



SYMBIOSIS COLLEGE OF ARTS & COMMERCE

An Autonomous College | Under Savitribai Phule Pune University

Reaccredited 'A+' with 3.51 CGPA For Third Cycle By NAAC | College with Potential for Excellence

Volume 2 / Issue 1 / 2022-2023

EMERGE

*Shaping a Sustainable Future and
Responsible Business*



Research Publication By
SCAC

Centre for Innovation and Entrepreneurship



Volume 2 / Issue 1 / 2022-23

EMERGE

Theme:

Shaping a Sustainable Future and Responsible
Business



Emerge- Student Research Journal

Theme: Shaping a Sustainable Future and Responsible Business

Editors

Dr. Sharayu Bhakare

Professor, Faculty of Commerce

Head, Centre for Innovation & Entrepreneurship

Mrs. Sarika Wagh

Assistant Professor

Academic Co-ordinator, M. Com

Faculty Member, Centre for Innovation & Entrepreneurship

Published by

Principal,

Symbiosis College of Arts and Commerce, Senapati Bapat Road, Pune 411004

Website – www.symbiosiscollege.edu.in Year : 2022-23

ISBN: 978-81-964544-4-9

Printed by

Gayatri Graphics, Pune

Email – shrigjere@gmail.com

Disclaimer

The authors are solely responsible for the contents of the papers compiled in this volume. The publishers or editors do not take any responsibilities for the same in any manner. Errors, if any are purely unintentional and readers are requested to communicate such errors to the editors or publisher to avoid discrepancies in future

Contents

Foreword

Editorial

Genesis

Contributors

Acknowledgement

Sr. No.	Particulars	Page Number
1	Study of Factors Driving Entrepreneurship Among Undergraduate Students <i>AnannyaSriram, Manish Agarwal</i>	
2	Role of Digital Payment System in Achieving SustainableDevelopment: Goal 9 - Industry, Innovation andInfrastructure <i>IshaNimje</i>	
3	A Study on the Working Conditions of Sanitary Workers inPune <i>Nandini Singh, VaidarbhiGhinmine, Debolina Das</i>	
4	ESG Reporting of Indian Companies :A Comparative Study <i>Pranav Sood, VaishakSavanur</i>	
5	A Study on the Challenges Faced by SustainableStart-ups <i>ShubhamYewale</i>	
6	Pioneering Women as Promoters in SustainableBusinesses:A Case Study Approach <i>Shraddha Paithankar, Archita Jain, Anushriti Majumdar</i>	
7	A Study of Gender Equality and Recruitment Policy at Workplace <i>SakshiPopli, JyotiRatnani</i>	
8	Solving Water Shortage Crisis: Addressing SDG 6- Clean Water and Sanitation Through IoT <i>Idhika Nikhil Vaidya</i>	
9	Study of Sustainable Practices Led ByWomen Entrepreneurs: Case Study of Mama Earth <i>Poornima, Mansi Lakhotia</i>	
10	Cloud Kitchens: A Business Model for Sustainability andInclusion <i>Nandini Parashar, Dr. Namrata Singh, Mrs. Shruti Sharma</i>	
11	A Study of Urban Healthcare Challenges and Sustainable Solutions via Start-ups in India <i>Rankit Singh</i>	
12	A Case Study Analysis of Pre & Post Covid Impact on Business Performance and Change Management Strategies of Corporations <i>Tania Agarwal, Jyoti Kumari</i>	
13	Sustainable India: Analysing the Values Required forSustainable Growth <i>Zeeshan Rizvi</i>	
14	ECOPRENEURSHIP: Awareness and Adoption <i>Mayuri Ramesh Telang</i>	
15	Consumer Adoption of Green Products :Bridging the Intention-Action Gap <i>MrinalBhakuni , Marylin Gomes</i>	

FOREWORD

In the current global scenario, sustainability and responsible business practices have become an essential aspect of the economy. As we witness the impact of climate change, resource depletion, and social inequality, it is imperative to shape a sustainable future that ensures the well-being of society, the environment, and the economy.

