, empathy, tangibility, reliability and assurance bank has concentrated on reliability dimension reliability of the service impact the most. Banking has sector has drastic changes and working hard on up gradation of services.

**RESEARCH METHODOLOGY**

Research methodology is a process clear clearing with the complete the search processor like collecting data and analysing the data research work define about customer satisfaction of the public sector bank in the private sector bank

**Area of the study:** The study has been conducted in Bilaspur city, Chhattisgarh. The population is selected which is belong to SBI bank and HDFC Bank Bilaspur is second most populated city in Chhattisgarh.

**Data collection and tools:** This study is based on questionnaire method from which primary data were collected. Process followed on male and female respondents who are residing in bilaspur city and having account in HDFC bank and SBI Bank. People who did financial work from banks regularly contacted, under the public sector (State Bank of India) and private sector (HDFC bank).

**Sample Size:** A sample of 100 customers has been selected, using convenience sampling method. The data has been interrelated satisfactory factors whenever and wherever the data needed.

**Scope of the study:** The study conducted on the behalf of the customer of SBI bank and HDFC Bank. The study is conducted to know the customer preference towards the selecting the services and awareness about the services, frequency of the services being used. The study has put forward the customer as well the accepted Behaviour for the services that study define about their satisfaction level towards the services provided by the both banks in the selected area.

**Limitation of the study:** The studies conducted for the period of 3 months only, in the Bilaspur city. The survey has been conducted only on service dimensions and its factors. The accuracy of the finding of the study depends upon the correctness and honest response by respondent. Some respondents are showing their unwillingness to give answers and information about bank. It's another limitation of the study may be influenced by the bias prediction of the respondents.

**DATA ANALYSIS & INTERPRETATION**

**H1** There is a positive relationship between customers' satisfaction and customer loyalty in HDFC Bank.

**Table no. 1**

Model	Unstandardised		standardised		
	B	Std. Error	beta	T	Sig

1 (Constant)	1.27	.177		7.09	.00
Customer satisfaction- I am highly satisfied with services.	.600	0.41	.0720	16.00	.00

**Interpretation:** Above table no.1 analysis interpret data, to examine positive relationship between customer satisfaction and customer loyalty in the HDFC Bank. To examine the relationship loyalty is a dependent variable and customer satisfaction is independent variable. The result of equation between customer satisfaction and loyalty is displayed below which shows the significant positive relationship between the two variables here the beta is 0.720 with more than 0.01 which is satisfactory significant of the test result therefore above hypothesis was supported.

**H1a** There is a positive relationship between customers' satisfaction and customer loyalty in State bank of India.

Table no.2

Model	Unstandardised		standardised		
	B	Std. Error	beta	T	Sig
1 (Constant)	1.06	.15		6.09	.00
Customer satisfaction- I am highly satisfied with services.	.600	0.51	.067	17.00	.00

Interpretation: Above table no.2 analysis interpret data, to examine positive relationship between customer satisfaction and customer loyalty in the HDFC Bank. To examine the relationship loyalty is a dependent variable and customer satisfaction is independent variable. The result of equation between customer satisfaction and loyalty is displayed below which shows the significant positive relationship between the two variables here the beta is 0.67 with more than 0.01 which is satisfactory significant of the test result therefore above hypothesis was supported.

**H2** Service quality has positive effect on customers' satisfaction in HDFC Bank

Table No.3

Model	Unstandardised		standardised		
	B	Std. Error	beta	T	Sig
1 (Constant)	4.67	1.49		31.37	.00
Frequency of visiting branch	-.162	0.54	-1.70	-2.98	.03

Interpretation: To examine the effect of service quality on customer satisfaction derive the model and beta value is -1.70 and its significance .03, so it means service quality has positive effect on customer satisfaction.

**H2a** Service quality has positive effect on customers' satisfaction in State bank of India.

Table 4

Model	Unstandardised		standardised		
	B	Std. Error	beta	T	Sig
1 (Constant)	5.46	1.64		28.37	.00
Frequency of visiting bank	-.016	-0.46	-1.80	-1.26	.02

Interpretation: To examine the effect of service quality of State Bank of India, standardised values of beta is -1.80, derive the model and support the above hypothesis and shows the service quality of bank effect positively in state bank of India.

