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## **Educational and Social Inclusion of Learners with Diverse Learning Needs in the Light of NEP 2020**

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### **ABSTRACT**

The National Education Policy (NEP) 2020 marks a transformative shift in India's educational landscape, emphasizing inclusive and equitable learning opportunities for all students, including those with diverse learning needs. This policy promotes a holistic approach to education, recognizing the importance of accessibility, flexibility and individualized support to ensure that learners with disabilities, neurodivergent students and those from marginalized communities receive equitable opportunities. The main provisions such as Universal Design for Learning (UDL), assistive technology, teacher training in inclusive pedagogy and the integration of vocational education cater to diverse learning styles and abilities. The NEP 2020 also advocates for early identification and intervention, ensuring that learners with special needs receive tailored support from the foundational stages of education. This paper explores the educational and social inclusion of students with diverse learning needs, analyzing the policy's implications, challenges and future directions in achieving a truly inclusive education system.

**Keywords:** *NEP 2020, Inclusive Education, Diverse Learning Needs, Special Education, Universal Design for Learning, Equity in Education*



## **INTRODUCTION**

The National Education Policy (NEP) 2020 represents a transformative approach to education in India, emphasizing the need for inclusive practices that cater to diverse learning needs. With a vision of equity and quality, NEP 2020 aims to create an educational environment where all learners, regardless of their abilities, backgrounds, or socio-economic status, can thrive. This commitment to inclusivity is not merely a policy directive but a fundamental recognition of the diverse realities faced by learners in contemporary society.

Inclusion in education is a multifaceted concept that encompasses not only physical access to educational institutions but also the social, emotional, and academic engagement of all students. Learners with diverse needs-whether they are children with disabilities, those from marginalized communities, or those with varying learning styles-often face barriers that impede their full participation in educational settings. The NEP 2020 seeks to dismantle these barriers by promoting adaptive teaching strategies, teacher training, and the use of technology to support individualized learning.

Furthermore, NEP 2020 emphasizes the importance of a holistic education that nurtures not only academic skills but also social and emotional development. By fostering an inclusive culture within schools, the policy aims to create a supportive environment that values diversity, encourages collaboration, and promotes mutual respect among students. This is particularly crucial in a country as diverse as India, where cultural, linguistic, and socioeconomic differences significantly shape educational experiences.

In this context, the following exploration delves into the educational and social inclusion of learners with diverse learning needs as outlined in NEP 2020. It examines the strategies proposed by the policy, the challenges faced in implementation, and the broader implications for creating an inclusive educational framework that can adapt to the needs of all learners. Through this lens, the discussion aims to highlight the vital role of inclusive education in fostering a more equitable society.





## **REVIEW OF RELATED LITERATURE**

Inclusion in education has been a significant area of research globally. Various studies have highlighted the benefits of inclusive education for students with diverse learning needs, such as improved academic performance, better social skills, and enhanced self-esteem (Ainscow, 2005; Florian, 2014). The NEP 2020 aims to create an inclusive education system in India, building on the Right to Education Act, 2009, and the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).

Research has shown that inclusive education is most effective when supported by well-trained teachers, adequate resources, and a positive school culture (Sharma, 2018). The NEP 2020 addresses these aspects by proposing continuous professional development for teachers, the use of technology in education, and the creation of an inclusive school environment.

## **RESEARCH GAP**

While there is extensive literature on inclusive education and its benefits, there is limited research on the implementation and impact of NEP 2020 on the educational and social inclusion of learners with diverse learning needs. This study aims to fill this gap by providing empirical evidence on the effectiveness of NEP 2020 in promoting inclusive education.

## **IMPORTANCE OF THE STUDY**

This study is very important because it provides insights into the effectiveness of NEP 2020 in fostering inclusive education in India. It will help policymakers, educators and researchers understand the challenges and opportunities associated with implementing inclusive education policies. The findings can guide future policy developments and educational practices to better support learners with diverse learning needs.



## **OBJECTIVES OF THE STUDY**

- i. To analyze the provisions of NEP 2020 related to inclusive education.
- ii. To examine the impact of NEP 2020 on the educational inclusion of learners with diverse learning needs.
- iii. To assess the social inclusion of learners with diverse learning needs in the context of NEP 2020.
- iv. To identify the challenges faced by educators in implementing inclusive education under NEP 2020.

## **METHODOLOGY OF THE STUDY**

This study employs a qualitative research approach using secondary data sources to examine the educational and social inclusion of learners with diverse learning needs in the context of the National Education Policy (NEP) 2020. Data is collected from government reports and policies, including the NEP 2020 document and publications by the Ministry of Education and NCERT, as well as peer-reviewed academic literature, institutional and NGO reports from organizations such as UNESCO and UNICEF and statistical data from national surveys like UDISE+ and NSO reports on education and disability. The analysis is conducted using content and thematic analysis methods, identifying key themes related to inclusive education, accessibility, policy implementation and challenges in integrating diverse learners while comparing NEP 2020 with previous policies and global best practices. Additionally, the study evaluates the effectiveness of existing programs in promoting the inclusion of marginalized and differently-abled learners. As the study is based solely on secondary data, it does not include primary data collection such as surveys or interviews, which may limit insights into real-time implementation challenges and lived experiences of learners. However, this methodology ensures a structured and comprehensive review of existing literature to assess the role of NEP 2020 in fostering inclusive education and social integration.



## **ANALYSIS AND INTERPRETATION OF DATA: OBJECTIVE WISE**

**Objective 1: To analyze the provisions of NEP 2020 related to inclusive education.**

**Table-1: Provisions of NEP 2020 on Inclusive Education**

<b>Provision</b>	<b>Explanation</b>
<b>Equitable and Inclusive Education</b>	NEP 2020 emphasizes ensuring education for all, particularly for Socio-Economically Disadvantaged Groups (SEDGs), including gender minorities, differently-abled students, and marginalized communities.
<b>Gender Inclusion Fund</b>	A dedicated fund to promote gender equity by supporting girls and transgender students in accessing quality education.
<b>Special Education Zones (SEZs)</b>	Areas with high dropout rates among disadvantaged groups will be identified, and targeted interventions will be implemented.
<b>Barrier-Free Access</b>	Infrastructure and learning resources will be designed to be accessible to students with disabilities, ensuring equal participation.
<b>Use of Technology for Inclusion</b>	Assistive technologies, digital learning tools and multi-modal resources will support children with special needs and those in remote areas.
<b>Scholarships and Financial Assistance</b>	Scholarships, fee waivers and financial aid will be provided to students from economically weaker sections to ensure continued education.
<b>Multilingual Education and Mother Tongue Focus</b>	The policy supports early education in students' mother tongues or local languages to make learning more inclusive and effective.
<b>Flexible Curriculum and Pedagogy</b>	Personalized and competency-based learning approaches will cater to diverse student needs, enabling holistic development.
<b>Teacher Training for Inclusive Education</b>	Special training programs will be conducted for teachers to equip them with the skills needed to teach children from diverse backgrounds, including those with disabilities.

The table presents a structured overview of NEP 2020's provisions related to inclusive education. It highlights various strategies adopted to ensure equity and accessibility in education. The main aspects include financial support, infrastructural development, gender inclusion and technological advancements to accommodate diverse learning needs. These measures aim to create



a holistic and supportive learning environment for all students, ensuring that no one is left behind in the education system.

**Objective 2: To examine the impact of NEP 2020 on the educational inclusion of learners with diverse learning needs.**

**Table-2: Impact of NEP 2020 on Educational Inclusion of Learners with Diverse Learning Needs**

NEP 2020 Provision	Impact on Educational Inclusion
<b>Equitable and Inclusive Education</b>	Increased access to education for marginalized groups, including children with disabilities, socio-economically disadvantaged groups (SEDGs) and gender minorities.
<b>Gender Inclusion Fund</b>	Enhanced opportunities for girls and transgender students by reducing financial barriers and supporting gender-sensitive learning environments.
<b>Special Education Zones (SEZs)</b>	Focused interventions in areas with high dropout rates, leading to improved retention and learning outcomes for disadvantaged students.
<b>Barrier-Free Access</b>	Improved school infrastructure, including ramps, accessible classrooms and assistive technologies, ensuring that students with disabilities can participate fully.
<b>Use of Technology for Inclusion</b>	Digital and assistive learning tools help students with disabilities, language barriers and remote learners engage in education more effectively.
<b>Scholarships and Financial Assistance</b>	Reduction in dropout rates among economically weaker students due to increased financial support.
<b>Multilingual Education and Mother Tongue Focus</b>	Improved comprehension and learning outcomes, especially for children from tribal and rural backgrounds, by enabling early education in their native languages.
<b>Flexible Curriculum and Pedagogy</b>	Personalized learning approaches cater to individual needs, making education more inclusive for students with different learning styles.
<b>Teacher Training for Inclusive Education</b>	More teachers equipped with skills to handle diverse classrooms, ensuring effective teaching strategies for students with disabilities and learning difficulties.



The table outlines how various provisions of NEP 2020 impact the inclusion of learners with diverse educational needs. It highlights improvements in accessibility, financial support, technology integration and teacher training. These initiatives contribute to creating a more inclusive education system where students from different socio-economic, linguistic and ability backgrounds receive equitable learning opportunities. By addressing barriers to education, NEP 2020 fosters a more diverse and supportive learning environment.

**Objective 3: To assess the social inclusion of learners with diverse learning needs in the context of NEP 2020.**

**Table-3: Assessment of Social Inclusion of Learners with Diverse Learning Needs under NEP 2020**

<b>NEP 2020 Provision</b>	<b>Impact on Social Inclusion</b>
<b>Equitable and Inclusive Education</b>	Encourages integration of learners from diverse backgrounds, reducing discrimination and promoting social cohesion.
<b>Gender Inclusion Fund</b>	Empowers girls and transgender students by providing resources for their education, leading to greater social acceptance and participation.
<b>Special Education Zones (SEZs)</b>	Reduces regional disparities, ensuring children from marginalized communities can engage in mainstream education.
<b>Barrier-Free Access</b>	Enhances mobility and independence for students with disabilities, fostering greater interaction with peers and community members.
<b>Use of Technology for Inclusion</b>	Digital platforms enable students from remote areas and those with disabilities to participate in collaborative learning, reducing social isolation.
<b>Multilingual Education and Mother Tongue Focus</b>	Strengthens cultural identity and self-confidence, allowing students from diverse linguistic backgrounds to engage more comfortably in social interactions.
<b>Flexible Curriculum and Pedagogy</b>	Encourages mixed-ability classrooms, promoting peer interaction and reducing stigma against students with diverse learning needs.



NEP 2020 Provision	Impact on Social Inclusion
<b>Teacher Training for Inclusive Education</b>	Teachers become more aware and equipped to create inclusive classroom environments that foster mutual respect and understanding.
<b>Holistic and Multidisciplinary Learning</b>	Encourages collaboration, teamwork and cross-cultural interactions, leading to a more inclusive and socially integrated educational experience.

The table highlights the role of NEP 2020 in promoting social inclusion by addressing barriers faced by learners with diverse needs. Through policy measures such as inclusive education, accessible infrastructure, financial support and teacher training, NEP 2020 fosters an environment where all learners can participate equally. By enhancing peer interaction, reducing stigma, and promoting cultural acceptance, these provisions contribute to a socially inclusive education system where students feel valued and integrated into the broader community.

**Objective 4: To identify the challenges faced by educators in implementing inclusive education under NEP 2020.**

**Table -4: Challenges Faced by Educators in Implementing Inclusive Education under NEP 2020**

Challenges	Explanation
<b>Lack of Adequate Teacher Training</b>	Many educators are not adequately trained in inclusive teaching methodologies, making it difficult to address the needs of diverse learners.
<b>Shortage of Special Educators</b>	There is a limited number of trained special educators who can effectively support students with disabilities and learning difficulties.
<b>Inadequate Infrastructure</b>	Many schools lack ramps, accessible classrooms, assistive devices and other facilities needed for students with disabilities.
<b>Large Class Sizes</b>	High student-teacher ratios make it difficult for teachers to provide individualized attention to students with diverse learning needs.
<b>Limited Access to Assistive Technology</b>	Many schools, especially in rural areas, lack the necessary technological tools to support inclusive learning.
<b>Language Barriers</b>	Implementing multilingual education effectively requires trained teachers and resources, which are often unavailable.



Challenges	Explanation
<b>Societal and Cultural Biases</b>	Deep-rooted biases against students with disabilities and marginalized communities can hinder inclusive education efforts.
<b>Assessment and Evaluation Challenges</b>	Traditional evaluation methods may not accommodate diverse learning styles, making it difficult to assess students fairly.
<b>Financial Constraints</b>	Implementing inclusive education requires financial investment in training, infrastructure, and technology, which can be a challenge for many institutions.
<b>Resistance to Change</b>	Some educators and institutions may be resistant to adopting new inclusive education practices due to lack of awareness or reluctance to change established teaching methods.

The table presents the key challenges educators face in implementing inclusive education as envisioned in NEP 2020. It highlights structural, societal and resource-related barriers, such as inadequate teacher training, lack of special educators, limited infrastructure and financial constraints. Addressing these challenges requires focused efforts, including policy support, teacher capacity building, technological advancements and attitudinal shifts within the education system and society. By overcoming these barriers, the vision of inclusive education under NEP 2020 can be more effectively realized.

### Findings of the Study

- i. **Comprehensive Provisions for Inclusion:** NEP 2020 incorporates a wide range of measures to ensure inclusive education, particularly for Socio-Economically Disadvantaged Groups (SEDGs). These include financial assistance (scholarships, gender inclusion funds), infrastructural improvements (barrier-free access, SEZs) and pedagogical strategies (multilingual education, flexible curriculum). These provisions collectively foster an equitable education system where all learners, regardless of background or ability, can access quality education.
- ii. **Positive Impact on Educational Inclusion:** The implementation of NEP 2020 has significantly enhanced access to education for learners with diverse needs. Increased financial aid, assistive technology, and targeted interventions in high-dropout areas have improved retention rates and learning outcomes. Moreover, teacher training for inclusive



education equips educators with the necessary skills to support students with disabilities and learning difficulties.

- iii. **Enhanced Social Inclusion and Acceptance:** NEP 2020 promotes social cohesion by encouraging integration and reducing discrimination against marginalized learners. Policies such as gender inclusion funds, multilingual education and barrier-free infrastructure contribute to greater societal acceptance. By fostering peer interaction, building cultural confidence and promoting mixed-ability classrooms, the policy helps reduce stigma and encourages inclusive social environments in educational institutions.
- iv. **Challenges in Implementation Persist:** Despite the progressive policies, educators face multiple challenges in implementing inclusive education effectively. Limited teacher training, a shortage of special educators, inadequate infrastructure and financial constraints hinder the successful execution of NEP 2020's inclusive provisions. Additionally, societal biases, resistance to change, and assessment limitations pose further obstacles. Addressing these issues requires sustained efforts in capacity building, policy reinforcement and attitudinal shifts within the education system.

## CONCLUSION

The analysis of NEP 2020's provisions on inclusive education highlights its strong commitment to ensuring equitable access to quality education for all learners, particularly those from marginalized and disadvantaged groups. The policy introduces comprehensive measures such as financial aid, gender inclusion initiatives, barrier-free infrastructure, multilingual education and personalized learning approaches to promote inclusivity. These initiatives have had a positive impact on educational and social inclusion, improving retention rates, accessibility, and acceptance of diverse learners in mainstream education.

However, despite these progressive policies, significant challenges remain in their effective implementation. The shortage of trained educators, inadequate infrastructure, financial constraints and societal biases continue to hinder the realization of fully inclusive education. Overcoming these barriers requires a concerted effort from policymakers, educators and society as a whole





through capacity-building programs, increased funding, technological advancements and awareness campaigns.

Overall, while NEP 2020 has laid a strong foundation for inclusive education in India, continuous monitoring, adaptive strategies and dedicated efforts are necessary to bridge existing gaps and ensure that no learner is left behind in the education system. Looking ahead, future research could explore the long-term outcomes of NEP 2020's inclusive initiatives through longitudinal and comparative studies. Investigations into state-wise implementation practices and learners' lived experiences would offer valuable perspectives to inform ongoing policy refinement and educational practice.

## **RECOMMENDATIONS**

- i. **Strengthening Teacher Training and Capacity Building:** To effectively implement inclusive education under NEP 2020, comprehensive training programs should be introduced for educators. These programs should focus on inclusive teaching methodologies, disability awareness and classroom management strategies for diverse learners. Additionally, special educators should be recruited and integrated into the mainstream education system to provide specialized support.
- ii. **Enhancing Infrastructure and Assistive Technology:** Schools should be equipped with barrier-free infrastructure, including ramps, accessible classrooms and assistive devices to support students with disabilities. Further, increased investment in assistive technology, such as screen readers, audio-learning tools, and digital resources, should be prioritized, particularly in rural and underprivileged areas, to enhance learning opportunities for all students.
- iii. **Increased Financial Support and Resource Allocation:** The government should allocate additional funds to support inclusive education initiatives, including scholarships, financial aid and infrastructure development. Special Education Zones (SEZs) should receive targeted funding to improve learning conditions in disadvantaged areas. Increased financial support will help ensure that economic barriers do not hinder access to education for marginalized learners.



- iv. **Community Engagement and Awareness Campaigns:** To address societal biases and resistance to inclusive education, awareness campaigns should be conducted at the community level. These campaigns should focus on promoting the importance of inclusivity, reducing stigma and encouraging parental and societal support for learners with diverse needs. Collaboration between schools, communities and policymakers can foster a more inclusive and accepting educational environment.