At Symbiosis College of Arts and Commerce, we believe that education should not only equip students with knowledge but also empower them to become responsible and ethical leaders who can drive positive change.

It gives me pleasure to witness the publication of the second edition of the student research journal, Emerge. The theme of the journal edition is 'Shaping a Sustainable Future and Responsible Business'. It is being published under the 'Center for Innovation and Entrepreneurship' to inculcate spirit of research and innovation which is the need of hour in the changing paradigm of higher education in India.

This publication is the result of the hard work and dedication of our young researchers, who have delved deep into various aspects of sustainable business, ecopreneurship, urban healthcare, role of start-ups and consumer adoption of sustainability.

I extend my heartiest congratulations to all the young authors for their contribution. I also appreciate the efforts of the editorial team and the reviewers for adding value to this publication. I also acknowledge the contribution of our esteemed faculty members, who have been instrumental in guiding and mentoring our students in their research endeavors.

I also appreciate the efforts of Dr. Sharayu Bhakare and Mrs. Sarika Wagh for their dedicated work in conceptualizing, planning, and editing this research journal.

I believe that this publication will serve as a platform for meaningful discourse and will contribute to the ongoing dialogue on sustainability and responsible business practices.

Dr. Hrishikesh Soman,

Principal, Symbiosis College of Arts and Commerce

EDITORIAL

It is my pleasure to present the second volume of the student research journal Emerge with the theme *Shaping a Sustainable Future and Responsible Business*. This journal is a compilation of 15 research papers written by the undergraduate and post-graduate students of the colleges across India.

As students enter into the world where climate change is major problem, it is imperative that we imbibe in them a sense of responsibility. Responsible business leaders are required to curtail the catastrophe that is bound to occur due to climate change.

As the world undergoes an unprecedented climate change we as academicians, facilitators, guides and teachers have upon us the greater responsibility to enable our students not only sustain these difficult times but shape a responsible future for themselves and also for the community around them.

This student research journal is an outcome of the consistent efforts taken by our student researchers and editorial team throughout the year. The journal was launched in the beginning of this academic year inviting research papers from students of our college as well as colleges from various parts of India. With the intention of developing research mindset and instilling an entrepreneurial acumen, students were encouraged to write and submit research papers on the sub-themes under the main theme. We received almost 25 research papers out of which 15 were selected for final publication. A workshop on research paper writing was conducted by Mrs. Sarika Wagh, co-editor of Emerge to help students to work scientifically on the papers. At every stage plagiarism check was done by our college librarian Mrs. Vaishali Vaidya. The papers were reviewed by the external experts.

This publication is a platform for students to develop and strengthen research skills, which is an inevitable quality for an aspiring entrepreneur.

The papers published cover wide areas under the sub-themes sustainable enterprise, entrepreneurship, responsible and value driven leadership, pioneering women as promoters of sustainable business.

The entire journey has been very exciting and humbling to see young minds put immense effort as researchers. As the editor I wish to appreciate the efforts of the entire Emerge team.

Dr. Sharayu Bhakare

Editor

GENESIS

This year's theme for Emerge is '*Shaping a Sustainable Future and Responsible Business*', which emphasizes the importance of creating an eco-friendly and socially responsible entrepreneurial ecosystem.

India's young and dynamic population has the potential to drive innovation and pave the way for a brighter future. In recent years, India has emerged as the world's third-largest start-up ecosystem, generating significant employment opportunities.

Despite the challenges posed by the pandemic, 2020 witnessed the rise of several unicorns, further highlighting the resilience and potential of the Indian start-up ecosystem. However, creating a sustainable and responsible business ecosystem requires a long-term and systemic approach. The government has taken significant steps towards fostering entrepreneurship, but it is also crucial to develop an entrepreneurial mindset among young students.

By promoting critical thinking and research, we can nurture a culture of innovation and enable students to empathize with the challenges around them.