## RESULT & CONCLUSION

Majority of the people are extremely satisfied with the ATM service provided by the both sector bank. Most of the respondents are extremely satisfied on the responsiveness and the convenient banking provided by HDFC and less satisfied with SBI respondents are neutral about the ATM, internet banking, telephone banking, mobile banking and other customer services provided by SBI Bank. Respondents are the positively and satisfied about the all kind of services from HDFC Bank. It has been observed that the maximum number of people are using saving account as compared to HDFC Bank. Customers are looking for good quality services which enhance their satisfaction level from the above analysis, it is clear that the HDFC Bank customers are highly satisfied and State Bank of India customers are quite less satisfied that has been observed that many customers are not aware of the all sort of facility of the banks. Banks should conduct awareness programme and introduce their new banking services and banking products.

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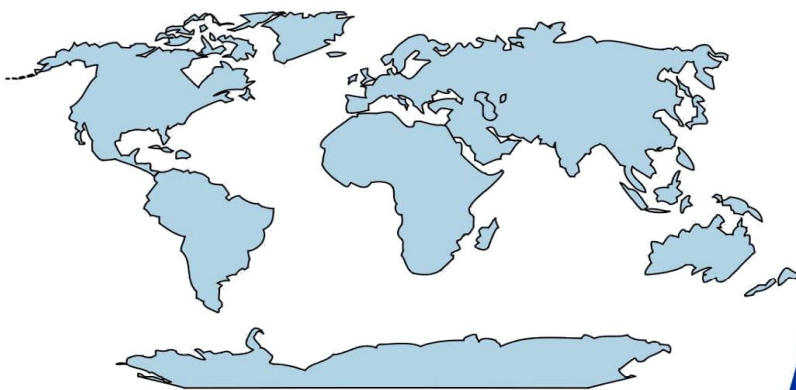
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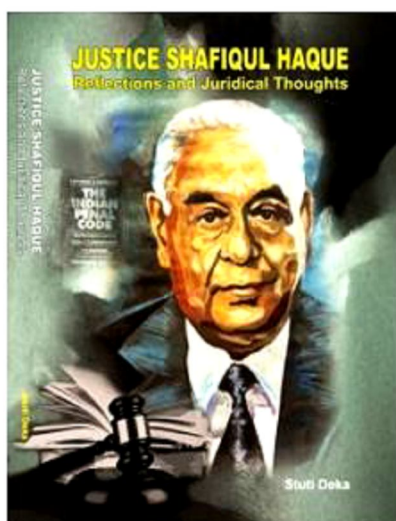