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## **INVESTOR PERCEPTION TOWARDS MUTUAL FUNDS**

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### **ABSTRACT**

Mutual Funds provide a financial avenue to the investors wherein they can participate and invest their funds in the capital market and utilise the benefits of professional expertise. The growth of Indian Mutual fund industry is characterised by the increase in Asset under management of all mutual funds in the country. Investors are still not aware of the pros and cons of investing in Mutual funds. The present study attempts to identify various parameters impacting the investors' perception towards mutual fund investment. Safety, liquidity, tax benefits, less risk and higher returns are the key parameters that influence the investment decision of the investors. Most investors prefer Equity based schemes over debt-based schemes.

**Keywords:** *Asset Under Management, Awareness, Investors, Mutual Funds, Perception*



## INTRODUCTION

“Mutual funds, in today’s volatile market environment, serve as key investment avenues for investors by providing them with a safe and transparent platform to apportion their investible funds in various securities and markets”<sup>1</sup>.

The Mutual fund industry in India is more than six decades old. “The year 1964 saw the birth of the first asset management company (AMC) in India: Unit Trust of India (UTI). Unit Scheme 1964 (US-64) was the first scheme launched by UTI in 1964 followed by Mastershare in 1986.”<sup>2</sup>

The objective of this research is to evaluate the perception of investors towards investment in mutual funds. The study attempts to identify the parameters or focus areas impacting the investors’ decisions while making investments.

The research focuses on establishing relationship, if any, between investment decisions and factors namely liquidity, financial awareness and geographical location and thus, identifying investors' perception towards investment in mutual funds.

## REVIEW OF LITERATURE:

The role of the Indian mutual fund industry, as stated by **Kothari, P. P., & Mindargi, S. C. (2013)** in their study, as significant financial service in the financial market has really been noteworthy. “In fact, the mutual fund industry has emerged as an important segment of the financial market of India, especially in channelizing the savings of millions of individuals into the investment in equity and debt instruments. Mutual funds are seemingly the easiest and the least stressful way to invest in the stock market. This study analyzes the impact of different demographic variables on the attitude of investors towards mutual funds. Apart from this, it also focuses on the benefits delivered by mutual funds to investors. To this end, 200 respondents of Solapur City, having different demographic profiles were surveyed. The study

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<sup>1</sup> Sehgal, S., & Babbar, S. (2017)

<sup>2</sup> Babbar, S., & Sehgal, S. (2018)



reveals that the majority of investors have still not formed any attitude towards mutual fund investments.”

**Prabhu, G., & Vechalekar, N. M. (2014)** state that “Mutual Funds provide a platform for a common investor to participate in the Indian capital market with professional fund management irrespective of the amount invested. It has been observed that most of the investors are not aware of the benefits of investment in mutual funds. This is reflected from the study conducted in this research paper. This paper makes an attempt to identify various factors affecting perception of investors regarding investment in Mutual funds. The findings will help mutual fund companies to identify the areas required for improvement in order to create greater awareness among investors regarding investment in mutual funds.”

**Arathy B, Aswathy A Nair, Anju Sai P ,Pravitha N R, (2015):** In their study, authors state that “Mutual Funds provide a platform for a common investor to participate in the Indian capital market with professional fund management irrespective of the amount invested. The Indian mutual fund industry is growing rapidly and this is reflected in the increase in Assets under management of various fund houses. Mutual fund investment is less risky than directly investing in stocks and is therefore a safer option for risk averse investors. This project aims at finding out the factors affecting investment decisions on mutual funds and its preference over retail investors. This project also aims at finding the factors that prevent the people from investing in mutual funds. The findings will help mutual fund companies to identify the areas required for improvement and can also improve their marketing strategies. It will help the MF companies to create new and innovative product according to the orientation of investors.”

**Sharma, D. P. C. (2019):** “Mutual funds have opened new vistas to millions of investors by virtually taking investment to their doorstep. In India, retail investors in general rely on the information which neither provides a hedge against inflation nor have positive real returns. He finds himself to be an odd man out in the investment game. Mutual funds have come, as a much needed help to these investors. Thus, the success of mutual funds is in essence the outcome of the collective endeavors of proficient fund managers and vigilant investors. Therefore, in the present circumstances, it is imperative to recognize the requirements of mutual funds investors along with their inclination for mutual funds schemes and their performance evaluation. This research study has an objective to analyze the perception of investors towards mutual funds as



an investment avenue. The survey was undertaken on 100 educated investors of Delhi/NCR and the findings revealed that the major factors that influence buying behavior of mutual funds investors are fund characteristics, creditability, convenience, success factors, and fund family. The study will be enormously valuable for academics, AMC's, brokers, distributors and other potential investors”.

**Ghimire, D. M., & Adhikari, M. (2023):** “The research findings revealed that while there was a growing interest in mutual fund investments among Nepalese investors, there was a lack of awareness and understanding about these investment vehicles. The paper found that investor awareness level, fund manager qualities, risk perceptions, and fund performance positively affected mutual fund investment decisions in Nepal. These factors played an important role in determining investors’ preferences and choices. The regression model demonstrated a good fit for the data, explaining 55.8% of the variation in investment decisions. The study also emphasized the significance of effective selection and monitoring processes for mutual fund schemes, including evaluating fund managers’ performance and assessing the risk-return profile of different options”

**Palesta, P. K., & Paramita, V. S. (2024):** “Generation Z is a generation that grew up in the digital era, where technology and social media have become an important part of their lives. Based on survey results, most of generation Z have expenses that are greater than their income. This shows that they are less wise in financial management and less able to carry out long-term financial planning. On the other hand, current technological advances present various choices and convenience for making financial investments. There are various types of investment products available for short and long term, which have low risk to high risk. For beginner investors, investing in mutual funds is highly recommended. This is because investing in mutual funds in Indonesia can be started with low fund, diversified funds, managed by professional investment management, thereby providing better return opportunities. This research aims to determine the influence of financial technology, financial literacy, and risk perception on generation Z mutual fund investment decisions in West Java. This research method uses quantitative methods with descriptive and associative approaches. The infinite population in this research is Generation Z in West Java who have invested in mutual funds. Respondents have addresses in various cities in West Java. The sample was determined using simple random sampling with a sample size of 80. The results of this study explain that



Financial Technology and Risk Perception do not influence Generation Z's mutual fund investment decisions. On the other hand, financial literacy influences Generation Z's mutual fund investment decisions in West Java.”

**Iyer, S. G., Sharma, M., Rajeshkumar, L., & Lodha, D. (2025):** “The study seeks to provide valuable insights for both academicians and financial practitioners to improve investment decision-making processes and outcomes. Despite the increasing popularity of mutual funds as investment vehicles, academicians, like many investors, are susceptible to behavioral biases that can impede rational decision-making. The author concluded that addressing these implications has the potential to foster more informed and effective investment decision-making processes, benefiting academicians and the broader investor community alike”

## **MATERIAL AND METHODOLOGY**

### **Research Design:**

For obtaining complete and accurate information, descriptive research is chosen. Descriptive research includes surveys and fact-finding enquiries of different kinds. The approach adopted in this study is a survey based approach. The research instrument used in the study is Questionnaire and Personal Interview. The questionnaire consists of multiple-choice questions.

### **Data Source:**

The data used for the study is Primary data. Primary data is the data collected for the purpose of study by the samples taken. The primary data was collected by preparing a structured questionnaire and collecting the information through Google Forms as well as through personal interviews from both investors as well as potential investors. The sample size of the study is limited to 50 respondents living in Delhi.

### **Sampling Procedure:**

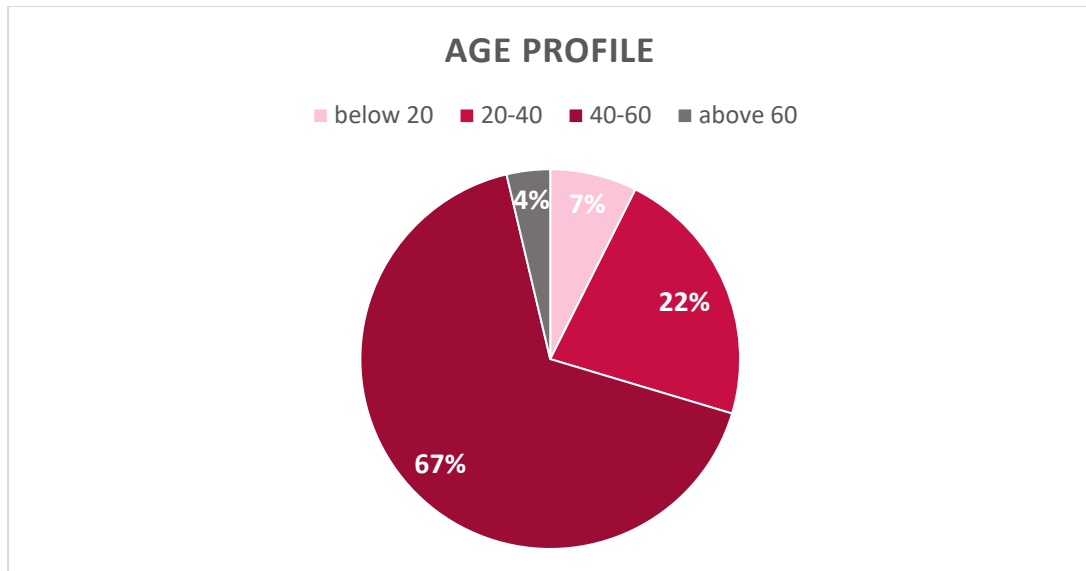
The sampling procedure used in this study is Random sampling. A simple random sample is a subset of individuals chosen from a larger set. Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being chosen at any stage during the sampling process.





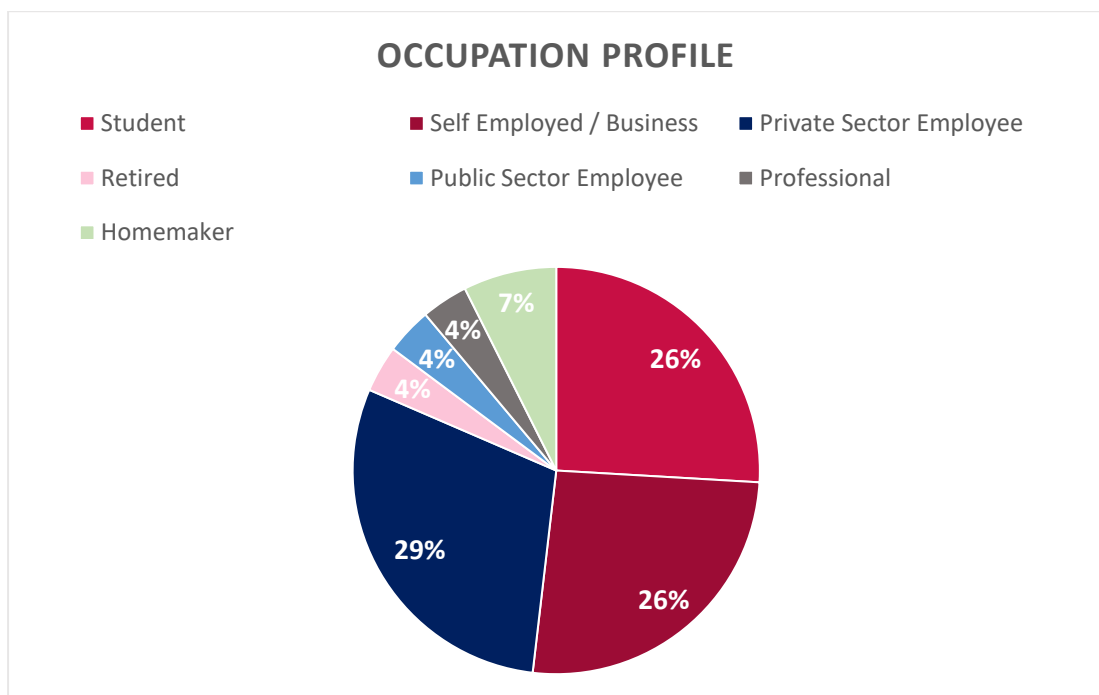
## DATA ANALYSIS AND FINDINGS

### 1. Age profile



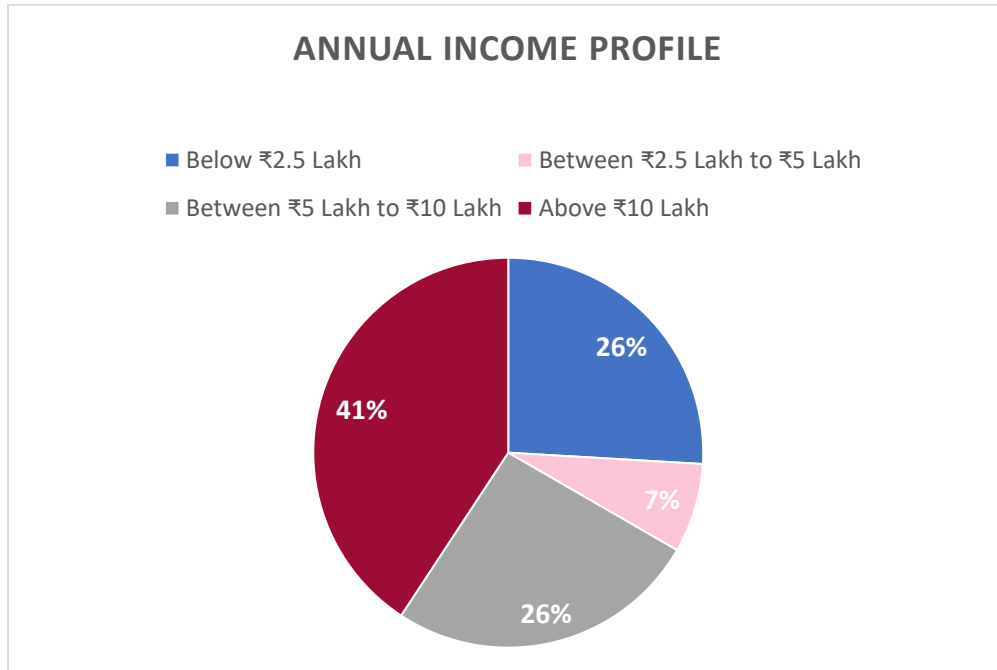
Most of the respondents belong to the age group of 40 to 60 years followed by those belonging to the age group of 20 to 40 years. The age range of 40 to 60 years signifies that these people would assign proper weights to savings and investment.

### 2. Occupation Profile



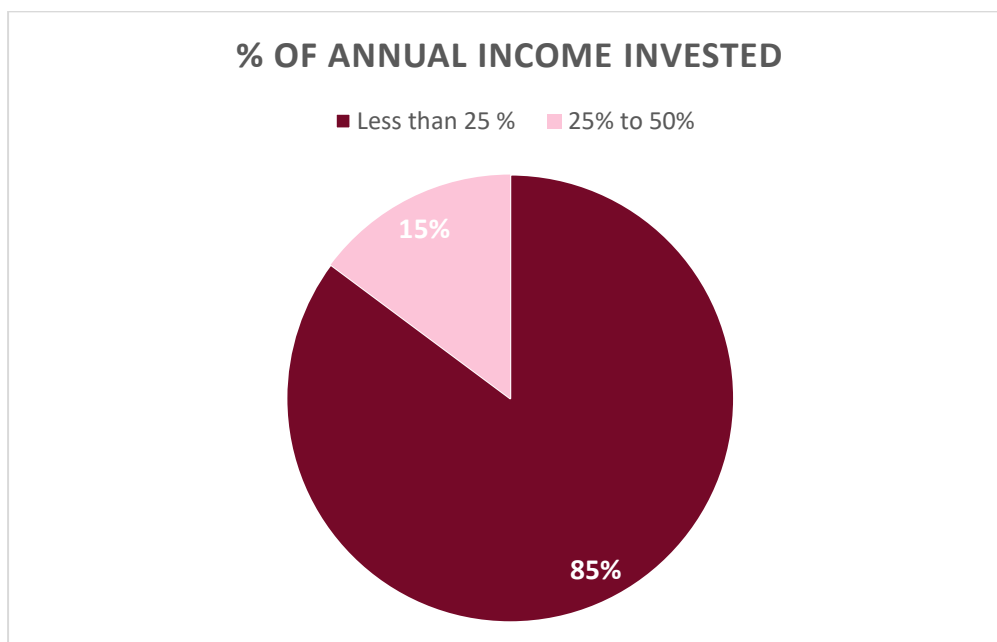
Respondents majorly belong to the Private Sector and self-employed/ business category.