Research plays a crucial role in developing economies, but more than that, it is the research mindset that fosters entrepreneurship. An entrepreneurial attitude combined with inquisitiveness and critical thinking can pave the way for innovation and sustainable development.

By providing opportunities for students to undertake research in the field of Sustainability and Responsible business, we can help shape a sustainable future.

Prof. Sarika Wagh

Co-Editor

EDITORIAL BOARD

1. Dr. Sharayu Bhakare - Professor, Symbiosis College of Arts and Commerce
Address: Senapati Bapat Road, Shivaji Nagar, Pune-411004
Email: sharayu.bhakare@symbiosiscollege.edu.in
2. Mrs. Sarika Wagh- Assistant Professor, Symbiosis College of Arts and Commerce
Address: Senapati Bapat Road, Shivaji Nagar, Pune-411004
Email: sarika.more@symbiosiscollege.edu.in
3. Dr. Tessy Thadathil – Vice Principal, HOD- Dept. of Costing, Associate Professor –
Symbiosis College of Arts and Commerce
Address: Senapati Bapat Road, Shivaji Nagar, Pune - 411004
Email: tessy.thadathil@symbiosiscollege.edu.in
4. Dr. Sheena Mathews – HOD – Dept. of Economics, Associate Professor –
Symbiosis College of Arts and Commerce
Address: Senapati Bapat Road, Shivaji Nagar, Pune - 411004
Email: mathews.sheena@symbiosiscollege.edu.in
5. Dr. Alpana Vaidya – HOD – Department of Psychology, Associate Professor –
Symbiosis College of Arts and Commerce
Address: Senapati Bapat Road, Shivaji Nagar, Pune - 411004
Email: alpana.vaidya@symbiosiscollege.edu.in
6. Dr. Jyoti Gogte - Entrepreneurship Mentor and Author Address: H3/701 Belvedere, ITI
road Aundh, Pune 411007 Email: jyotigogte@rediffmail.com
7. Prof. Ravindra Kothavade - Entrepreneurship Author and guide Address: 202,
Vivaniya, Walvekarnagar, Aranyeshwar, Pune 411009
Email: rekothavade1958@gmail.com
8. Dr. Neelam Yadava- Assistant Professor in Entrepreneurship, Tata Institute of Social
Science Address: E2, C103 Snehakunj Co-operative society, Sukapur, new Panvel, Navi
Mumbai 410206 Email: neelamunique@tiss.edu

Contributors

Acknowledgement

Dr. Hrishikesh Soman, *Principal*

Dr. Tessy Thadathil, *Vice-Principal*

Mrs. Vaishali Vaidya, *Librarian*

Mrs. Gandhali Parulekar, *Registrar*

Student Co-ordinators

Aastha Kumar

Ishwari Patil

Arth Pande

Student Editor

Nagalakshmi Solkar Nagaraj

Student Editorial Team

Charvee Shrivastava

Riva Chaki

Tanmay Chavan

Cover Design

Chinmay Deshmukh

Finance Head

Amisha More

Printed by

Gayatri Graphics, Pune

Email – shrigjere@gmail.com

ACKNOWLEDGEMENT

This research publication is the result of contributions by several individuals and therefore, we would like to express our gratitude to each one of them.

First and foremost, we would like to thank Dr. S. B. Mujumdar, Founder President, Symbiosis, whose passion for excellence has inspired us to encourage our students to excel on all fronts and Dr. Vidya Yeravdekar, Principal Director, Symbiosis for her continuous strive to build a robust entrepreneurial ecosystem in Symbiosis.

We are extremely grateful to our Principal, Dr. Hrishikesh Soman, for his constant support, confidence and belief in us and our Vice Principal, Dr. Tessy Thadathil, for her valuable inputs in all our endeavors.

We extend our heartfelt gratitude to the expert review committee members Dr. Jyoti Gogate, Prof. Ravindra Kothavade and Dr. Neelam Yadava for their insightful feedback on the research papers which have helped our authors to understand the research process.