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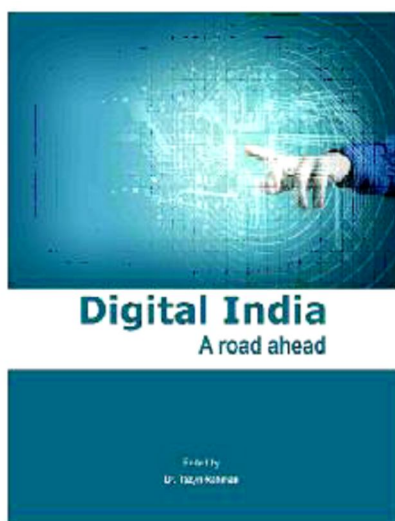
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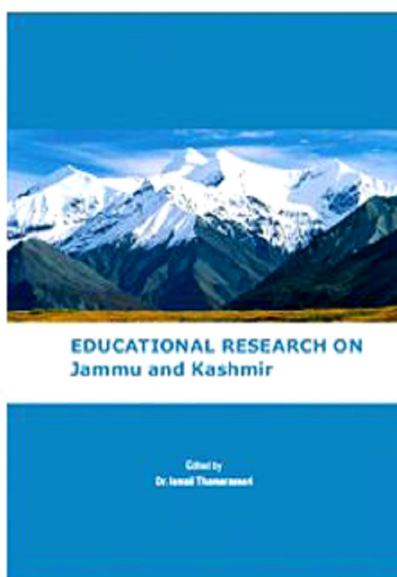
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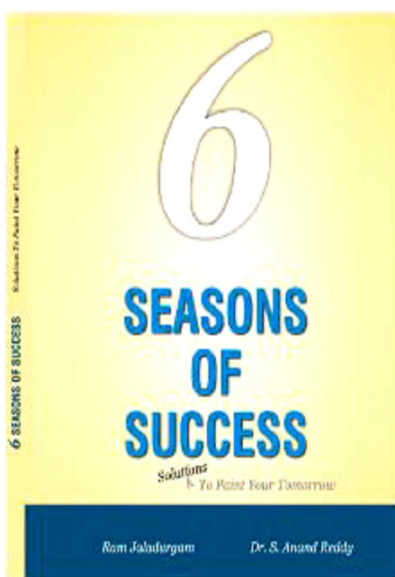
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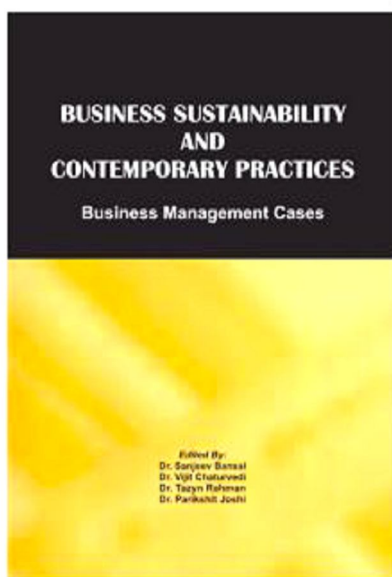
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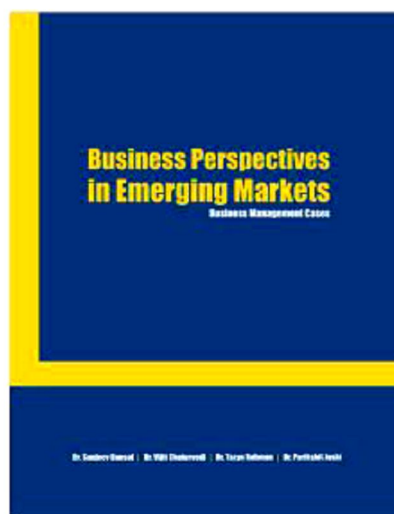