### 3. Annual Income Profile



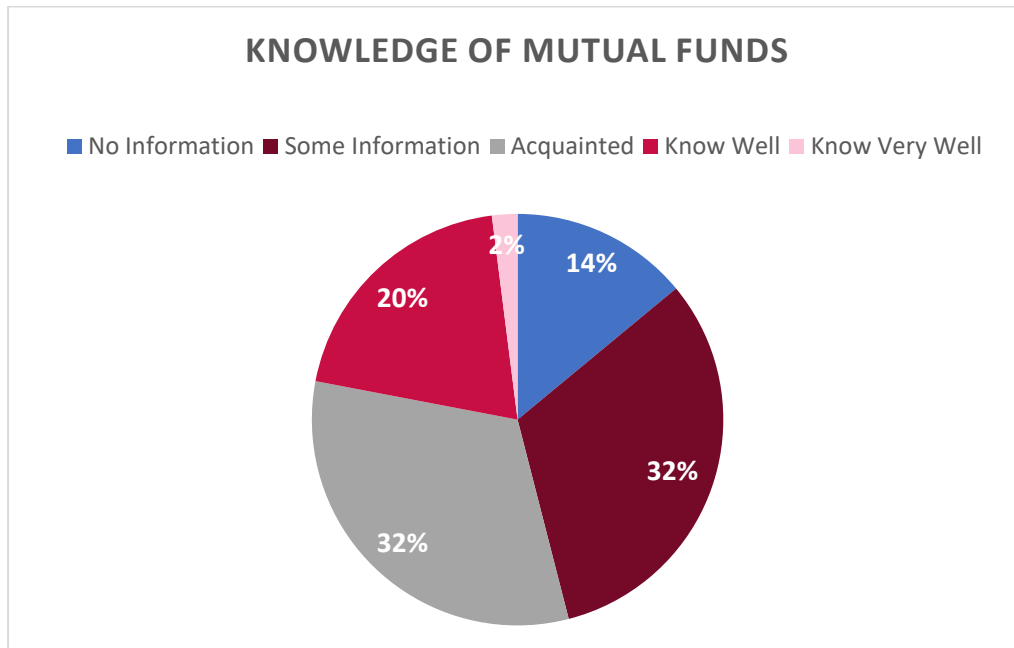
41% of respondents belong to the annual income range of ₹10 Lakh and above

### 4. Percentage of income invested in Mutual Funds



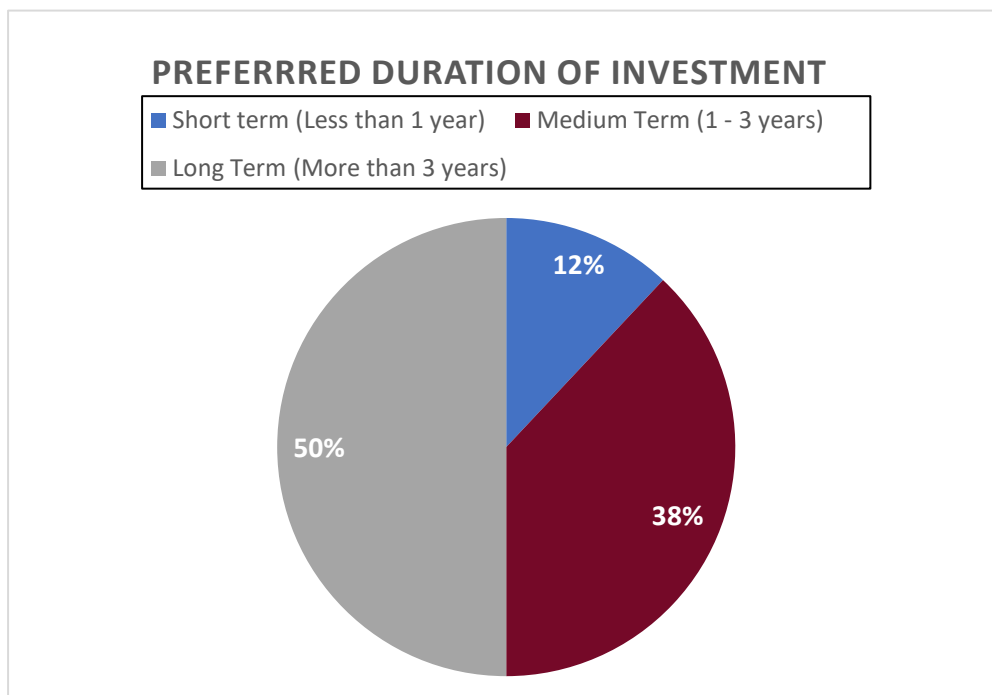
According to the survey, 85 % of respondents aim to invest less than 1/4<sup>th</sup> of their annual income in Mutual Funds.

## 5. Knowledge of Mutual Funds



Majority of respondents are acquainted with no or some information about Mutual Funds while only a small percentage of respondents are well aware about mutual funds reiterating that the awareness programmes about mutual funds would help tapping the large segment of potential investors.

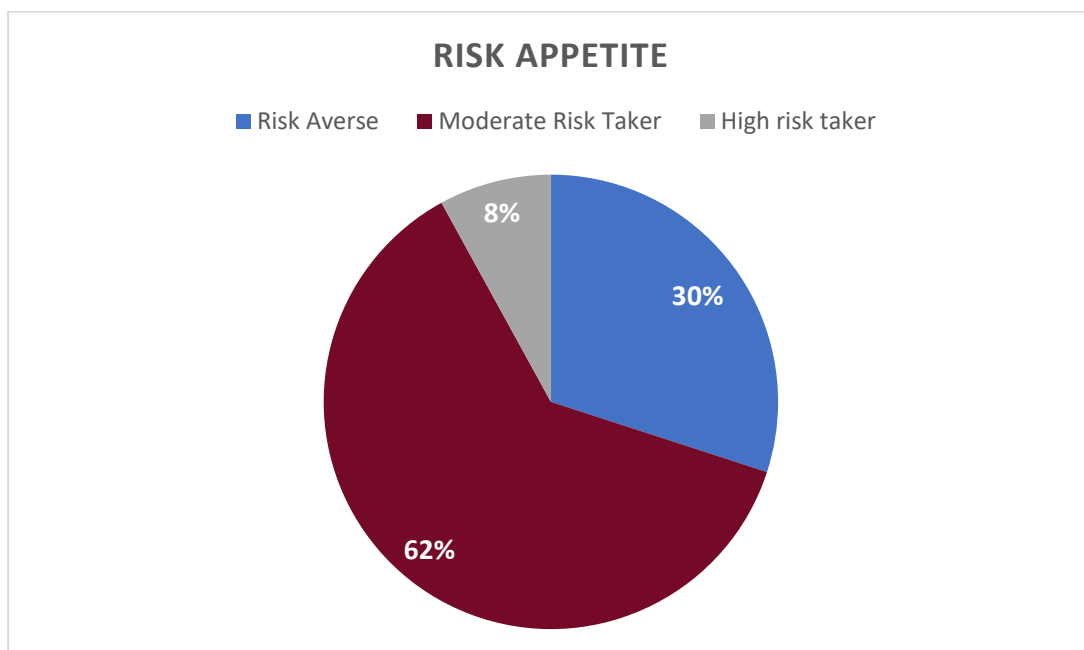
## 6. What duration do you like to invest for?





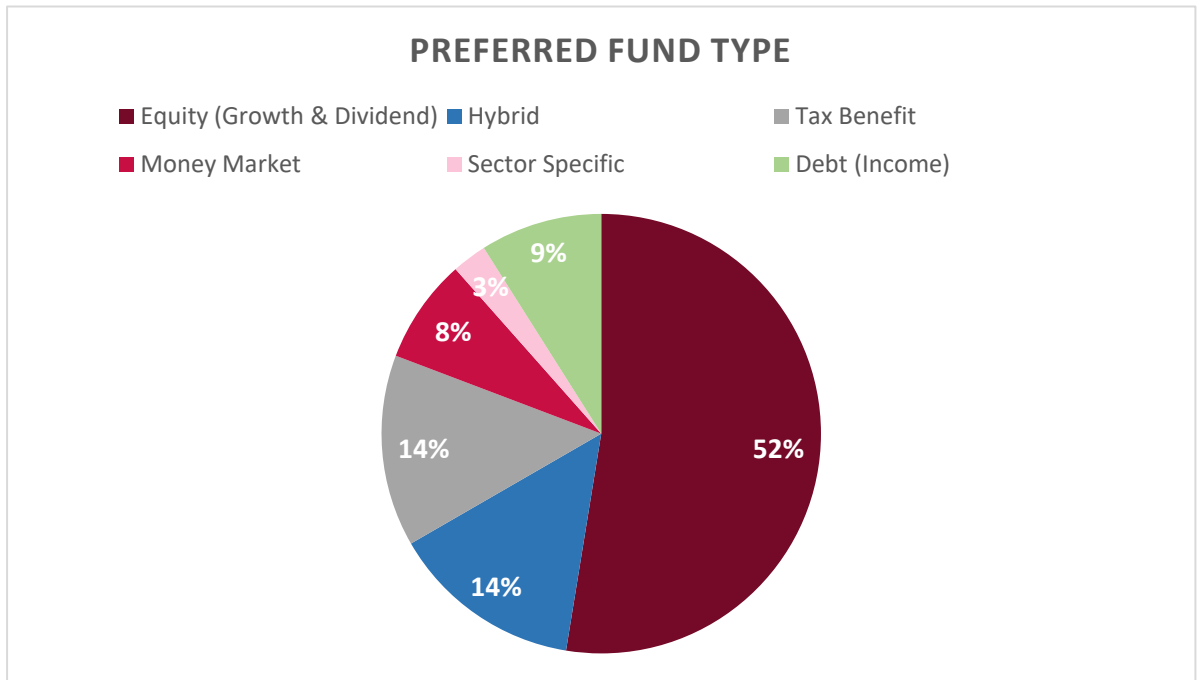
50 % of Respondents prefer to invest for a period of more than 3 years to realise the gains of capital appreciation and high returns. The respondents know the importance of buy and hold strategy. They want to remain invested in the market for a long term and reap the benefits from the growth of capital invested.

#### **7. What kind of investor are you?**



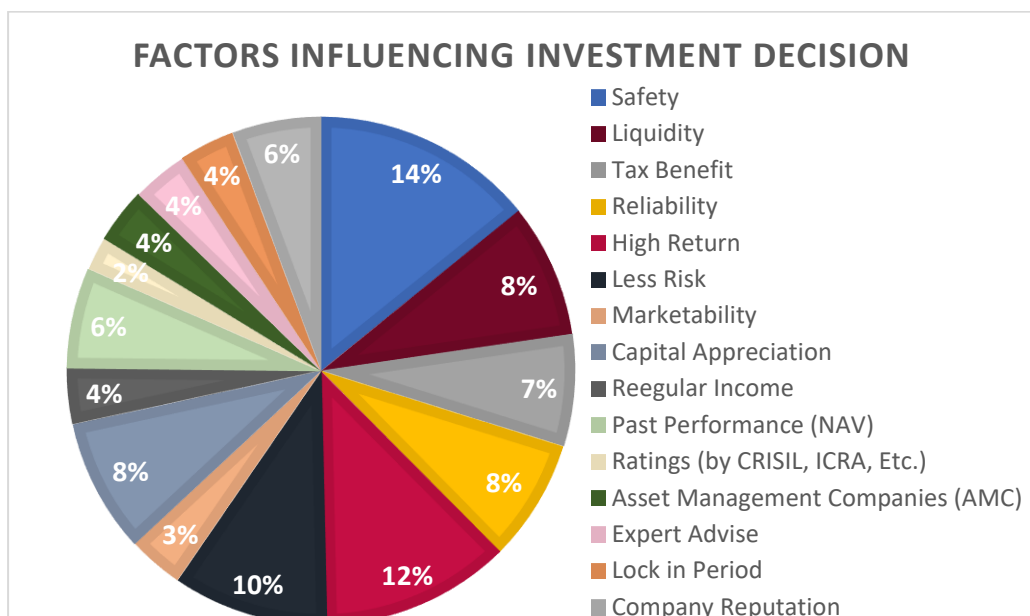
A majority of respondents are either moderate risk takers or risk averse while only a small percentage (8%) of respondents are high risk takers.

**8. Which type of mutual funds do you prefer most?**



Equity (growth and dividend) based schemes are preferred by the majority of respondents (50%). The second preference for the respondents is Hybrid Mutual Funds followed by Tax saving schemes such as the Equity Linked Saving Scheme (ELSS), Debt Funds, Money Market Funds & Sector Specific Funds. Sector Specific Funds are least preferred by respondents.

**9. What is your most preferred basis that you consider important while investing into any Mutual Fund Scheme?**

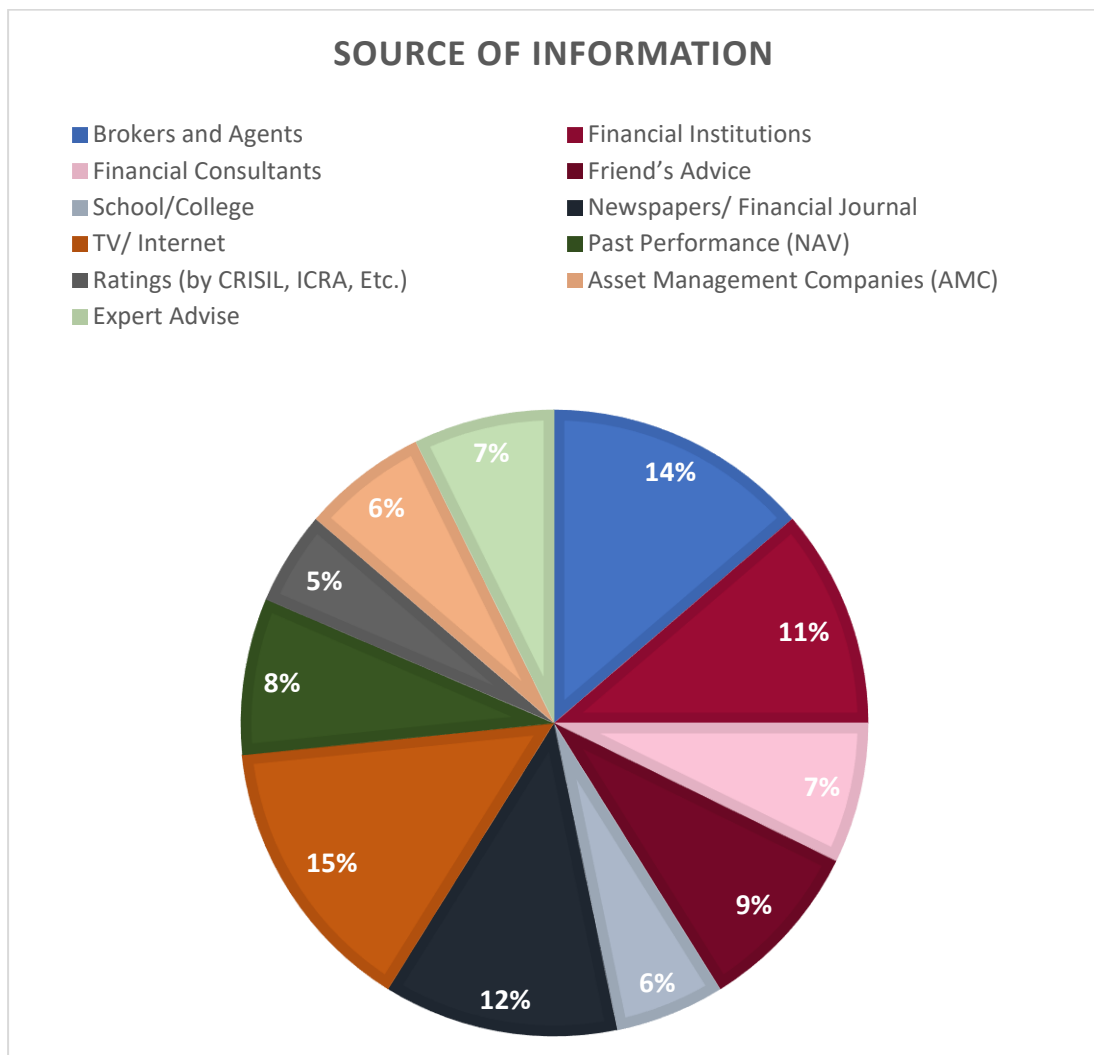




Respondents suggest they invest in mutual funds primarily because of safety of funds, tax benefits, high returns and less risk.

Liquidity, reliability and marketability of funds, capital appreciation, past performance (NAV) of funds as well as company reputation among others also influence the decision of the respondents.

#### 10. Where do you gather information about different mutual fund schemes?



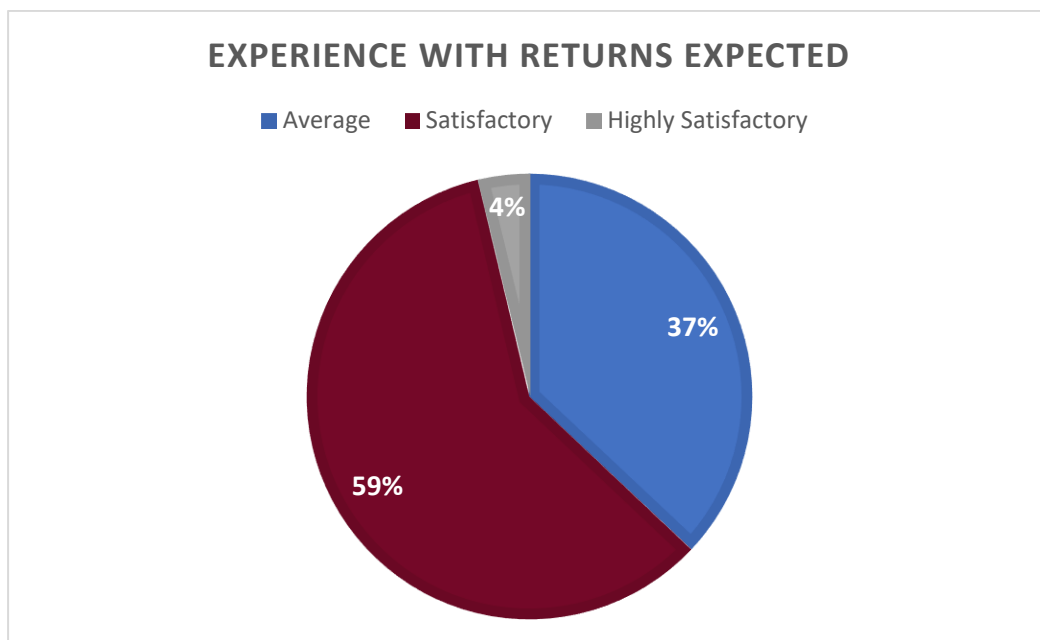


Investors majorly rely on Asset Management Companies (AMCs), financial consultants, brokers and agents, Internet sources for gathering information about the performance of various mutual funds.