We appreciate the student authors' enthusiasm and persistent effort in writing the research papers. We are also very grateful to the college registrar, Mrs. Gandhali Parulekar, for the continuous office support.

We thank our librarian, Mrs. Vaishali Vaidya, for the extensive plagiarism check of the papers and the student team of coordinators for their immense contribution in encouraging, supporting and coordinating with the reviewers, authors and printing vendor.

Layout, designing and printing is the crux of any publication and we would like to thank Gayatri Graphics for undertaking this responsibility. We are grateful to all the contributors who have been part of this publication process.

Editors

Prof. Dr. Sharayu Bhakare

Mrs. Sarika Wagh

STUDY OF FACTORS DRIVING ENTREPRENEURSHIP AMONG UNDERGRADUATE STUDENTS

Anannya Sriram, Manish Agarwal
Symbiosis College of Arts and Commerce

ABSTRACT

The present study aims to investigate the factors driving undergraduate youth entrepreneurship in India. A combination of primary and secondary data collection methods was employed, and the survey data showed that 74% of the sample aspired to become entrepreneurs, highlighting the increasing popularity of entrepreneurship among the younger generation. The study found that the desire for creativity, innovation, autonomy, and financial rewards were the key motivating factors for pursuing entrepreneurship. The survey also indicated that institutional support, including formal training, mentorship, and step-by-step guidance for execution, was critical for aspiring entrepreneurs. The majority of the respondents who had business ideas in mind was inclined towards the service domain. The findings of this study have implications for policymakers, educators, and other stakeholders seeking to create an enabling environment for young entrepreneurs in India.

Keywords: *Entrepreneurship, Youth entrepreneurship in India, Factors driving entrepreneurship*

Introduction

Entrepreneurship involves the identification and creation of a new business venture, which entails taking on both the potential rewards and risks associated with it. An entrepreneur is someone who takes initiative and organizes resources, including capital, labour, and other inputs, to start and operate a business with the goal of making a profit. This involves developing a vision, researching and assessing market opportunities, securing funding and resources, building a team, and executing a plan to create and grow a successful business. Entrepreneurs must be willing to take calculated risks, adapt to changing circumstances, and innovate to stay competitive. Successful entrepreneurship can drive economic growth, create jobs, and bring new products and services to the market.

Entrepreneurship has emerged as a key driver of economic growth and development in India in recent years, attracting the attention of policymakers, investors, and aspiring entrepreneurs

alike. In a country where job opportunities are scarce and traditional employment is often unreliable, entrepreneurship is seen as a viable and potentially lucrative alternative, especially for the youth. With over 1.3 billion people, India has one of the largest pools of young talent in the world, and as has become evident in recent years, entrepreneurship has gained popularity among young people as a viable career option. Not only does it lead to the personal growth of the students, but youth entrepreneurship can also help create new job opportunities for themselves and others. With the increasing demand for new and innovative products and services, young entrepreneurs can bring fresh ideas to the table and create jobs in various industries and by doing so, they can contribute to the growth of the economy and make a positive impact on their communities. Moreover, young entrepreneurs have the advantage of being more flexible and adaptable to change, which can lead to the development of new and innovative products and services. They are also more likely to experiment with new technologies and business models, which can lead to breakthroughs in various fields.

Having acknowledged the benefits of entrepreneurship and the inclination that students have towards it, many colleges and universities are actively promoting it among their students through a variety of initiatives. Some colleges have established entrepreneurship centres or incubation support which provide resources such as mentorship, networking opportunities, and funding to help students start and grow their businesses. Additionally, many colleges offer courses and programs in entrepreneurship, which provide students with the knowledge and skills they need to succeed as entrepreneurs. Some colleges also host entrepreneurship competitions and events, which allow students to showcase their business ideas and compete for prizes and funding. Through these efforts, colleges and universities are helping to create a culture of entrepreneurship and providing their students with the resources and support they need to pursue their entrepreneurial dreams.