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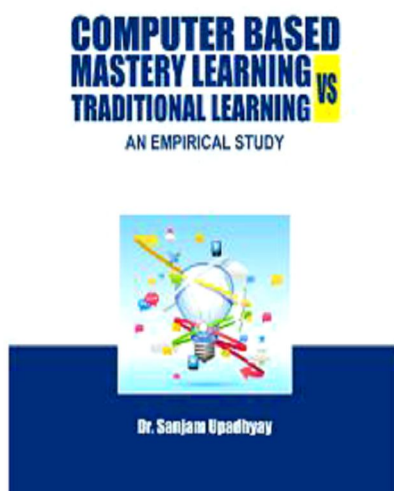
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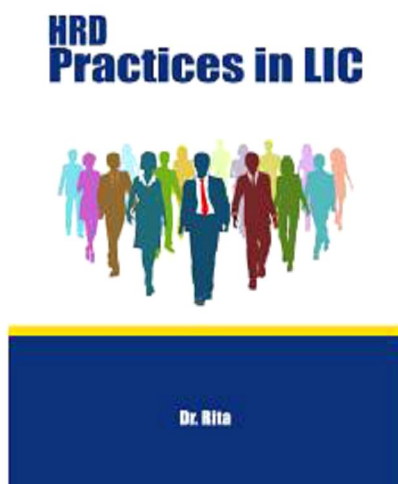
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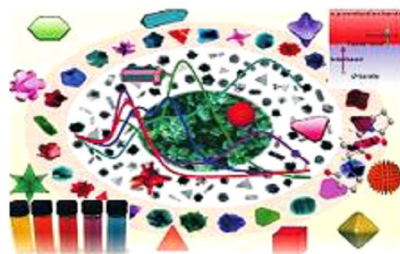
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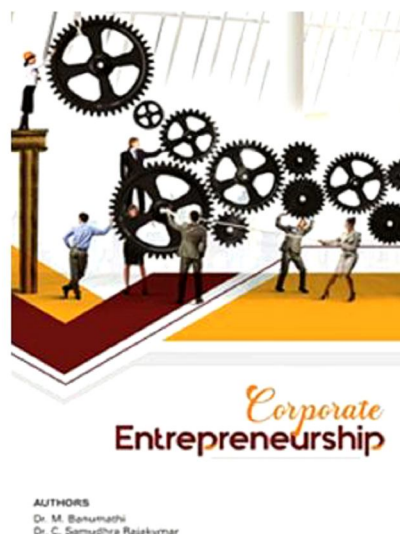
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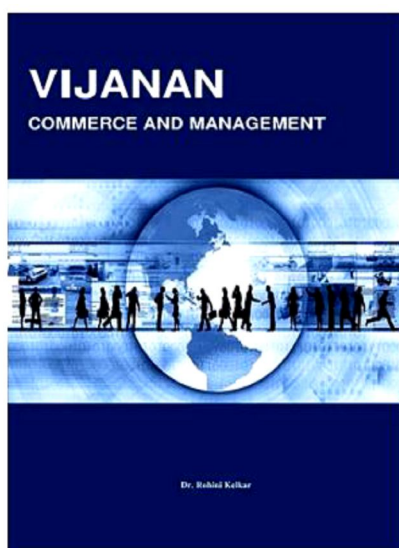
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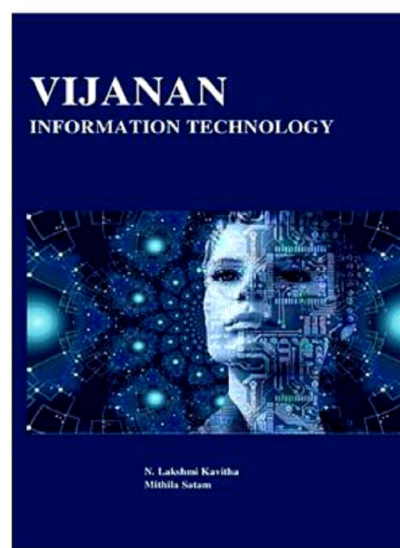
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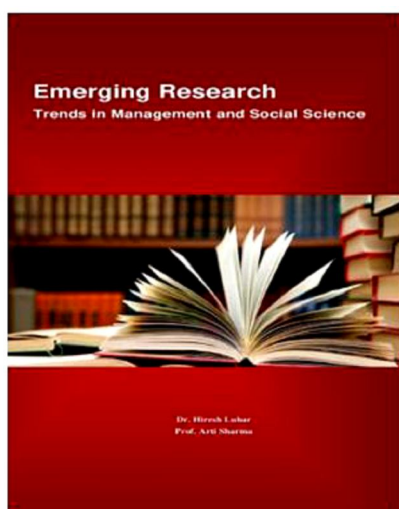
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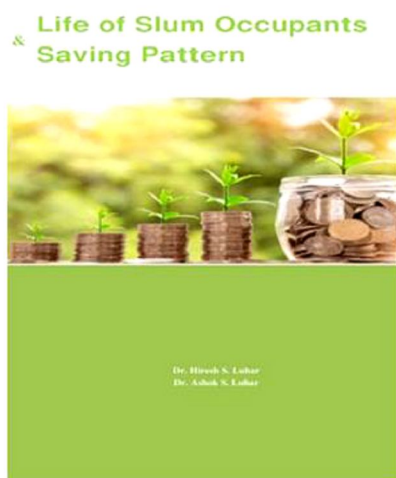
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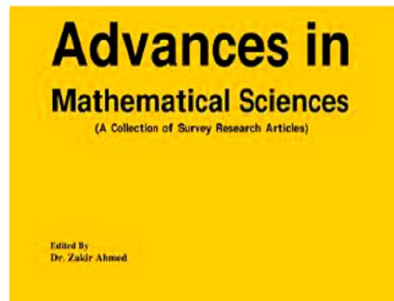
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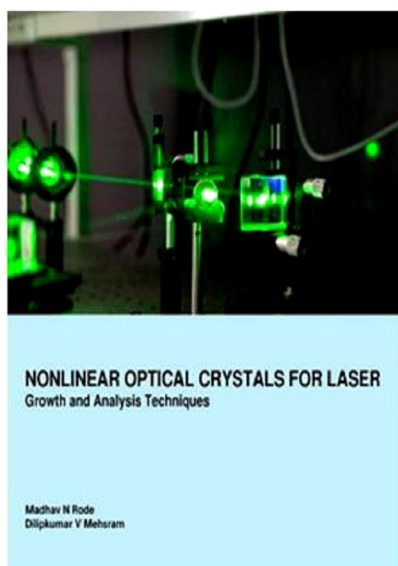