Prospective investors rely on expert's word and advice while making their investment decisions.

Investors also pay heed to the ratings decided by ICRA, CRISIL etc. while making investment decisions. For others, the past performance analysis is equally important. Analysing the Net Asset Value (NAV) or Assets Under Management (AUM) held by Asset Management Company (AMC) is a significant factor.

#### **11. What has been your experience with returns expected from investment in Mutual Funds?**



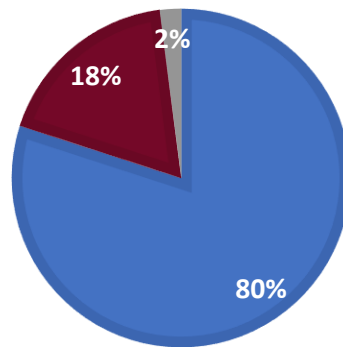
The level of satisfaction amongst respondents with respect to expectations of returns from mutual funds ranges from average to satisfactory. A very low percentage of respondents state that they had high satisfaction.

#### **12. Is there a need for creating awareness among the public about the benefits of investing in Mutual Funds?**



### NEED FOR CREATING AWARENESS ABOUT MUTUAL FUNDS

■ Agree ■ Neutral ■ Disagree

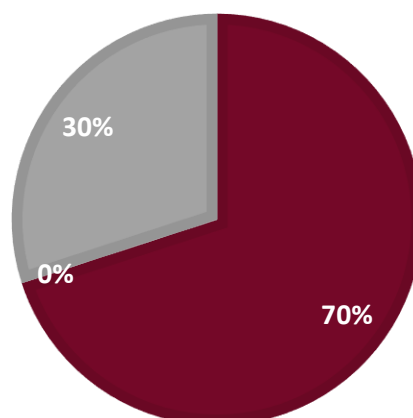


According to the survey, 80 % of the respondents agree to the need for creating awareness among the public about the benefits of investing in Mutual Funds suggesting that some promotional programmes must be undertaken by the Mutual fund Houses and Government to acquaint and make aware the public about the existence and benefits of mutual fund schemes.

### 13. Do you accept the fact that Investing in Mutual Funds will lead to economic development?

#### DOES INVESTMENT IN MUTUAL FUNDS LEAD TO ECONOMIC DEVELOPMENT

■ Yes ■ No ■ Maybe







Most respondents collectively accept that investing in Mutual Funds leads to economic development while some remain uncertain in their opinion. Micro level contributions made by investors in mutual funds lead to a corpus at a macro level which assists the companies to climb up the growth trajectory. The growth of the companies in-turn results in development of the economy.

## **CONCLUSION**

The study conducted shows that 54% of the respondents have invested in mutual funds and most of them belong to the age group of 40-60 years and earn above Rs. 5 Lakh.

The major factors associated with mutual funds influencing the decision of the investors are safety, liquidity, tax benefits, less risk and higher returns. Most investors prefer Equity based schemes

There is still a lack of knowledge amongst the investors as well as potential investors. The awareness about the benefits of investing in mutual funds is limited. Only the middle- and high-income households are aware about the advantage of the mutual funds. There is a need to substantiate the awareness programs about Mutual Funds amongst the public. It is important to make them realise the power of investing in mutual funds and in turn its contribution towards economic development of the country. The mutual fund industry needs to take this into account and work towards creating awareness and substantiating economic growth in our country. Mutual fund investments have the potential to become an integral part of our economy, provided mutual fund houses, fund managers, and investors themselves work in harmony towards creating a stable and efficient market.



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## **Screen Intimacies: Gamification in Online Dating Applications in India**

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### **ABSTRACT:**

This paper examines how the concept of play brings to fore a very intimate relationship between technology and humans. The smartphone screen has shifted from being simply a mode of communication to a crucial device for all tasks and activities, including for leisure, pleasure and play. Generating new rituals and communication practices, there are sensual and aesthetic pleasures being offered by the playful media engagement on the screen. Much like how it is with other forms of play, the pleasures of play on screen with reference to dating apps requires a learning of the rules and decoding the codes and conventions. Different apps have their own way in which a user can access it and use it, they have their own variations, interface and levels of interactivity. The paper argues that consumption and leisure at the site of the smartphone screen have come to determine the texture and experience of everyday life. Technologies do transform the everyday life in terms of its spatio-temporal limits and the possibilities. At some levels it offers new possibilities, in others it reinforces power structures which continue to constrain agentic capacities.

**Keywords:** *Technology, Online Dating, Intimacy, Gamification, Women and Desire*



## INTRODUCTION

“Several boys from IIT had written to us. A few emailed us, even offering to take trains down from Chennai but we discouraged them... We were content to chat up boys on the Internet. We each wrote to several boys. Mails went back and forth ten times a day... Over the next year, our social lives were planned carefully on the internet so that no one in Cochin suspected a thing.” (Susan 2020, p. 22)

This is an excerpt from the book, *The Women Who Forgot to Invent Facebook and Other Stories*, a collection of short stories by Nisha Susan, centered on the webs of love, intimacy and friendships forged via technology and particularly the Internet. Her stories reflect the transformation of India’s digital landscape, where lovers went from, “cooing into cordless phones to swiping right on cellphones” (Susan 2020, p. 1). Her stories speak of the Indian youth who are simultaneously taking pleasure in and resisting the seduction of globalized possibilities. Most stories are from the perspective of young women and men navigating new configurations of dating, love and friendships mediated via digital technologies and screens.

This paper looks at the emerging screen culture on the smartphone as a site that has reconfigured and continues to shape the contours of love, dating and relationships – produced, expressed and negotiated on the screen and played out on dating applications and platforms that facilitate the formation, interaction and projection of the self. Subsequently, technical media such as the smartphone, the Internet, and online dating applications need to be analysed on their own, not as prior to perception but to make evident the interrelationship between the screen, its software, discursive formations and perceptions. This is not to suggest that behaviour of the subject can be predicted but by interpreting the conditions of mediated experience, their actions however can be understood and explained to an extent. The thrust of this article is to identify and articulate the playful newness and continuity of the screen for dating, and also signal the frameworks which determine the relationships between technologies, culture and



individuals, and address the materiality and reality of these technologies and technocultures with special emphasis on game-like dating apps.

Although dating is now seen as acceptable in India as long as it converts into a marriage; however, according to a survey conducted by the Lok Foundation and Oxford University, and administered by the Centre for Monitoring Indian Economy (CMIE) in 2018 across India, revealed that 93% of the respondents admitted that they had an arranged marriage, with 3% saying that they had a “love marriage” and another 2% describing their alliance as “love-cum-arranged” (Shrinivasan, 4 Oct 2018).<sup>2</sup> It is important to flag here that apart from social and cultural factors, digital media literacy and digital access to dating applications is a crucial prerequisite for participation in the online dating world. Subsequently their usage is limited to the middle and upper middle class, and limits the widespread use of these applications. In a fascinating study, Awal (2025) has probed the use of dating applications by women of a certain socioeconomic position in urbanized areas such as Ghaziabad has explored how online dating has become a playful activity, not essentially oriented towards finding love or culminating in marriage. More importantly, this study teases the conflict between middle-class comfort and the pursuit of pleasure in the use and consumption of these applications.

In many societies in contemporary times heterosexual couples meet (or date) and get to know each other before getting married or entering a long-term relationship.<sup>1</sup> There are varying rules and practices of courtship across cultures, which have also changed over time. While in many societies dating is considered a norm and widely acceptable, in many cultures, such as in India there is only now a growing acceptance towards dating or the couple knowing each other before they get married (Kaur, 17 June 2021).

Traditionally, people looking for partners often met offline, either on their own or introduced by their friends, family or colleagues. Eventually technologies such as the telephone, email platforms and messaging services slowly became important ways of communicating, socializing and being in a relationship. From placing advertisements in the newspapers, to declaring radio-love, dating has evolved significantly to include online quantification and gamification of desire and intimacy by the use of algorithms and



artificial intelligence by dating platforms to predict and guide human behaviour when it comes to love, dating and relationships via handheld digital screens (smartphones) (Huang, Hancock and Tong, 2022). In 2020 India had 37 million dating app users, and India is now the second-largest market for dating apps, with revenues, running to \$454 million after the US (Mehrotra). This also suggests a change in the perception towards dating apps finding wider acceptance, which were earlier considered too risky or desperate or even ignominious.

A study by Stanford sociologists on how online platforms have become the most popular way in which couples meet, argues that two very specific technological innovations have made online dating popular (Rosenfeld et al., 2019). One, the birth of the World Wide Web, which used the text-based bulletins and notice board systems of yesteryears, to incorporate picture search for visual stimulation. Interestingly, Facebook as we know it now, emerged out of a website experiment in Harvard to rate female students on the campus on the basis of their attractiveness by upvoting or downvoting their photographs. The visual element to a dating service online then made it more visceral and engaging. Secondly, they state that the innovation and the adoption of smartphones made online dating more pervasive. There is in that sense advantages of scale at play, where dating applications can allow access to a larger pool of potential matches, as opposed to offline networks of friends, family and colleagues.

In subsequent sections, the formation, interaction and projection of the self via the use of dating applications will be examined, framing them alongside the screen, its software, discursive formations and perceptions. Additionally, this paper will make a case for examining the use of dating applications as a playful activity in a game context by mapping dating applications and the possibilities they offer to users via game-like elements.

### **Framing Intimacies: Playability, Screen and Dating Applications**

An emerging question is how do we categorize media experiences that do not neatly fit within the definitions of media consumption and use? Specifically, can new



media devices and texts, which offer interactive pleasures and possibilities, be thought of as play? In signalling a “playful turn” Raessens (2006) has argued that play has not received a sustained examination within the field of media studies, apart from work on video games (which has been recent), to use it as a frame of analysis for other media forms and texts (p.2). The concept of gamification is also useful here in exploring the playful nature of media experience. Gamification refers to game like structures, rules and practices being deployed in non-game contexts to fuel user engagement and interest. Gamification is not entirely new but the contexts in which it is being adapted and adopted are certainly novel. The smartphone screen offers numerous possibilities for playful activities and communication. The concept of play is not only a characteristic of leisure, but can also be invoked in other contexts, such as that of consuming content interactively, and in this case, dating applications.

Dating apps are designed and positioned as novel, fun and exciting, and are couched and marketed as essentially playful experiences. In the context of gamification, dating apps exhibit game-playing action, and navigating, accessing and using the app requires different modes of play. In the dating app play universe, gameful interaction begins with first inviting the user to craft their profile and create a personality. There are rules and codes of operating the app that need to be learnt, essentially the skills of the play. Users are encouraged to swipe left (dislike) or swipe right (like) through other profiles. The swipe and scroll mimics and mirrors some of the actual game moves a player makes.

The architectural structure and the features of dating apps are designed as a game-like application – constructing, constraining and empowering users in the play. Caillois (2001) in redefining the concept of play, stressed on how it is separate from everyday life routines, offering the possibilities of using imagination and creativity in what is essentially unpredictable in terms of the outcome. The larger rules of every dating app dictate broad macro moves of play: users can like other profiles and “super like” a limited number of profiles in a day. And every like and super like achieved by the user ultimately feeds into their overall ranking on the app. Playing the game also constitutes certain rules of reaching the intended goal. Every dating app also has its own set of rules – the number



of people you can message in a day, the number of profiles you can accept and reject, the number of super likes or interests you can show – thereby creating a game-like environment of rules to adhere to. On dating apps, much like other games, users can buy premium services as well to bend the rules and get more room for manoeuvring. While the rules of play might not be the most efficient way of reaching the goals, the rules, and following those rules are where the actual pleasure is unlocked – overcoming challenges playfully. Essentially users are competing with other users for a match in the dating pool, in many ways making it a game for users. The strict boundaries between game space and non-game space, virtual and the real seem fuzzy then, with the process of gamification intending to introduce game-like elements in all aspects of life.

Love and relationships have often been packaged in advertising and magazine articles as a commonly understood and accepted emotion that is an integral component of human life and need. Marketers have especially reminded us the value of love in social relationships. Advertisements of dating applications primarily construct and then draw on this human need to find that someone special in life. While a few dating applications such as Tinder and Bumble also position their platforms as avenues for forging friendships, platonic relationships and networking; however, finding romantic love online continues to be the primary driver of these apps.

Often dating and the associated ideas of love, relationships, intimacy and desires are not considered scholarly or warranting serious academic inquiry. Labelled as banal and frivolous, online dating has been limitedly studied to understand the production of the self at the intersections of technology, culture and affect. In essence it is not merely about individual choices exercised or structural compulsions of technical architecture but a complex negotiation of how the subject conducts herself with the screen. The screen is at once an idea, media and technology – and the youth's engagement with it in everyday experience produces certain cultural and identity formations which have been underexplored till now. Digital auto-ethnography method served the purpose of understanding the conditions of mediated play experiences via the screen with the use of Tinder, Bumble, Hinge and Woo dating applications. Dunn and Myers (2020) and Atay (2020) have made a compelling case for this methodology for studying contemporary





digital experiences. The research process was informed by the ontological perspective of multiple realities, and the methods acknowledge the relationship between the author as a researcher and the phenomenon being set out to understand and describe. The author made use of prominent dating applications to understand the interface and structure and develop a more nuanced understanding of how the dating apps worked in general. Representation of these experiences outside the context of this research including, films, memes, advertisements and videos were also examined.

Digital media technologies are offering newer modes of expression and possibilities to young men and women. Prevalent ideas in India around women's bodies, sexual agency and relationships continues to be policed by structures which restrict intermingling between people of the opposite sex (Kumar, 24 Jan 2021), or prohibit couples from accessing public spaces even (Sadam, 26 Aug 2021). These screen dating applications then exist in a liminal space, offering opportunities to navigate the complicated terrains of patriarchy, surveillance, circumscriptions and prospects. The surveillance and restrictions notwithstanding, Internet-based cultural activities under the shadows of the police state and society reflects profound social and cultural transformations, technological changes and innovating ways of navigating the webs of love, dating and relationships. New cultural forms and textual practices have now emerged, bringing in further complexities and contradictions of our techno-cultural society to the fore.

Popular culture references to online dating, including newspaper and magazine articles and online content and quizzes on websites are largely of the self-help variety, focussing on how to crack the code of online dating, how to game the algorithm, the most common mistakes of online dating, advising users on how to craft their profiles (Marotti, 6 Dec 2018), ice-breaker questions, how to ask someone on a date, how to continue keeping the date interested in you afterwards (Times of India), and how to prevent ghosting, harassment and catfishing (Turtis, 23 Jun 2021).

Social media memes on the other hand cover a wide range and breath of dating issues that a person might face, fuelling further conversations and social sharing among



friends (Sroczynski, 15 July 2017). Increasingly, dating apps use their social media handles as well, especially on Instagram and Twitter to engage with and encourage users to share their dating experiences which often take the form of personal stories, memes and jokes around the pitfalls and struggles of online dating. For instance, a popular dating app, Coffee Meets Bagel regularly engages with users on its Instagram page, posting quotes, memes, images and videos.

In the past few years, web series made exclusively for Over-the-top platforms have also used online dating as a premise in their storylines. Some of the popular ones available for streaming on Netflix, including *Indian Matchmaking*, *Too Hot to Handle* and *Love is Blind*, have normalised the idea of online dating to find a romantic interest. In meeting of different but related worlds on the screen, Tinder has teamed up with Netflix to produce a reality show on online dating titled *IRL: In Real Life* in July 2021. Tinder will be the official casting partner for the show. Essentially creating a game within the game to reward and fuel further interest, motivation and engagement by users to play dating apps.

In the last decade India has also seen the opening of comedy clubs across the country, emerging as avenues for stand-up acts by comedy artists. These shows are ticketed, and often involve a comedian coming on stage and entertaining the audience with their jokes, or stand-up acts as they are called, taking references from everyday life, current events and emerging trends. The popularity and acceptance towards online dating apps in India can also be seen from the recurring references to online dating experience in these comic acts. In the year 2019, OkCupid, a popular dating app partnered with six women comedians to present a stand-up show titled *#MyKindOfFunny*, littered with references to online dating, prevalent attitudes about online dating in India and some hilarious experiences. The campaign involved running three shows, all of which were sold out. In another stand-up act posted by a comedian Ramya Ramapriya on her YouTube channel in 2020, titled “Mumbai Locals and Dating Apps” has garnered 6,145,771 views till September 2021. During the act she shares some of her experiences on Hinge, another popular dating application, and the funny encounters she has had while interacting with men on that app, ranging from Photoshopped profile pictures to bad



grammar (Ramapriya, 6 May 2020). Another popular stand-up comic, Aditi Mittal posted a video of her performance in New York in January 2020, where she mocks her inability to date online since she finds it challenging to click good pictures of herself (Mittal, 4 Sep 2020). In a fictional video made by comedian Anuvab Pal in 2015, there are six encounters a woman can possibly have with men she meets on Tinder, listing some of the types of men an Indian woman is sure to meet on a dating app (Pal, 19 May 2015).