Although there are various advantages of students pursuing entrepreneurship, the path to becoming a successful entrepreneur in India is fraught with challenges, especially for youth. One of the primary challenges is access to capital.

There are many aspiring entrepreneurs who may face financial constraints when starting and expanding their businesses. They may find it challenging to secure funding from conventional sources like banks and investors.

Young people also usually lack the experience necessary to navigate the complexities of starting and running a business. While they may possess more than their fair share of passion and vigour, they might face difficulties when navigating the complexities of running a business such as managing finances, legal issues, and marketing. It is also likely that young,

up-and-coming entrepreneurs may face stiff competition from established businesses that have more resources and a greater market share.

Despite these obstacles, there has been a noticeable surge in the number of young people who are starting their businesses, driven by a desire to solve social problems, create new products and services, and contribute to the country's economic growth. It is important to understand what students consider when choosing to start a venture of their own, and the push-and-pull factors that influence their decision. Understanding the factors that drive the youth towards entrepreneurship in India is crucial for policymakers, educators, and other stakeholders who are seeking to create an enabling environment for young entrepreneurs. This research aims to provide insights into the motivations, experiences, and challenges faced by young entrepreneurs in India, as well as the policies and programs that can support their success.

Literature Review:

Multiple studies have been conducted by numerous researchers around the globe to determine the entrepreneurial intentions of the youth.

The objective of *Turker and Selcuk's (2009)* study titled **Which factors affect the entrepreneurial intention of university students?** is to identify the key factors that influence the propensity towards entrepreneurship among university students. The authors then present a theoretical model of entrepreneurial intention, which incorporates several key factors identified in the literature, such as personal characteristics, social norms and support and environmental factors. The authors noted that several factors consistently emerge as important predictors of entrepreneurial intention and these include self-efficacy, risk-taking propensity, entrepreneurial education, and social support. However, the study was conducted with a relatively small sample size of around 300 and focused exclusively on university students in Turkey, which may limit the applicability of the findings to other populations or contexts.

Francisco Liñán, Juan C. Rodríguez-Cohard, and José M. Rueda-Cantuche's (2011) study titled **Factors Affecting Entrepreneurial Intention Levels: A Role for Education** sets out to identify the role of education in shaping entrepreneurial intention among university students. The paper presents a model of the factors that influence entrepreneurial intention and the role of education in it. The article highlights the necessity of determining the most significant factors that affect an individual's decision to initiate a business venture. It achieves this objective by offering evidence-based recommendations for enhancing entrepreneurship education programs. However, the small sample size of the paper limits the generalizability

of the findings. It is also important to note that the study focuses primarily on the role of education and does not provide an exhaustive analysis of all the factors that may influence entrepreneurial intention.

The article **Entrepreneurial intention as a developmental outcome** Obschonka, Silbereisen, and Schmitt-Rodermund (2010) conducted research on 496 German scientists to identify the predictors of adult entrepreneurial intentions. Their study employed a path model to assess the impact of entrepreneurial personality traits, control beliefs, and recalled early entrepreneurial competence during adolescence on two types of entrepreneurial intentions, namely conditional and unconditional intentions. The findings revealed that entrepreneurial personality and early entrepreneurial competence in adolescence were positively associated with both types of entrepreneurial intentions. The study also found mediation effects via control beliefs. The authors emphasized the significance of using a lifespan developmental approach in entrepreneurship research and recommended that entrepreneurship should be encouraged at a young age. The study underlines the importance of investigating early determinants of entrepreneurial activities and the significance of considering immediate factors that mediate the impact of personality traits on entrepreneurial outcomes.

The article **Entrepreneurial Intention: the role of gender** by *Maria Cristina Díaz-García & Juan Jiménez-Moreno (2009)* explores the role of gender in entrepreneurial intention, meaning the desire to start one's own business. The authors of the text argue that men may have a greater tendency to contemplate starting a business than to actually take the necessary steps to do so, whereas women may have a less positive perception of themselves and the entrepreneurial landscape. This, in turn, restricts women's entrepreneurial endeavours. Gender also influences the perception of attributes related to successful entrepreneurship. The authors suggest that both men and women view successful entrepreneurs as having feminine attributes.