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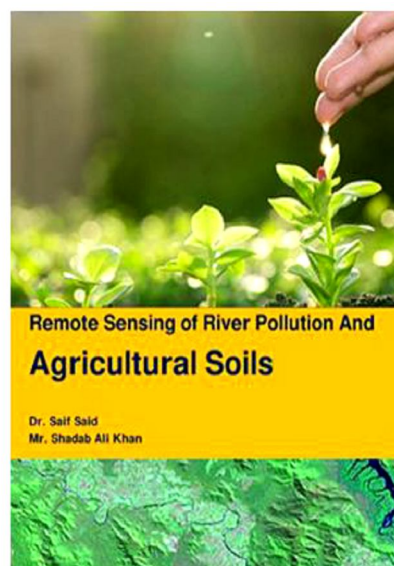
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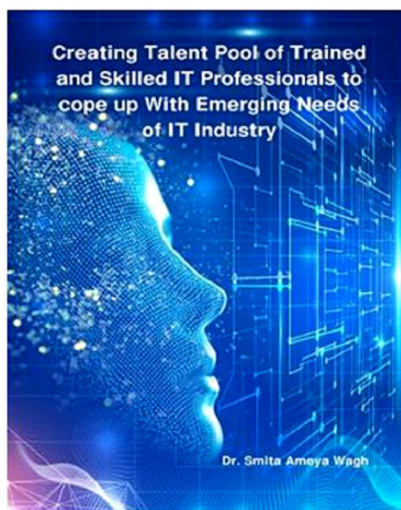
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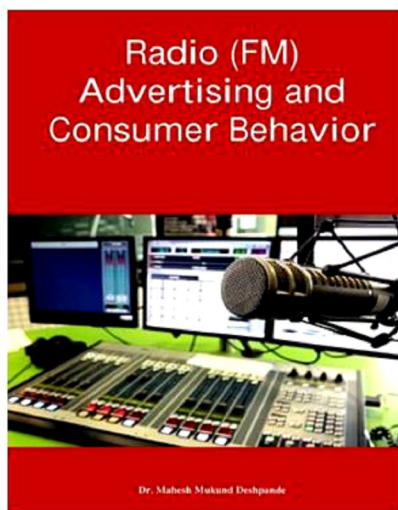
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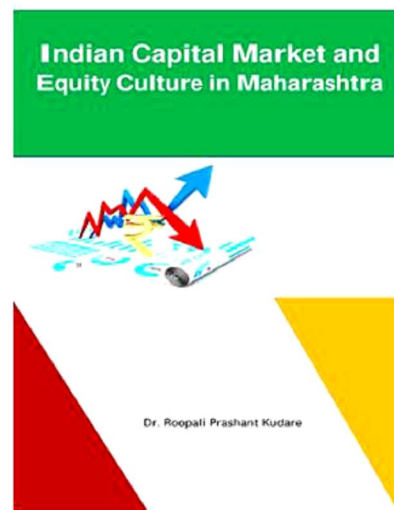
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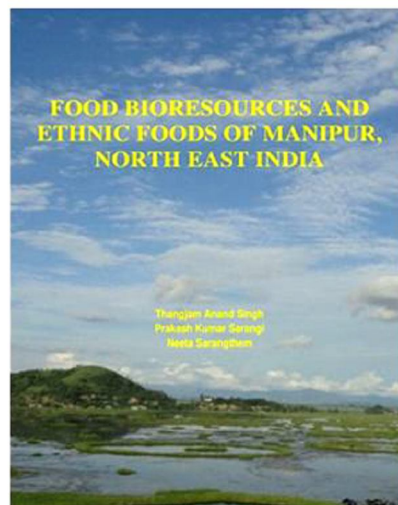