There is then an absence of any account which is neither celebratory nor cautionary towards individual play experiences with the screen via dating applications, and I would like to frame the discussion within the affective regime of automation of desires, mobility and senses. A user's sensory capacities are brought to bear upon these screens and dating applications when their bodies interact with the screen. Additionally, the new levels of mobility offered in terms of choice and spaces point to how technologies also *shape* cultural forms. Emerging developments in the field of dating applications also point towards the widespread use of artificial intelligence. As I will argue subsequently, it would be fruitful if we move away from the dualism of structure and agency in media play since the process of automation and algorithmic models of our contemporary screens do not obliterate agency and reflexivity of the subject – it is about when and how and under what conditions the subject chooses to exercise it.

### **Mapping Dating Applications**

Much like the various stages of a game, playing the dating app requires completing a level to unlock other subsequent levels. The first step in any dating application is for the user to create a profile, which typically includes basic information such as name, age, gender, location, interests, hobbies as well as self-description of who they are and what they desire in a partner. Subsequently, many apps get a questionnaire filled by the user to understand their preferences in a partner, by evaluating the user's personality type in order to search for and match with the most compatible partner. Here the apps make use of proprietary matching algorithms which use this data to design types, draw inferences and show matches. Most dating apps allow for signups and registration for free but offer paid and premium services to access certain features such as a greater



number of matches, ability to message another user, see photographs, search for profiles manually, among others. The users are hence motivated to play and perform, by interacting with the app, sensorially immersing themselves in it, sometimes also spending money to unlock more features. User's reward centre is also stimulated by informing them of the likes they get, how popular their photograph is, giving them incentives to keep playing further. Playful and game-like, dating apps then create play with real life moves on a virtual platform with real life consequences.

For India this sexual and technological wheel turned with Tinder. Tinder was the first dating app to enter the Indian market in 2013. Its swipe gestures on the screen to accept or reject a profile went on to influence other dating apps that emerged after it (right swipe is for acceptance and left swipe is a rejection). Tinder was later acquired by Match Group (this group also did a series of acquisitions, such as OkCupid, Hinge and Plenty of Fish). Shetty sketches the online dating landscape post 2014 with TrulyMadly, Aisle and Woo entering the Indian dating app market in the year 2014, followed by the launch of Hinge in 2015. This was closely followed by the launch of another app, Happn in 2016. The year 2018 saw the release of a slew of dating apps such as Bumble, OkCupid, QuackQuack and Coffee Meets Bagel. The most recent app to enter the dating app scene in India is the homegrown HiHi in the year 2020. In India user penetration of dating apps stood at 2.7% in 2018 and is now pegged to grow to 3.2% by 2023 (Jha, 11 Jun 2021). However, there is a dating imbalance in between genders, out of the 31 million dating app users in 2020, 67 percent were men (Mehrotra, 18 Jan 2021).

The Covid-19 pandemic has also seen a surge in the number of people signing up for dating apps, primarily to ward off loneliness from having to be confined in their homes during lockdowns. In a Future of Dating Report, released by Tinder in 2021, they claimed that 18–25-year old's make up for the largest user base on their apps (Joshi, 1 Aug 2021). The same report also revealed that about 68% of those interviewed found it easier to forge connections online and 67% of them believed that meeting someone online was liberating. In the same report, 90% of the respondents also shared that they tried online dating to make friends, especially during the pandemic and lockdown. Aisle, a homegrown Indian dating app has reported that in 2021 they witnessed a 28% user growth



and a 25% increase in daily active users. They also reported that more and more users are upgrading to premium services and making in-app purchases (signing up on dating apps is for free, but using their services and features involve buying those services for a fee). A similar figure has also been shared by another dating app, TrulyMadly, with many users logging in the night between 10 pm and 2 am (Hariharan, 20 May 2021). In a survey done by Bumble during the pandemic, about 44% people believed that online dating apps are now the only viable way to meet a romantic partner. Bumble prides itself for being an app which provides women safety and agency, by only allowing women to initiate the first conversation instead of receiving unsolicited messages. In the same survey about 50% of the people revealed that they do not look at meeting someone online disapprovingly anymore. Many of these apps heavily promoted virtual dating during the pandemic, nudging users to explore virtual dates and relationships till the pandemic got over (Patwa, 2021). QuackQuack registered a 300% increase in signups since the beginning of the lockdown, getting 11 million users on their platform (IANS, 19 Dec 2020). Further, in a report published by Tinder in 2021, due to lockdowns and shutting down of bars and restaurants, users were open to going on ‘grocery shopping’ dates (Indian Express, 20 Aug 2021). In fact, a recent article published a few tips on how to find your “Lockdown Love” (Menon, 1 Sep 2021). Video and audio dates have become widely popular, with many dating apps plugging in “Date-from-home” features on their platforms, suggesting online games that users can play together.

Conversation around the smartphone screen in my own network revealed a reflection on their sensory experiences of using dating apps, such as a notification of a probable match, the vibration and tone when receiving a message, the feeling of technological intimacy with the screen and other emotional and affective responses to this experience. The fascinating thing about online dating experience is how the screen and the app offer a meeting of the local and the global, and the use of certain vocabulary and language which reveal a transnational mode of identity construction. Since the concept of online dating is relatively new in India, there is always a reference to certain social norms and traditions in the process of shifting experiences of cultures and identities. Most people would have encountered the terms “hook-up” and “ghosting” on the screen itself, and the ease with which these practices and terms became their own, pointing to the continuing



dynamic between online and offline activity, technology and the individual, tradition and globalized modernity.

If we de-centre the technology behind dating apps, we can see them working towards inviting the user to give their time, concentration and effort to the app by roping them in to give a lot of thought to how they describe themselves, the pictures they put up and the interests and hobbies they mention. The apps' interface and structure create a world of possibilities, as well as suggestions for how to craft an ideal profile, ideas for romantic outings and activities that can be done on a virtual date etc. In that sense there is a very real mediation of the emotions of the user by the screen and the app, producing conditions within which they come to experience dating, love and relationships.

### **Automation of Screen Intimacy and Desire**

There is now an increasing use of non-human technology actors such as algorithms and automated systems to mediate and navigate human experiences such as dating, relationships and love. In August 2021 a French journalist Judith Duportail shared her experience of requesting and retrieving her personal information and data from Tinder in a docuseries called *Connected* available for streaming on Netflix. She revealed how her personal file with Tinder ran over 800 pages, with details of her chats with every user, including sexting and kinky conversations. Additionally, she discovered that Tinder's algorithm was composed of a controversial "desirability quotient" scoring system – based on the number of right (like) and left (unlike) swipes a profile gets, with a lesser score subsequently limiting the chances of a user's profile being shown to other users, as opposed to most right-swiped profiles landing on other users' stack (Ghoshal, 12 Aug 2021). Her experience revealed what has now come to be discussed as the "quantification of desires" within the dating app industry. In the last few years, the mechanism behind how dating apps work, which includes proprietary algorithms and machine-learning tools has pointed to the increasingly automated operation of these platforms. Automation is essentially a business-critical activity for dating apps, and how successful they are in building an algorithm which produces compatible matches is directly proportionate to their revenues. In that sense they can be seen as modelling social relationships by using



graph databases which identify relationships between different data points of the information provided by users.

While the focus on numbers and data is not entirely new as even before the overt use of algorithms, figures such as age, height, weight, income among others, were significant factors in filtering and matching users according to their preferences. However now, almost all dating apps make use of algorithmic models to match and show profiles to a user that has the highest chance of compatibility, based on user's preferences themselves (age, location, height, weight, education, profession), as well as other parameters which apps codify in their algorithmic models to arrive at the best possible match outcome. In effect, these apps work behind the scenes to pair users with the most probable match. This has been done to save people the time of trawling through a database and swiping right or left, often considered a tiring activity, and in many ways a reductive way of picking a date simply based on how other users look.

While most apps have their own proprietary algorithms that they develop after considerable research, choosing their own set of variables and preferences to factor in the filtering of choices for a user, many apps are also incorporating machine learning algorithms. These algorithms adapt to the user's interaction with the app and other profiles as well to learn the preferences of the user. These then get fed into the algorithm which adapts to the user's preferences and changes and filters the results and profile matches shown to the user subsequently. For instance, an example of a machine learning algorithm on a dating app will study the profiles of other people the user has interacted with and liked, and understand their characteristics and feed that into the algorithm. If a user consistently interacts with profiles that are above a certain age, for instance, then the algorithm will adapt and accordingly in subsequent results show matches above that age range only. Subsequently it automates the demographic of the profiles shown to the user. While dating apps like Tinder and Bumble ask very few questions when a user initially signs up (such as age, gender and location), Hinge, another dating app for instance, is premised on its ability to match users with their friends of friends or their extended social circle. In this way the technology becomes creative, in serving a compatible romantic match as per its calculations, in a kind of collaborative filtering with the audience-user.





The collaborative-filtering also narrows options, in the sense that if you swipe left to a profile, for reasons entirely unknown to the algorithm, it might not show potential matches based on its understanding of why you chose to swipe left on someone. In that sense compatibility and desirability are different, and while the filtering can make statistical sense, it does not translate into a wide choice. In an article on the practice of filtering by dating apps, a user of Coffee Meets Bagel reported that she always saw suggestions of other Arab or Muslim users even though she explicitly chose the option of no preference for ethnicity. In her correspondence to the dating app asking for why they only showed her users of a specific ethnicity, she was told by the app that even though she disregarded ethnicity as a parameter for finding a date, the system does not understand “no ethnic preference” as a choice for diversity and shows her users who have chosen to date her ethnicity instead. They also mentioned that even though users themselves might state they have no preference, but their data suggests that users often subconsciously date within their group (Notopoulos, 14 Jan 2021). In many ways suggesting that at best dating applications make accessible a larger pool of people to choose from to date, but their machine-learning algorithms and automation processes cannot fully account for human emotions and behaviours, and who people actually connect with. In spite of this, most dating apps pride in their algorithms and systems which appropriately match people. Whether or not the automation results in satisfactory matches, it certainly has made looking at profiles and choosing who to date a perfunctory action.

Many social media platforms including dating applications also use their machine-learning tools to flag and identify offensive messages by prompting and asking users if they want to report inappropriate behaviour. In 2020, Tinder added another feature whereby after screening messages from potential matches, the app would ask “Does this bother you?” if their algorithm would read harassment or abuse in the message exchange between two people. The grey area between potentially offensive and flirting texts can be difficult to discern by an algorithm, as context of the conversation is meaningfully relevant. In order to circumvent this, the Tinder algorithm was trained by feeding messages to it which had been reported as inappropriate by previous users. This then led to the building of a database which includes keywords and patterns which would





suggest if the message was offensive. As the algorithm is exposed to more messages, it learns and adapts to understand how to flag such messages. Eventually Tinder hopes to personalize the algorithm based on each user's behaviour and preferences so that it is custom-built to their context. This development is against the backdrop of how harassment on dating apps is rampant, with women twice as likely to have been sexually harassed online, in comparison to men (Pardes, 27 Jan 2021). In this light, Tinder also introduced another feature around the same time, called "Undo", where in the same machine-learning algorithm would screen the message being typed by the user and in real-time ask and discourage the user by asking "Are you sure?".

In some instances, users have circumvented the automated systems and have been known to 'game' the dating app system by running their own computer programs to widen their chances of landing a potential date. In 2019 Matt Taylor developed a computer script that would automatically swipe right on Tinder (a gesture on the smartphone screen that says that a user is interested in a profile) on every profile that matched his preference. In a few hours the program had swiped right to 25,000 profiles. Out of all these right swipes, he eventually matched with 9 users, and went on to date and marry one of them. After this, many apps have strengthened their security systems to prevent such gaming of their apps and even penalize those who right swipe on every user profile (Park, 13 Nov 2019). Additionally, to prevent fraud, a few dating applications also employ photo-recognition software which detects if the image is duplicated from the Internet (Finley).

Many apps also suggest algorithmically which photographs would make for a good profile picture on the app, in a way homogenizing profiles and users. Coffee Meets Bagel has a feature where you upload two profile pictures and let other users on the platform vote on which one amongst the two is more attractive. The process of automation in terms of algorithms and profile matching is also governed by the amount of money a user spends inside the app. For instance, Tinder allows users to buy "super likes" which makes it more likely for the user's profile to be shown to other users. Similarly, Coffee Meets Bagel allows users to buy "bagels" or upgrade and search for more profiles and message users directly. Other ways in which dating apps make money is by re-purposing



user data and sharing it with third parties, such as Facebook and Google for instance for re-targeted marketing, akin to living in an AI cave.

Another rather unexplored aspect of automation that does not involve algorithms matching people is that of bots on the system. It is evident from reviews left by users on Play Store (the app and platform from which Android users download other apps), that multiple users had encountered bots on the dating app platforms. Often, they were notified of potential interest in their profile and asked to upgrade to premium services. Subsequent to the upgrade, the interest notifications would disappear or the user would cease to reply, raising concerns of unethical practices by dating applications.

### **The Games We Play: Reframing the Dating Process**

The process of transfer of computer technology from industrial use to the home environment has accelerated in the last few years, revealing how the regimes of automation, mobility and sensing operate in our technologically mediated lives. The world of dating apps is increasingly mirroring for instance, online shopping apps and platforms: Search, Scroll, Swipe. Online shopping app algorithm knows the category of products a user is interested in and continues to show the results of products the user might like. The user exits the app but the re-targeted advertisements and marketing efforts continue to follow the user, showing them the same products and its advertisements on different websites and pages wherever the user goes.

This however does not mean that automation and algorithmic models of dating apps completely subsume human agency. In most of my interviews, the respondents shared that they were looking for a relationship or to meet new people, and not necessarily working towards marriage. They are also repurposing the app for finding friends and not just romantic partners. Users are free to log out and uninstall or even reject the matches they are given. The app however will continue to evolve in a way in which it will attempt to understand the user better, adapt to them via machine learning models, and continue to show profiles it assumes best matches the criteria or tastes of the user. Even within the regimes of automation, there is resistance and negotiation, and even conflict in meaning-



making, as there is a struggle between production and consumption. The screen and the app are used, re-used and appropriated differently by consumers, and even rejected. The implication of technology then is not just in how it is built, produced and circulated, but in how it is eventually consumed.

Online dating applications much like other new media products, have woven themselves in everyday life, disrupting spatiotemporal organization and producing new rhythms and spaces. The presence of the screen and media forms in popular culture have over a period of time now become ubiquitous and even unremarkable, as people become increasingly familiar with them. There is now a complicated interweaving of the real and the virtual, with the screen mediating our lived experiences, our time and our spaces. The everyday culture of media technologies draws our bodies and the communication of those bodies into the realms and temporalities of technology.

The texture and circuits of the digital culture produced by dating apps raises certain issues. First, while dating as a practice has existed for long, online dating via apps leads to a certain playful “newness”. This newness can be identified, described and understood in relation to the changes in spatiotemporal contexts of dating and the formation of techno-social relationships. Second, dating apps bring to fore the discussion of play with respect to use of the screen and dating app technologies. Navigating and experimenting with dating apps is an activity which is done at leisure and provides pleasure in it itself: the ability to see many people, know about them, their lives, see their pictures, all of these sensory experiences are now new modes of cultural engagement. Third, dating apps lead to the formation of new intimacies between bodies, screens and perception. Fourth and last is how dating apps reveal the complex nature of human and technological agency in their interaction with each other.

The concept of play also brings to fore a very intimate relationship between technology and humans. The smartphone screen has shifted from being simply a mode of communication to a crucial device for all tasks and activities, including for leisure, pleasure and play. Generating new rituals and communication practices, there are sensual and aesthetic pleasures being offered by the playful media engagement on the screen.



Much like how it is with other forms of play, the pleasures of play on screen with reference to dating apps requires a learning of the rules and decoding the codes and conventions. Different apps have their own way in which a user can access it and use it, they have their own variations, interface and levels of interactivity. Dating apps also offer another crucial play element, reminiscent of video games, of creating avatars or identities. The dating apps are predicated upon the “profiles” which users create of themselves, identifying who they are, representing their sense of self to the world, via text and images, constructing their online identities. In that sense the semiotic universe of dating apps needs to be learnt and practiced by users to get a successful match and an eventual date. The phenomenon of virtual dates, especially during Covid-19 further amplifies the element of play in the use of the screen – the representation of self and each other’s worlds and the simulation of a date itself via the screen. Further, the gamification element of dating apps involves stimulating users’ reward centre from earning points, special badges, extra likes and competing in the dating market pool for a good match. It requires the user to use various permutations and combinations to craft the ideal profile, choose the right photographs and use the right words to snag a match.