The study examines the influence of factors such as subjective norms, self-efficacy, and attitudes on entrepreneurial intention, and how these factors differ across gender. The sample for the study consists of students, as they increasingly see entrepreneurship as an attractive alternative to wage employment, and little is known about their perceptions of entrepreneurial activity. The authors recommend that addressing gender differences in entrepreneurship requires long-term solutions that begin in the education system, and suggest that educational and formative programs should identify aspects related to gender that need to be addressed.

The article **Entrepreneurial Intention among Undergraduates: Review of Literature** by *Sivarajah, K and Achchuthan, S (2013)* highlights the multidisciplinary nature of

entrepreneurship studies and identify three underlying approaches in literature: The concept of entrepreneurship has been approached in various ways, including viewing it as a function of the market, as a process, and as the characteristics and actions of the entrepreneur as an individual. They also discuss the importance of entrepreneurial cognition in understanding why some people become entrepreneurs while others do not. The authors propose a unique model for entrepreneurial intention for an entrepreneurial career, which emphasizes the role of entrepreneurial motivation in enhancing entrepreneurial intention among undergraduates. They recommend that management undergraduates can play a critical role in filling the knowledge gap in entrepreneurship and contributing to economic growth, productivity, innovation, and employment. Overall, this article provides valuable insights into the field of entrepreneurship and highlights the importance of entrepreneurial intention among undergraduates.

Martin Obschonka, Rainer K. Silbereisen, and Eva Schmitt-Rodermund conducted a study in 2010 on "Factors that predict adults' entrepreneurial intentions" using a sample of 496 German scientists. The study examined the effects of early entrepreneurial competence, entrepreneurial personality traits, and control beliefs on two types of entrepreneurial intentions: conditional and unconditional intentions. The study revealed that both entrepreneurial personality traits and early entrepreneurial competence were positively associated with both types of entrepreneurial intentions. The authors emphasized the importance of a lifespan developmental approach in entrepreneurship research and suggested that entrepreneurship could be promoted early in life.

According to the study, individuals with an entrepreneurial personality profile had higher levels of early entrepreneurial competence. Similar findings were observed in studies conducted on adolescent participants and in a prospective longitudinal study that investigated the early entrepreneurial competencies of German boys, as reported by their parents regarding their sons' personalities. The study also showed that there were indirect effects via control beliefs on the relationship between entrepreneurial personality and entrepreneurial intentions. The study suggests that promoting entrepreneurship early in life may be crucial for the success of societies today, and policymakers should focus on educating and fostering the early entrepreneurial competence of young people to cultivate the "next wave of entrepreneurs."

Research Gap:

In the extant literature review, the research carried out mainly focuses on the entrepreneurial

intentions of people and the factors that influence them. However, there has not been a study about the factors that affect the entrepreneurial intentions of undergraduate students in India and specifically in Pune.

Research Methodology and Research Design

The research design refers to the comprehensive plan that a researcher employs to unify and connect various parts of a study in a coherent and logical manner. It provides a blueprint for conducting research and serves as a roadmap for the entire research process.

Need of the study

The need for this study stems from the increasing interest in entrepreneurship as a means of driving economic growth and development in India. With a large and growing population of young people, there is a pressing need to create more job opportunities and increase economic productivity, and entrepreneurship is seen as a viable solution to these challenges. However, despite the significant potential of entrepreneurship, the reality is that many young people face significant barriers in their journey towards becoming successful entrepreneurs. These barriers include a lack of access to capital, limited infrastructure, and a lack of supportive policies and programs. By understanding the factors that drive the youth to pursue entrepreneurship, the potential of young people can be unleashed to drive economic growth, innovation, and social progress in India.

Research Problem

What are the factors that drive undergraduate youth towards pursuing Entrepreneurship in India?