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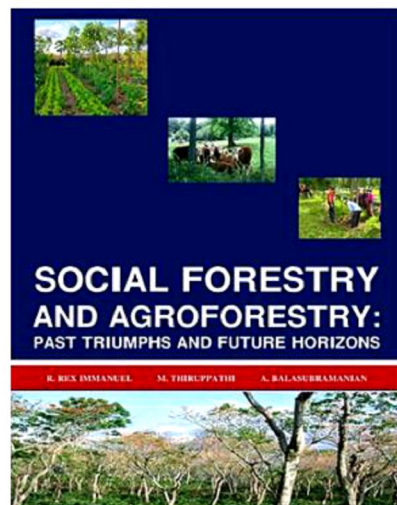
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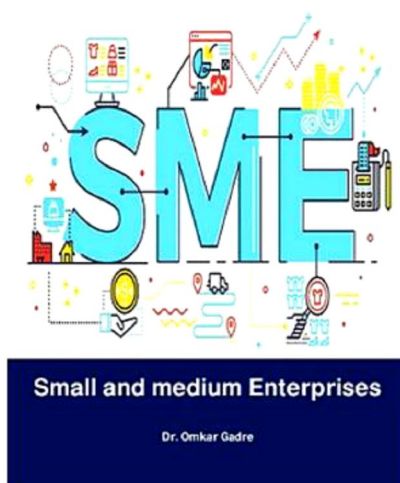
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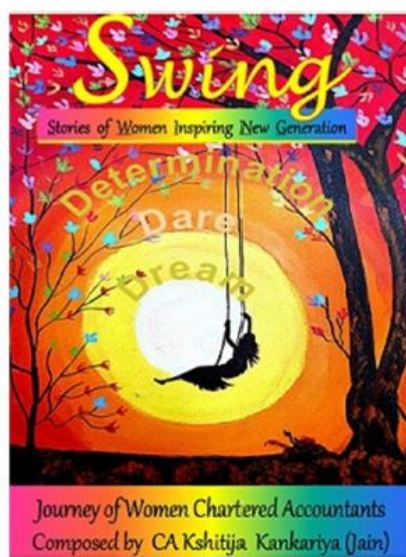
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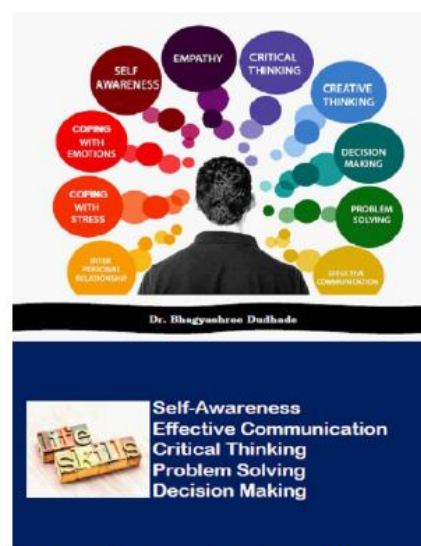


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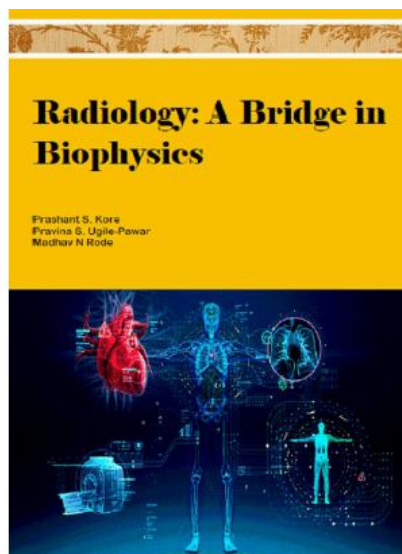