The entry of the screen and dating applications, its adoption and consumption leads to negotiations of dating practices, tastes and preferences. The domestication of these technologies leads to reconfiguring of the boundaries of identities, cultures and relationships. The screen is not fixed to a particular space, and is consumed inside and outside, in public and private, in all spaces people find themselves in. The screen is significant in how its consumption impacts lives and relationships, reorganizing everyday life. Technologies, and specifically the screen and dating applications in question here forge new intimate relationships between human actors and non-human actors (technology). In that sense the screen has become an embodied technology. Consumption and leisure at the site of the screen have come to determine the texture and experience of everyday life. There are certain pleasures and freedoms in all these sites, with users individually and collectively constructing ideas through these cultural practices in their interaction with the screen. Technologies do transform the everyday life in terms of its spatio-temporal limits and the possibilities and the nature of this transformation though



debated, certainly exists. At some levels it offers new possibilities, in others it reinforces power structures which continue to constrain agentic capacities.

## ENDNOTES

1. I specifically mention heterosexual couples in the context of marriage, since in many countries same-sex couples are still not allowed to obtain a marriage license, including India. For the purpose of my research, interviews have been conducted with respondents who identified themselves as heterosexual, i.e., attracted to the opposite sex.

2. “Love marriage” is a uniquely Indian term referring to marriage alliances which emerge out of two people who have been in love before they got married. This is a euphemism to refer to the practice of couples knowing each other or being in a relationship before they tied the knot. Often this also connotes resistance by parents, as the other term “love-cum-arranged” suggests a negotiation between the already-in love couple, and their parents who have consented to the marriage eventually. Consequently, an arranged marriage refers to an alliance which is fixed by the parents of the couple, with the couple having no prior relationship before marriage.

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## **The Status of Housing and Household Amenities among Scheduled Castes; with Special Reference to Different Policy Initiatives in Moradabad District of Uttar Pradesh**

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### **ABSTRACT**

Uttar Pradesh is India's most populous state, with almost three-quarters of the population living in rural areas lacking access to basic necessities such as drinking water and sanitation. Over the years, the government has concentrated on the availability of housing for all in rural and urban areas, but a considerable portion of the population remains unable to access basic amenities, particularly in micro and rural parts of the state as well as at the district level. Hence the paper is an attempt to evaluate the status of drinking water, sanitation and hygiene with basic household amenities and the widening gap between rural and urban areas of the Moradabad district of Uttar Pradesh with the help of (Census of Uttar Pradesh and District Census Handbook, 2011). Apart from this the government has initiated many social protection programs and policies to improve the condition of housing and household amenities specially for economically weaker sections of the society, Scheduled Castes households hence, this paper is also an attempt to analyses the implementation and progress of “*Pradhan Mantri Awas Yojana, Swatcha Bharat Abhiyan -Gramin, Swatcha Bharat Abhiyan- Urban Pradhan Mantri Ujjwala Yojana, Deen Dayal Upadhyaya Gram Jyoti Yojana*” among Scheduled castes in rural and urban areas of Mordabad district of Uttar Pradesh.

**Keywords:** *Household Amenities, Rural and Urban Gap, Programs and Policies, Census, Pradhan Mantri Awas Yojana, Swatcha Bharat Abhiyan, Moradabad.*





## INTRODUCTION

Household amenities are important for healthy life which will ensure the overall development of the people. 'Having access to sufficient quantities of safe water, access to a private and clean place to defaecate, living in an environment free from human excreta and other harmful waste are basic requirements essential for health and dignity for all'<sup>i</sup>.

'Also, if people have accessed to the basic household amenities such as water, electricity, sanitation etc. in a proper manner, then it can have a positive impact on their health. Thus, considering their importance, the United Nations Human Rights Law in the year 1948 has recognized these basic amenities as a part of basic human rights'<sup>ii</sup>.

Subsequently, the international agencies gave priorities to the components of housing amenities. For example, the 'World Health Organization in this direction has suggested six principles which are related to housing and health (1989), the WHO/ UNICEF joint monitoring program for water supply and sanitation (1990), WASH( (water, sanitation and hygiene) programme, Water Requirement Norms (2003), Goal 7 of the MDG (2000)'<sup>iii</sup> and 'Goal 6 of the SDG (2015) have emphasized that everyone should get equal access to safe drinking water and basic sanitation'<sup>iv</sup>.

The government of India after the independence has taken many steps for providing basic household amenities 'the Directive Principles of State Policy gives direction to the state to take necessary steps to raise the living standard of its people by providing adequate means of housing and household amenities'<sup>v</sup>. Also, the government has formed committees and commissions from time to time and gave special attention to the household amenities. On the basis of their recommendations, many programs and schemes were introduced in both rural and urban areas under different five year plans. 'Uttar Pradesh state has also taken steps for providing better quality of household amenities to its people. Through its various committees and Acts such as Uttar Pradesh Housing Committee 1947, town Planning and Housing Act 1949, Uttar Pradesh Rural Housing Board Act 1983, the government mainly focused on constructing the houses only and little attention was paid to the household amenities'<sup>vi</sup>. However, recently, the basic household amenities have gained attention in the *yojanas* like, *Swatch Bharat Abhiyan* (2014), but still much more attention is required as most of the households of this state are deprived of the basic amenities and hygiene.

In addition to the program to having appropriate policy intervention measures, the government started collecting the data through the census and National Sample Survey Organization, since 1980s.



However, ‘the quality of housing and household amenities is very poor in rural area and a large number of houses do not have even the basic amenities such as drinking water and sanitation facilities’<sup>vii</sup>.

Moreover, Uttar Pradesh government introduced many committees, act, and boards during post-independence period to provide housing and household amenities for all and specifically for the economically and socially backward sections of the society, since the introduction of Minimum Needs Program (MNP) in India’s five year plans in the 1970s, housing came to be a component of MNP and for the first time housing with household amenities got importance as a basic human need’<sup>viii</sup>.

In addition, issues and problems related to basic amenities have been analyzed at the macro level. However, there is a deep gap between rural and urban areas. The urban population is comparatively better in getting drinking water and sanitation facilities as compared to rural population in the state as well as in the district.

## REVIEW LITERATURE

Many studies have focused on this issues at the macro level as per the study by the S Jetley (1969), This paper examines occupational mobility among *koiris*, a scheduled caste community in a village in eastern Uttar Pradesh, which has used its educational attainments in a variety of ways to gain entry into diverse occupations, accept the application of new scientific knowledge in agriculture, and, finally, as a complementing factor to maintain its political and social influence. The presented analysis is based on research conducted in the village of Seon, Chiriagaon block, Varanasi district. The goal was to investigate structure in relation to the trajectory of change in rural society as a result of currently running development projects’<sup>ix</sup>.

K. Sundaram and Suresh D. Tendulkar (1990), analyses basic household amenities on the basis of comparative study of 1981 and 1991 census data in which they draws attention on deprivation of the basic amenities in both areas is that drinking water and toilet facilities are as a key factor to good health status of the population. They also pointed out that toilet facilities within the residence are heavily conditioned by socio- cultural norms. In 1981 census the question access to toilet was not even canvassed among rural households reflecting the ground reality of such facilities within the house being rare in rural India’<sup>x</sup>.

According to another study by Amitabh Kundu (1991), the 20 percent of the population in states like Assam, Bihar, Kerala, Orissa, and Uttar Pradesh that receive tap water is significantly less than the national average. According to the Census, the proportion of people in these states who fall into the bottom 40 percent of those serviced by tap water is significantly lower than the state average,



particularly in rural areas'<sup>xi</sup>. Further the other study by Therese Mahon and Maria Fernandes, 2010, highlighted the interdependence of three major areas: water, sanitation, and hygiene. For instance, water sources may be susceptible to microbiological contamination in the absence of adequate sanitation; many sanitation systems depend on water for the transportation and cleaning of human waste; and the health benefits of access to sanitation will be diminished in the absence of better hygiene practices, such as washing your hands before eating and after defecating'<sup>xii</sup>. Another study by Alka Malhotra, Srinivas Goli, Sue Coates and Mario Mosquera Vasquez, 2016, they talked about the 'relation between water, sanitation toilet facilities and hygiene during the menstruation and non-menstruation period because girls faces constraints in terms of lack of private spaces, lack of facilities including safe water, clean and private toilets within the premises'<sup>xiii</sup>.

Noor Mohammad (2006), The author provides a critical analysis of the socio-economic change of scheduled castes, focusing on significant social factors like as education, marriage, religion, social mobility, family planning programs, family size, political awareness and activity, and income level. Standard of living, housing conditions, modes of transportation, and mass media'<sup>xiv</sup>. It also evaluates differences in the socio-economic transformation of scheduled and non-scheduled castes in rural and urban population of Uttar Pradesh.

V. Upadhyay, Shakti Kak, Kustuva Barik & T. Ravi Kumar (2009), from this edited book chapter by Archana Prasad; On the Margins of Planning, she has given the light on 'the welfare model in the different five-year plans for the upliftment of the scheduled castes, scheduled tribes, and other backward caste, occupational structure, literacy school dropout, employment, pattern, public services, and progress of different schemes for the scheduled caste population in both rural and urban areas'<sup>xv</sup>

C. Gangaiah and G. Rajesh Kumar (2012), evaluates the rural housing challenge. Rural and urban sectors play important roles in the Indian economy; there is a need to improve the living conditions of the poor, with a focus on the weaker sections of society. Housing has been part of planned economic growth since 1951. The government implemented a number of social housing initiatives at the central or state level.<sup>xvi</sup>

In addition, Shahidur. R. Khandker, Hussain. A. Samad, Rubba. Ali, Douglas. F. Barnes (2014) have focused on the household amenities including water and sanitation are important for healthy life, similarly electricity is also the basic need for the development of human. The gap between rural and urban areas is much more in providing electricity. Rural electrification is expected to improve rural people's quality of life and socio- economic growth'<sup>xvii</sup>. In the same direction Arjun Kumar (2015), has analyses that access to basic amenities drinking water, sanitation, electricity, are crucial for the



overall well-being of a household. In India widespread deprivation in access to basic amenities and services among Scheduled Castes, Scheduled Tribes and lower strata of consumption expenditure classes in rural areas<sup>xviii</sup>. The other important aspect like relationship between water, sanitation and hygiene among women the studies has examined by the work of Apoorva Jadhav, Abigail Weitzman and Emily Smith- Greenaway (2016), the connection between women's risk of non-partner sexual violence (NPSV), the poor sanitation is still a serious public health concern and is linked to a number of infectious diseases, particularly among children, according to the Total Sanitation Campaign and more recently the Swachh Bharat Mission<sup>xix</sup>. “Open defecation may increase the risk of non-partner sexual violence for women in addition to certain diseases<sup>xx</sup>. The majority of teenage girls and young women in the Indian state of Orissa, particularly those who live in the nearby slum, are sexually abused when trying to obtain sanitary facilities. Because they lack adequate sanitary facilities in their homes, particularly in rural areas, sanitary facilities in the home are relevant for women's safety and children's health, and there is a correlation between them and non-partner sexual violence<sup>xxi</sup>.

In addition, ‘the book “*The Right to Sanitation in India: Critical Perspectives*, by Philippe Cullet, Sujith Koonan and Lovleen Bhullar, ed., (2019), reviewed by Nida (2022) in the Sage publication, has pointed out the contribution of the law and policy framework towards the realization of its specific relevance in the Indian context for getting the advantages of sanitary policies with special reference to manual scavenging. The book analyses the role of the *Swachh Bharat* Mission, its institutional aspects, infrastructure dimensions, wastewater treatment and reuse, manual scavenging and rights of sanitation workers, gender and inequality and the initiatives taken by *Swachh Bharat* Mission to foster community participation. The relative neglect of sanitation in the general discourse, and in law and policy discourse in particular, does not mean that the issue was completely outside the purview of law and policies. The authors cover an important issue of contemporary times and provides the legal as well as policy initiatives related to sanitation and explain the importance and fragmented nature of the legal and policy framework about sanitation law and policy in India<sup>xxii</sup>.

## **OBJECTIVES**

To examine the Status of Housing and household amenities in both rural and urban areas of Moradabad district of Uttar Pradesh on the basis of Census of Uttar Pradesh and District Census Handbook, 2011.

To analyse the implementation and progress of “*Pradhan Mantri Awas Yojana, Swachha Bharat Abhiyan -Gramin, Swachha Bharat Abhiyan- Urban Pradhan Mantri Ujjwala Yojana, Deen Dayal*



*Upadhayaya Gram Jyoti Yojana*. among Scheduled castes in rural and urban areas of Mordabad district of Uttar Pradesh.

## METHODOLOGY

The present study is based on both primary and secondary sources of data. The primary sources of data collection through survey method.

For the purpose of primary study and data collection the convenience sampling method is adopted. For field visit, the stratified sampling method is used and 200 households for the survey on the basis of Census data of Uttar Pradesh, District Census Handbook 2011 and Statistical Abstract Uttar Pradesh 2021, largest population in Moradabad Municipal Corporation out of 70 wards the Ward-1 known as *Shahpur Tigri* 100 households is selected on the basis largest Scheduled Castes population under this ward as urban areas. For the study of rural areas the *tehsil Bilari* within *Bilari* block the *Asalatpur* Village 100 households is selected again on the basis of largest Scheduled Castes population to analyse the implementation and progress of “*Pradhan Mantri Awas Yojana, Swatcha Bharat Abhiyan - Gramin, Swatcha Bharat Abhiyan- Urban Pradhan Mantri Ujjwala Yojana, Deen Dayal Upadhayaya Gram Jyoti Yojana*. among Scheduled castes in rural and urban areas of Mordabad district of Uttar Pradesh. A systematic questionnaire was created in both Hindi and English, with basic and clear language to reach a wide range of responses. The survey was done in the year 2022.

Secondary data collecting sources include books, articles, journals, gazetteers, and reports produced by the Indian government, as well as the District Census Handbook book and the Census 2011 in India. Both primary and secondary data have been analyzed using qualitative and quantitative methodologies. The quantitative data are analyzed using simple frequency, graph, and tabulation methods, while the qualitative data are descriptive in character.

## MAJOR FINDINGS

According to the 2011 Census, Uttar Pradesh has the greatest Scheduled Castes population (41,357,608), accounting for 20.70 percent of the country's State and Union Territories. The State has 66 Scheduled Castes. The Scheduled Castes are largely rural, with 87.7% of them living in villages. Of the 66 Scheduled Castes, *Jatav (Chamar)* has the biggest number, accounting for 54.3% of the total Scheduled Caste population<sup>xxiii</sup>. The first enumeration of the population was done in '1808 when the Moradabad district, included in Bijnor and Badaun districts, parts of Rampur, Bareilly and Nainital Tarai had a population of 14,21,000<sup>xxiv</sup>. This enumeration was undertaken by a police agency between



1847 and 1848. The population of Moradabad has grown significantly during the previous two decades since independence. Between 2001 and 2011, the population of the region grew by 25.22 percent, with both the urban and rural regions growing at 20.82 and 35.23 percent, respectively.<sup>'xxv</sup>. The district's both urban and rural sections have various levels of home amenities. The majority of household amenities are negligible in rural areas when compared to cities.

### **Sources of Drinking Water**

The district's safe drinking water situation is dire, with a large number of inhabitants not having access to treated tap water and relying on conventional sources such as tube wells, wells, and hand pumps. Overall, households in urban as well as rural regions obtain drinking water from a variety of sources such as tanks, ponds, boreholes, rivers, canals, and so on. Only 41.17 percent of urban households have access to treated tap water, while only 20.25 percent of rural households do. In rural areas, approximately 0.23 percent of households obtain water from boreholes and tube-wells, while 72.83 percent obtain water from hand pumps<sup>'xxvi</sup>. At the same time '4.54 percent of urban households uses tube-wells and boreholes for drinking water facility while 47. 18 percent of the households are dependent on hand-pumps<sup>'xxvii</sup>, see figure- 1.

### **Sources of Lighting**

The majority of families in Moradabad district do not have access to electricity. According to the 2011 Census, just 36.9% of all households have access to electricity. While 79.46 percent of urban families have access to electricity, just 15.34 percent of rural households have as well. The majority of houses in the district rely on kerosene oil for lighting. Around 83.48 percent of rural homes and 20.57 percent of urban households use kerosene oil for illumination, with a negligible number of houses using solar energy and other oil, and 0.06 percent of households in the district do not have lighting provision<sup>'xxviii</sup>. see figure 1.

### **Toilet Facilities**

Despite houses, power and drinking water, toilet facilities is also quite poor in Moradabad. A lack of proper bathroom arrangement not only causes personal discomfort, but it also poses a significant health risk and may contribute to the spread of various diseases. According to the 2011 Census, 10, 734 houses in the district do not have a toilet facility on their premises, and 277,898 of the





total household use open defecation as a toilet. Toilet facilities are quite poor in rural areas, where 52.99 percent of households use open ground but as on the basis of primary study it has been improved as compared to census 2011 data.<sup>'xxix</sup> kindly refer figure-1.

### Impact of different policy initiatives

According to the census, Uttar Pradesh has the highest total population and Scheduled Castes population in India, while ranking second in terms of geographical area. Uttar Pradesh comprises 75 districts. According to the 2011 census, Allahabad (Prayagraj) is the most populous district, followed by Moradabad, which has a population of 4,772,006<sup>xxx</sup>. Furthermore, during the pre- independence period, urbanization was much higher in Indo Gengatic Plain West than in other geographical divisions, resulting in socioeconomic changes in the district among rural and urban populations. In 1901, Moradabad had a population of 75,128 and expanded to 82,671 by 1921<sup>'xxxi</sup>.

subsequently Indian census in 1991, the population size around 5 million and above identify as the mega city, for the aim of inclusion in the Centrally Introduced Scheme for infrastructure development in Mega-cities, the Ministry of Urban Affairs and Employment, Department of Urban Development adopted the criteria of 4 million and above population as of 1991.Census of Mega Cities<sup>'xxxii</sup>. In the 2001 census, cities with ten million or more people were classified as mega-cities, and the same population criteria were used in the 2011 census. As consequently, according to the Statistical Abstract, Uttar Pradesh 2021, within Moradabad Municipal Corporation, ward 1 known as *Shahpur Tigri* was chosen for Smart City development based on population.<sup>'xxxiii</sup>. Furthermore, within the district Moradabad, the village of *Asalatpur* from *Bilari tehsil* has been chosen to conduct an analysis of the work's performance.