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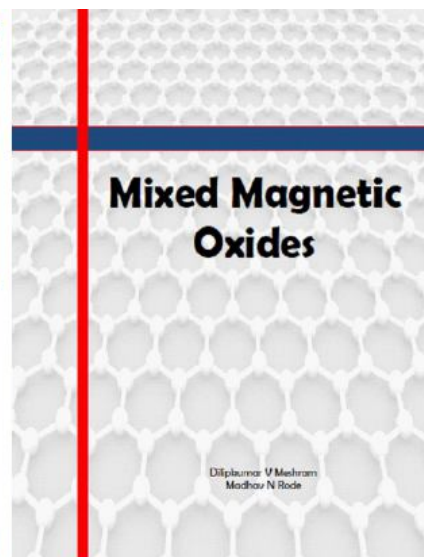


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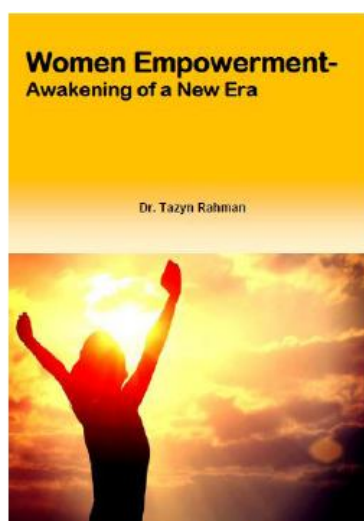


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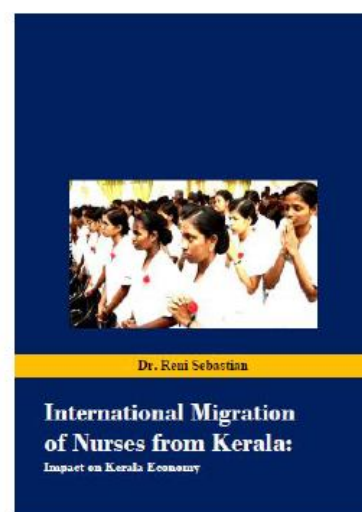
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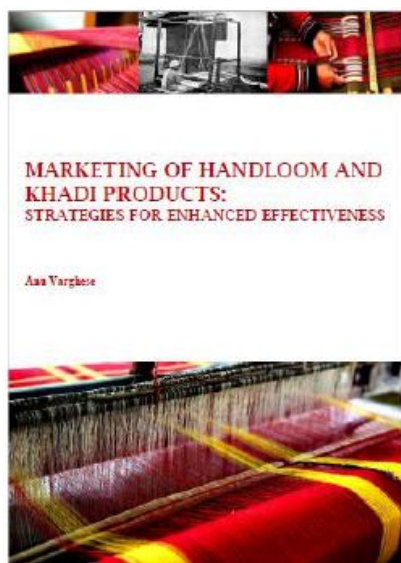
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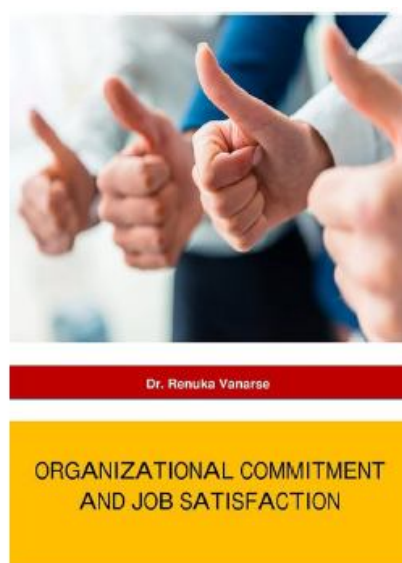
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