The government of India has set up many programs, policies, and *yojana* for the the development of economically disadvantaged groups and to improve the housing and household amenities among weaker sections of the population at the Centre, State, and grass roots level under the different Five-Year Plans in the state<sup>'xxxiv</sup>. Throughout the twelfth (2012-17) five-year plan, we observe significant progress in the government's provision of household utilities through various *yojanas* around the state. 'The first is the Swatch Bharat *Abhiyan*, which began in 2014 with simply 35.20 percent sanitation coverage and has now increased to 97.82 percent. According to the official portal statistics Swatch Bharat mission (*Gramin*), 1.7 crore (1,67,96,324) individual family toilets have been installed in rural regions, and 58,982 villages, 29,295 gram *panchayats*, 116 blocks, and 10 districts have proclaimed open defecation free<sup>'xxxv</sup>. Another *yojana* is named *Deen Dayal Upadhyaya*



*Gram Jyoti Yojana*, which came in 2014 to offer rural electrification to roughly 1143.15 rural homes. 9.48 unelectrified villages have been electrified.<sup>xxxvi</sup>

Thus, data were collected from 200 households from men and women between the age group of 18-55 to examine the progress of the housing and household amenities related policy initiatives among scheduled castes in rural and urban areas of Moradabad district of Uttar Pradesh, with special attention to the implementation of the different policy initiatives known as; *Pradhan Mantri Awas Yojana*, *Swatcha Bharat Abhiyan-Gramin*, *Swatcha Bharat Abhiyan-Urban Pradhan Mantri*

**a) Impact of *Swatcha Bharat Abhiyan***

The *Swatcha Bharat Abhiyan* is the government's most significant initiative. This scheme is the most popular scheme in the study area, and some groups benefit from it, but the amount given by the *Nagar Palika* Parishad and *Panchayats* is insufficient to meet the needs of the respondents because, according to the scheme's objectives, 15,000 rupees should be given to the beneficiaries, but this amount is not given to the respondents. Kindly refer to table-1.

**b) Impact of *Pradhan Mantri Ujjwala Yojana***

The *Pradhan Mantri Ujjwala Yojana* is also the popular plan in the Moradabad district of Uttar Pradesh. Some respondents are receiving benefits from this scheme, especially from SC households, and are covered by the *Pradhan Mantri Ujjwala Yojana* phase one in 2016, whereas the majority of the population has their own LPG gas connection. The majority of responses are from SC communities, and others from other communities have applied for connections over the past year but have not received them due to incomplete paperwork. See table-2.

**c) Impact of *Deen Dayal Upadhyaya Gram Jyoti Yojana***

The *Deen Dayal Upadhyaya Gram Jyoti Yojana* is not covered in the study area because most households have their own electricity connection, so most people are unaware and do not need this *yojana* in the urban, especially in the *Shahpur Tigri* ward of the district Moradabad. In the urban, most households have their own meter connection for the last 8 to 9 years and pay a monthly bill.. Some of the households using illegal wire connection in new *abadi* of the ward in *Dhanshah ki Milak* area for lighting in their households in the district among all the communities. Kindly refer table-3.

**d) Impact of *Pradhan Mantri Awas Yojana***

The most popular and essential scheme has implemented by the central government is known as the *Pradhan Mantri Awas Yojana*. This is the most popular scheme in the study area since it helps the vast





majority of Scheduled Castes. Furthermore, many respondents in the study area were informed that a good house may be built for little less than two lakh fifty thousand rupees; it is also advised that the cost for house construction be increased. Another concerned aspect has been noted by respondents when households survey to improve the procedure of delivering amount to construct a house under the scheme should be directly supplied to the beneficiaries and not through the mediators because many beneficiaries are complaining that they had to pay fifty thousand rupees to these mediators to get benefit of the scheme. The number of the beneficiaries can be Seen in table-4.

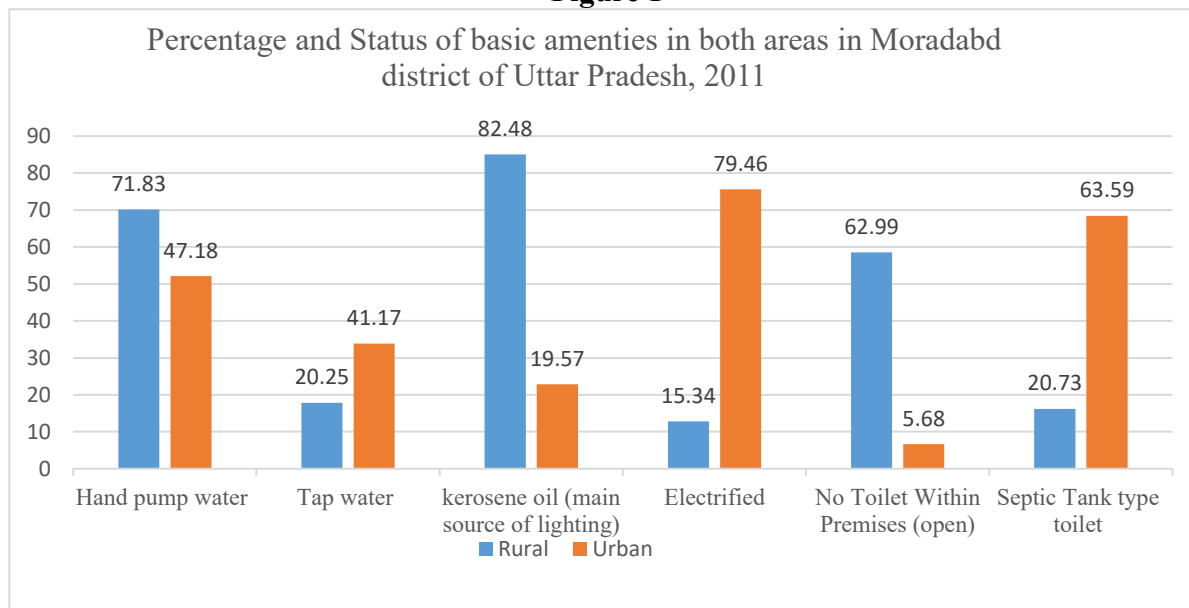
## CONCLUSION

In brief, a lack of drinking water, sanitation, and hygiene has been identified as a major concern in both rural and urban settings for human development. Besides from that, improving the economic and social conditions of society is dependent on the availability of domestic amenities, which contribute to national income, wealth, and employment.

It is also suggested that when preparing and maintaining lists or records to provide benefits of policies such as *Pradhan Mantri Awas Yojana*, *Swatcha Bharat Abhiyan-Gramin*, *Swatcha Bharat Abhiyan-Urban Pradhan Mantri Ujjwala Yojana*, and *Deen Dayal Upadhyaya Gram Jyoti Yojana*, an adequate case be made to ensure that the beneficiaries are truly in need of these. Aside from that, if something is to be accomplished on a wide scale, it must be done by the people. The government can only provide initiatives and direction; people need to aware and make contributions at the remote level.

Moreover, drinking water, electricity and sanitation are important for the overall development of the citizen basic amenities have been analyzed at the macro level as well as at micro level and in present days access to basic amenities is regarded as one of the basic necessity for an individual's development and for the healthy life of the people that is why government is focusing on this concerning issue and implementing programs and *yojanas* to solve the deprivation of basic needs in the state but regional variation and disparities are common in providing basic household amenities in some region of Uttar Pradesh but still need some more attention to improve the basic amenities and sanitation facilities at grass root level and as well as for the development of the nation.

**Figure 1**



Source: District census handbook, Moradabad, 2011; District wise Development Indicators, Economics and Statistical Division, Planning Dept. Uttar Pradesh, 2021

**Table-1 Beneficiaries of Swatcha Bharat Abhiyan**

Categories	Sample size	Frequency of respondents (get benefited from policy)	Percentage (%)
SCs Rural	100	64	32.0
SCs Urban	100	42	21.0
Total	200	106	53.0

Source: Primary Field Survey

**Table-2 Beneficiaries of Pradhan Mantri Ujjwala Yojana**

Categories	Sample size	Frequency of respondents (get benefited from policy)	Percentage(%)
SCs Rural	100	48	24.0
SCs Urban	100	30	15.0
Total	200	78	39.0

Source: Primary Field Survey



**Table-3 Beneficiaries of *Deen Dayal Upadhyaya Gram Jyoti Yojana***

Categories	Sample size	Frequency of respondents (get benefited from policy)	Percentage (%)
SCs Rural	100	38	19.0
SCs Urban	100	10	5.0
Total	200	48	24.0

Source: Primary Field Survey

**Table-4 Beneficiaries of *Pradhan Mantri Awas Yojana***

Categories	Sample size	Frequency of respondents (get benefited from policy)	Percentage (%)
SCs Rural	100	35	17.5
SCs Urban	100	28	14.0
Total	200	63	31.5

Source: Primary Field Survey

SCs; Scheduled Caste

## NOTES

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## **Weaving Biodiversity: The Interwoven Heritage of Eri Textile and Ecological Sustainability in Assam**

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### **ABSTRACT**

This study explores the interwoven heritage of *Eri* silk weaving and its role in biodiversity conservation in the state of Assam. *Eri* silk, also known as *ahimsa* silk, is eco-friendly and non-violent in production. Eri culture is the traditional practice of rearing Eri silkworms, which has existed for a long time in Assam. Eri silk weaving was practiced by the ethnic communities of Assam, such as the Boros, Kacharis, Misings, Karbis, etc. The weavers are now creating Eri silk fabrics that are in high demand, not only in India but also internationally.

The traditional practices and indigenous knowledge systems associated with Eri silk weaving and the cultivation of castor plants—the primary food for Eri silkworms provide a sustainable way the use of natural resources and also contribute to sustainable livelihoods. It leads to the socio-economic well-being of local communities and the sustainability of biodiversity. It can serve as a model for biodiversity-based sustainable livelihoods, contributing towards economic development. It also helps conserve biodiversity through sustainable agroforestry and organic farming, which enhances the soil and increases plant diversity. Modernisation and changing market dynamics has impacted the traditional Eri silk practices and the associated biodiversity, including shifts in land use, plant species cultivation, and silkworm-rearing methods.

This paper aims to document traditional practices, assess the ecological impact of *Eri* silk production, and examine its potential for biodiversity-based sustainable development based on interviews, surveys, and environmental assessments to gather data from weavers, farmers, and community leaders. Eri silk weaving provides crucial livelihoods, particularly for women, reinforcing socio-economic stability. However, challenges such as habitat loss and reduced transmission of traditional knowledge due to modernisation can be observed. Integrated policies promote biodiversity conservation and sustainable livelihoods, ensuring local communities' resilience and cultural heritage preservation.

**Keywords:** *Traditional Knowledge, Plant Diversity, Biodiversity Conservation, Ethnic Communities, Sustainable Process, Cultural Heritage*



## INTRODUCTION

*Eri* culture is the traditional practice of rearing *Eri* silkworms, which has existed for a long time in Assam. *Eri* silk weaving was practiced by the ethnic communities of Assam, such as the Boros, Kacharis, Misings, Karbis, and others. This paper discusses the basic details of *eri* silk manufacture and process. The eco-friendly sustainable process that ensures cultural heritage preservation and environmental integrity is central to *Eri* silk production. In contrast to the conventional form of silk production, *Eri* silk is known as "peace silk" or ahimsa silk because the silkworms are not harmed in any way during the silk extraction process. The extraction is carried out after the silkworms leave the cocoon. It emphasises how *Eri* silk production contributes to sustainable livelihoods and promotes biodiversity conservation. It helps in preserving indigenous practices of the communities that have evolved over a long period of time and encouraging specific techniques of eco-conscious textile manufacturing.

The ecological systems and socio-political processes focus on how traditional *Eri* silk practices relate to sustainable resource management and cultural heritage. This paper will discuss the role of local governance and policies in supporting or hindering sustainable silk production. It will analyse the knowledge systems of ethnic communities like the Boros, Kacharis, Misings, and Karbis and highlight how their traditional weaving techniques and biodiversity-conscious approaches to *Eri* culture align with broader ecological sustainability goals. It will also investigate the role of women in the traditional production and weaving of *Eri* silk and discuss how their involvement links to preserving cultural heritage and ecological balance.

This approach focuses on livelihoods and their dependence on natural, human, and social resources in a sustainable way and also examines how *Eri* silk production contributes to the sustainable livelihoods of indigenous communities. It will attempt to understand the intimate relationship between people and their environment, particularly using biological resources, and analyse the interaction between the ethnic communities and plant diversity. It will also investigate the ways in which the ethnic communities' silk-weaving practices have adapted to Assam's biodiversity and discuss the mutual influences of how culture and ecology





impact each other. There is a much-required need for the integration of ecological sustainability into economic practices. The Eri silk industry provides a model of a circular economy, showcasing its waste-free and eco-conscious production processes that contribute to broader sustainable development goals.

The traditional technique of *Eri* silk weaving and the cultivation of castor plants provide the main food for *Eri* silkworms which is based on our rich Indian knowledge system. These practices show a deep understanding and emphasise on living in a harmonious way with nature, as seen in ancient texts like the *Vrikshayurveda* (science of plants). They highlight the use of the natural resources in a judicious manner, ensuring that the environment is enriched rather than harming it in anyway.

Organic farming and agroforestry techniques used in these practices improve soil health and increase plant diversity. This reflects the Indian idea of *Vasudhaiva Kutumbakam* (the world as one family), which highlights the connection between people and nature. However, modernisation and market changes have impacted these traditional practices in a number of ways. By preserving and adapting these ancient practices, we can create sustainable livelihoods while protecting the environment and promoting economic growth.

### **Traditional Practices and Process of Production involved**

Eri silk is also referred to as *ahimsa* silk and follows a unique production process as it does not involve killing the silkworm. The lifecycle of the *Eri* silkworm (*Samia ricini*) firstly begins with the careful cultivation of the castor plants, which is their primary food source. The weavers collect the cocoons only after the moths emerge naturally and this process is ecologically viable. During the degumming process the softening of the outer layer of the cocoon is carried out using traditional techniques which are passed down through generations. The spinning process is mainly done by hand by creating threads that are then woven into textiles. The artisanal approach highlights the intrinsic connection between the weavers and their natural environment.

Women play a significant role throughout the Eri weaving process as they are mainly engaged in rearing the silkworms, extracting the fibres from the cocoon, spinning the yarn,



and in the weaving of the fabric. It is a labour-intensive activity that contributes to household income and also reinforces their status as custodians of traditional knowledge forms and craftsmanship. In the present times, despite the impact of modernisation, women's expertise remains vital, though they often face challenges such as limited access to resources, markets, and decision-making platforms.

The Northeastern region has a rich biodiversity, and Eri silk production depends on the rich biodiversity of this region. The Castor plant, which is the primary food for the Eri silkworms, is often intercropped along with the other crops that support sustainable agricultural practices. The Northeastern region is losing its natural habitat due to increasing deforestation and process of urbanisation, like construction of roads and building activities, which is encroaching into the biodiversity supporting Eri cultivation. Traditional practices emphasise maintaining the ecological harmony, but modern agricultural interventions sometimes disturb the existing balance where development takes place at the cost of losing this rich biodiversity. Restoring local flora and promoting agroforestry are crucial steps for mitigating these impacts and sustaining Eri silk production. The promotion of Integrated Farming Systems, preserving the natural flora and fauna, farming, animal rearing and Eri weaving are carried out in a synergised manner.

Gram Sabhas plays a vital role in the management of resources essential for Eri silk cultivation at the community level. Through the regulating of land use, ensuring equal access to castor plants, and collective decision-making, Gram Sabhas contribute to preserving both the environment and the socio-economic fabric of the community. They also provide a platform for the exchange of knowledge between community members and experts, which helps to bridge the gap between traditional practices and sustainability goals for the future. Eri silk weaving provides livelihoods, especially to women, leading to socio-economic stability within rural communities. Its production supports small-scale enterprise and economies based on community initiatives while preserving the cultural heritage. However, challenges such as habitat loss and the reduced transmission of traditional knowledge due to modernisation can be observed.



### **Eri Silk: An Eco-Friendly sustainable tradition of Assam.**

Eri silk is a unique part of India's cultural and ecological heritage. This distinct silk has deep roots in the cultural heritage of Assam, where it has been woven into the lives of communities for generations. Historical texts like the *Arthashastra* emphasise the importance of silk in the economic and cultural frameworks of ancient India, indirectly highlighting its legacy as a valuable resource. In Assam, Eri silk weaving is more than a craft; it is a way of life deeply embedded in the traditions of ethnic groups such as the Bodos, Kacharis, Misings, and Karbis. These communities have developed and preserved intricate weaving techniques, which reflect the artistic sensibilities and also the sustainable interactions with the environment. In the manufacturing of Eri, it has been observed that there is a symbiotic relationship between human beings and the environment, as it is a sustainable and ecologically viable practice.

The castor plant is the food source for Eri silkworms and survives on minimal resources and Castor (*Ricinus communis* Linn.) and Kesseru (*Heteropana Fragrans* Roxb.) are the principal host plants for *eri* silkworms. In addition to these two, the *eri* silkworm is also capable of devouring 29 different types of plants and is categorised based on silkworm preferences into primary, secondary, and tertiary host plants. The northeastern states are teeming with most food plants of the *eri* silkworm, except for a few tertiary host plants. It is common to find castor plants on roadsides, by the sides of railway tracks, riverbanks, hilly tracts, and even on wastelands. They support the local ecosystem by preventing soil erosion and also provide habitats for the survival of other organisms. As opposed to conventional silk production, Eri silk is harvested in a non-violent manner, often allowing the moths to emerge naturally from their cocoons (Mahesh et al. 2024).

This creates a livelihood for people while ensuring that nature's balance is maintained. The weaving is done manually, and natural dyeing techniques are associated with Eri silk, further reducing the carbon footprint and demonstrating how human activities can align with natural processes to create a sustainable and mutually beneficial relationship. This paper explores the multidimensional significance of Eri silk weaving, exploring its role in biodiversity conservation, sustainable livelihoods, and socio-economic well-being of the



communities. It investigates how this traditional practice sustains rural communities, especially women, while simultaneously contributing to ecological balance.

The research methodology followed included interviews and field observations with weavers, farmers, and community leaders in order to document their experiences and knowledge of Eri production. A significant part of the study was the documentation of indigenous knowledge systems, which encompass sustainable agroforestry practices and traditional weaving techniques. The cultivation of castor plants, an essential element in *Eri* silk production, was particularly significant as it promotes soil fertility, supports plant diversity, and integrates seamlessly into agroforestry systems.

However, the practice also faces many threats and challenges from various fronts. Modernization and urbanisation have led to the loss of habitat, and there have been shifts in traditional land use and the decline of traditional knowledge systems. There has also been a great influx of cheaper, synthetic alternatives that are a significant threat to the sustainability of this craft. *Eri* silk weaving demonstrates immense potential as a model for biodiversity-based sustainable development. By promoting traditional practices, supporting local markets, and incentivizing sustainable agroforestry, policymakers can ensure the survival and growth of this eco-friendly craft. The weavers need to create a balance between the preservation of cultural heritage and ecological sustainability, as it not only provides livelihoods but also strengthens community resilience and contributes to environmental conservation. This legacy, deeply rooted in Assam's cultural and ecological landscape, offers a blueprint for harmonising development with sustainability.

The cocoons of wild silkworms are called *Eri*, *Endi*, or *Erandi*, which are only harvested after the moth has emerged out of them. The castor oil plant, or era in Assamese, which the *Eri* silkworm (*Philosamia ricina*) typically feeds on, is the source from which it derives its name. *Eri* silk does not form into a continuous filament because the cocoon is open at one end and is then spun and reeled into yarns. A number of ethnic groups of the Brahmaputra Valley and the surrounding hills have long maintained their *Eri* silk tradition as a subsidiary occupation.



The only silk-making technique that does not require the killing of silk moths to make yarn from their cocoons is the manufacturing of Eri silk. The weavers find it convenient to let the moths emerge on their own. Eri silk is therefore also referred to as Ahimsa, or non-violent silk, which is characterised as silk yarns made without killing the moths within their cocoons or going against the natural law of "live and let live." Thus, only open-mouthed or perforated cocoons can be used for the manufacturing of non-violent silk (NVS) (Mazumdar 2013).

According to Chowdhury (1982), the main regions in Assam for producing *eri* silk cocoons are the districts of North Cachar and Karbi Anglong Hills, Kokrajhar, Goalpara, Barpeta, Nalbari, Kamrup, Darrang, and Sonitpur. Many of the districts in upper Assam also produce Eri silk. The weavers use few cocoons they generate to make wrap-arounds or shawls of different sizes, which are mostly needed for use for domestic purposes within the family. Eri silk is a thick, cold-resistant fabric suitable for warm winter clothing. Eri silk is considered the silk of the poor due to its resilient nature and coarse fabric. An old Assamese saying, "*dair pani, erir kani*," which suggests that although curd cools, *eri* clothing warms people, is a good way to measure the status of *eri* clothing in Assamese folk culture (Allen 1899).

The *eri* silk, which is a rare variety of silk, is treated without killing the silkworm and is one of the most interesting of Assamese silk's many varieties. Due to this unique feature, this peace silk is a particularly popular fibre among Buddhists and vegans. As part of their everyday routines, rural and tribal women have historically processed, spun, and woven materials. After that, it begins spinning its cocoon, which takes another fifteen days. The silkworm, a rich source of protein, is considered a delicacy and is consumed after the moth emerges from its cocoon. After the process of degumming by boiling in water, the empty cocoons are formed into little cakes that appear like cotton pads and are then tossed against the mud buildings to dry. After the cakes have dried, they are spun in a manner similar to that of spinning wool (The Textile Atlas, Accessed December 8, 2024).

M'Cosh (1828) in his account he refers to:

Three principal varieties of silk are manufactured, called *Path*, *Moonga*, and *Indy*..... The *Indy* is of the coarsest quality of all and is used only by the poor; the worm from which it is obtained feeds on the leaves of the castor-oil plant. All of these silks



are of domestic manufacture and are woven at leisure hours by the women of the family. The well-off families own three to six looms.

The findings reveal that Eri silk weaving plays a crucial role in empowering the women in the rural areas by providing them with a stable income in the absence of other livelihood opportunities. For many families, *Eri* silk production has reduced rural unemployment and curbed migration to urban areas. The eco-friendly nature of Eri silk production also ensures minimal disruption of the ecological system and helps in preserving habitats and in the promotion of biodiversity.

### **Assam in the Ahom Age**

During the Ahom era, silk cocoons were prepared for silk manufacturing for use. They were exposed to sunlight to destroy the chrysalis. Once ready, a score of cocoons would be immersed in a pot of scummy water and stirred with a bamboo splinter. The silk threads would attach to the bamboo, which was then used to reel the thread. If bamboo failed, then a twig of the *Makundi* creeper was used instead. The cocoons, naturally bright yellow, would turn white when boiled in potash water. A coarser thread called *lat* was spun from breeding cocoons after the moths escaped, and the refuse of reeled cocoons was used. Silk production was traditionally restricted to the *Jugi* caste, who were also known as *Katani*, and they were the suppliers of silk to the Ahom kings.

Tussar, which was once cultivated during Assam's golden age of silk, is now neglected for being inferior to Muga. The Tusser silkworm, known as *Kutkuri*, primarily feeds on the *Kutkuri* plant (*Vangueria spinosa*) and occasionally on the *Phutuka* plant. It yields three broods annually, compared to Muga's five. A wild silkworm, *Salthi* (reared by the Kacharis), feeds on *Kamranga* (Barringtonia) and *Hidal* trees. Silk from these worms was often mixed with *Eri* silk. The cocoons were prepared by exposing them to sunlight or fire to kill the chrysalis. They were boiled in an alkaline solution to soften the silk, which was then spun into coarse threads. Non-Aryan tribes in Assam, particularly in submontane areas, still practice *Eri* rearing and spinning. Bhutanese traders imported large quantities of *Eri* yarn, dyed and wove it into colourful garments, which were sometimes resold in Assam.



## **Future Prospects of Eri**

Based on an interview of a weaver from Dhubri district in Assam, who has been engaged in weaving for the past twenty-four years. “My name is Anup Rai. I am a weaver from Halakura, Dhubri district. I have been working since 2000, and I learned weaving in Kolkata, where I worked till 2007. After that I established a handloom at home. When I first started working in Kolkata, I learnt how to produce cotton sarees. Then I learnt how to make Bodo Dokhonas, and now I work on Mekhela Chadars. I had eight handlooms at my place, but now I am working in Guwahati (at designer Enakshee Barua’s office). I had to close the handlooms at my place.” On the rise of duplicate textiles, he said:

“I have worked with Eri silk a lot. Nowadays there are a lot of duplicate threads in the market that are sold as Eri silk. Usually those who know can tell that it is duplicate and not original, but many weavers and traders sell this cloth as original. A duplicate Eri cloth does not have the shine or quality of the original one, and there is a texture that is only seen in the original. I also work with *Muga* and *Kesa Paat* and other types of silk. One can tell by burning a *Kesa Paat* silk; an original one will burn and turn into ash, while a duplicate silk cloth will melt like plastic.

In Dhubri, there are a lot of handlooms, and many people use duplicate threads on original weaves, and then in the market they sell them like they are original pieces. Many people buy these thinking they are authentic silk textiles. One of the reasons so many weavers are doing this is because the price of these duplicate threads is lower in comparison to the original ones. If one buys duplicate threads for Rs 500, the original will not be available even for Rs 5000. The production cost goes significantly lower. If an original cloth takes Rs 1000 to be made, they are able to produce 7-8 such pieces within Rs 500. That is why so many weavers do this. A lot of traders in Dhubri, Kokrajhar, and Pathshala do this.”

On the challenges faced by weavers, he said:

“I have not received any help from the government. I have two Handloom Certificates, and I still have not received anything. I have submitted my documents and was told that I would get a loan, and even after that I did not receive any loan. I submitted my documents one more





time when the Handloom office said that we would receive a house to establish a loom in, but I never heard back from them. Most people around me have also never received any help. Since 2007, when I established the looms in my house, I have also taught around 15-20 more people to weave. I have also helped set up looms in their houses, but there has been no government aid for any of us. There has been no help at the individual level”.

“If we got aid from the government and loans, then it would have been really beneficial for us. I would have been able to work from home; I would have restarted my looms. When I go to Guwahati to work, I leave behind my wife and children. I would have been able to help them on a day-to-day basis. Every month I have to travel to and fro. I could have picked up and dropped off my children from school. Now I cannot do any of that.”

On sustainability of the craft he said that “I have taught around 20 young workers the craft of weaving so that the next generation can carry this forward. I would teach a weaver on my own loom for about three months and then give him a salary so that he could work with me. It wasn’t a lot of money, but I would help him as much as I can. And then I would buy his clothes and sell them in the market so as to help him, and both of us would be able to earn money from it. Even my wife and kids helped me when I worked on my own loom. If a loom is left inactive, it will get spoilt, and then to repair it, a lot of time goes to waste. Once repaired, the machine lasts for 6 months to a year, given how you use it. In my 24 years, I have mastered everything—from setting up to running the loom, every stage of the craft.

“The weavers I have taught have been able to continue their work on the looms we set up. So I am happy with that. I don’t think that in 20-50 years this craft will go extinct. It will definitely continue. There are many power looms around us where textiles are made by machines. But once someone strikes or refuses to work, the power looms can get shut down. But no one can ever stop the work of a handloom. The craft of the hand can never be stopped and will continue to go on” (Translated from Assamese by Antara Kashyap, field investigator).

## **The Way Ahead**

Eri textile weaving is an example of biodiversity-based sustainable development. Well-planned initiatives, as this traditional textile craft has the ability to achieve many goals. Lastly, it can play a crucial role in supporting policymaking for the future. In Assam, Eri silk weaving





remains a deeply valued tradition, but its future prospects depend on finding solutions to face the threats posed by modernisation and market pressures. To ensure its sustainability government support is essential, including subsidies and training programmes needed for weavers at the grassroots level. Creating awareness among the younger generation about the ecological and cultural importance of traditional practices is also important. Incentivising sustainable agroforestry practices is vital in order to preserve biodiversity and maintain healthy ecosystems. By integrating the preservation of cultural heritage along with ecological sustainability, Eri silk can continue to be a symbol of Assam's cultural richness while offering a model for sustainable development globally and has rich prospects to bring about a Viksit Bharat in 2047. It also gives the opportunity to reduce carbon footprint, which gives it a unique advantage. The Eri textile needs a makeover of the image of the fabric of peace through its transformation from a 'poor man's silk' to 'a sought-after luxury textile.'

The balance between *Eri* silk weaving and the ecology of Assam is based on co-existence, resourcefulness and cultural resilience. The heritage of *Eri* silk also termed as 'ahimsa' or 'peace' silk, showing its role in biodiversity conservation, sustainable livelihoods, and the socio-economic well-being of numerous ethnic communities in Assam. The findings indicate a model for biodiversity-based on sustainable development, which is in contrast to conventional industrial practices and offers insights for a future towards a 'Viksit Bharat' by 2047. It emphasised the deeply ingrained nature of Eri culture within the ethnic fabric of Assam, particularly among the Boros, Kacharis, Misings, and Karbis. The traditional practice of Eri silk production reflects a deep understanding of natural cycles and sustainable resource management. The study emphasised the symbiotic relationship between human beings and the environment, where the cultivation of castor plants, the primary food source for Eri silkworms, seamlessly integrates into agroforestry systems. These practices not only provide sustenance for the silkworms but also contribute to soil fertility and increased plant diversity, demonstrating a circular economy model that minimises waste and enhances the natural environment. Anup Rai also talks about the lack of government support for weavers and the struggle against duplicate textiles is a stark reminder of the vulnerability of this traditional craft in the face of modernisation and unchecked market forces. His unwavering belief in the handloom's resilience "no one can ever stop the work of a handloom" is inspiring but there is also a need for external support.



This could assist the weavers to get raw material, upgrade their looms, improve their standard of living and reduce their dependence on synthetic textiles. There is a need for workshops on natural dyeing and efficient production techniques. Community-level infrastructure such as common facility centres for degumming, spinning, and collective marketing can reduce individual burden and improve efficiency. A certification system can authenticate Eri silk products from Assam. This could help to deal with the problem of duplicate textiles, protect consumers, and ensure fair prices for legitimate weavers. Promote a strong brand identity for Assamese Eri silk in national and international markets, emphasizing its "peace silk" and eco-friendly attributes.

The policy gaps and pursuing further research Eri silk can transcend its image as the "poor man's silk" and emerge as a truly "sought-after luxury textile." This transition is not merely about market value but about recognising and reinforcing the profound ecological wisdom and cultural heritage it embodies. The "peace silk" of Assam has the potential for sustainable development, harmonising economic growth with environmental preservation and provides a model for a future where tradition and modernity to create a vibrant and equitable society. The story of *Eri* silk is a testament to the enduring power of human ingenuity when deeply rooted in respect for nature a narrative that deserves to be championed on the global stage.



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## **Book Review**

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**Book Title- Fertility and Deprivation (A study of differential fertility amongst working class families in Aberdeen, London)**, Janet Askham, University of Aberdeen and edited by R. M. Blackburn and John H. Goldthrope of Cambridge and Oxford University, 187 pages.

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The book is based on the case study of the behaviour of the working class in Aberdeen. The women ever married were interviewed in the year 1970 who got married during 1960-61 and having two and more children. The author explains that the achieved family size or the number of children depends upon the extent of the use of birth control practices, which in turn depends upon family size preferences and ability to use contraception effectively. The result of the survey reveals that those families who preferred fewer children at the time of marriage achieved it while there are also some families who preferred less but achieved more because of lack of knowledge about contraceptives before and after marriage, sexual intercourse, reliability of methods etc.

The book can be divided into four parts dealing with the study of differential fertility amongst working class families in Aberdeen. In the first part, the author has described the relationship between fertility and poverty. This part also deals with the classification of society, selection of sample units, method of investigation and questionnaire. The second part is about birth control knowledge, attitude and behaviour. The third part deals with the cultural factors and situational factors which affect the pattern of behaviour and the last part gives the summary and conclusion.



In the next part of the book author explains that the fertility behaviour in lower working class is also determined by the cultural factors as a trend towards female centred families, low family solidarity and lack of planning for the future, a sense of resignation and fatalism and so on and some situational factors such as the lack of resources, lack of education, occupational opportunity, lack of political power and lack of social status etc.

Author argues that cultural factors do not provide an adequate explanation of differences in family building behaviour. There are the situational factors related mainly to the event of becoming married, changes of accommodation during marriages, occupational changes and the existence of marital strain which direct the number of children in each family of the sample population.

Although the author has explained a wide variety of factors affecting the achievements of a certain family size, there are many areas of interest and relevance which it was impossible to cover adequately. The study has the disadvantage of being-a small scale using a small sample of respondents, involving interviews mainly with the wife only and a retrospective study of past behaviour and attitude. So, here are some of the suggestions that can be proposed: (1) It would have been large scale descriptive study comparing the incidence of social and economic deprivation with achieved family size so that sub-samples can be identified and more closely investigated, (2) Studies of husbands as well as wives in order to examine differences and also similarities in their orientation, how the differences are dealt with and how the interaction between them leads to or probabilities of certain types of action, (3) Examination of the transitional period between leaving school and becoming married in order to discover the desire to marry and embark upon the family building process.

The problem of rising population was one of the topics of popular concern at that time. The findings of the book *Fertility and Deprivation* have certain implications for policies on population control. A high proportion of lower working-class families achieve more children than the size they have preferred. However, the problem of reducing family size in such a sector of the population is not merely one of finding the most appropriate form of contraception; making it easily available is also a challenge



highlighted by this study. The whole social environment of such couples must be taken into consideration in which experience of deprivation or insecurity trends to lead passive acceptance, inability to plan or to look into the future etc. The family size can be provided by a domicile family planning service or the development of a contraceptive without the side effects and fears produced by the pill. However, an improvement of the economic, social circumstances and diffusion of ideas is the only certain solution to the problem of family size reduction for those lower working-class couples who have more children than they would have preferred.