Research Objective

The study was designed to accomplish the following objectives:

1. To identify the entrepreneurial inclination of undergraduate college students.
2. To identify the factors that drive youth entrepreneurship in India.

Statement of Hypothesis

The Hypothesis consists of two different objectives –

1. The entrepreneurial inclination of undergraduate students.

Alternate Hypothesis – H1 = Undergraduate students in India are inclined towards entrepreneurship.

Null Hypothesis – H₀ = Undergraduate students in India are not inclined towards entrepreneurship.

2. The factors that drive youth towards entrepreneurship.

Alternate Hypothesis – H₁ = Young entrepreneurs in India are motivated by personal and external factors.

Null Hypothesis – H₀ = Young entrepreneurs in India are not motivated by personal and external factors.

Scope of the Study

- The study focuses on analysing the entrepreneurial intentions of undergraduate students.
- The study also aims to identify the factors that affect them in Pune city through an online survey circulated amongst the undergraduate students of various colleges in the city.

Data Collection Methods

The researchers used a combination of primary as well as secondary data collection methods to complete the study.

Primary

The primary data was collected through an online survey which was made with the help of Google Forms. The survey was administered to undergraduate students from various universities.

Secondary

Various sources were referred to in order to gather secondary data for the survey. These sources include:

- Research Papers/Journals
- Government Websites
- News Articles
- Books and Publications

Sample Size

The sample size for the questionnaire administered among undergraduate students is three hundred and sixteen (316).

Limitations of the Study

The study has certain limitations which have been mentioned below so that the findings of the study can be looked at from the proper perspective.

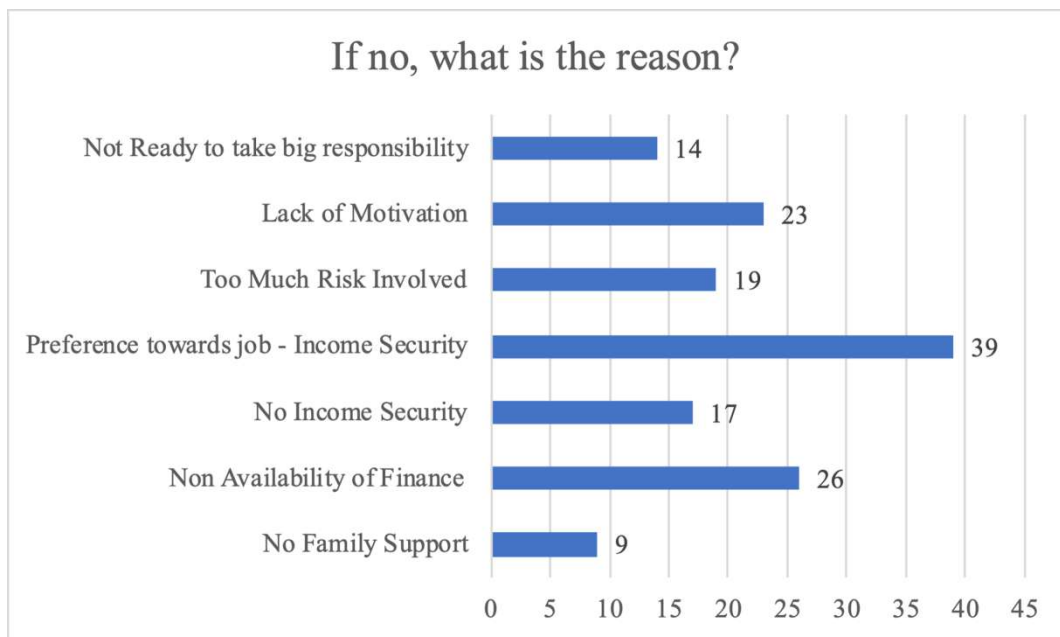
1. Scope of Discussions: Due to the author's lack of experience in conducting research and producing academic papers of this size individually, the scope and depth of discussions in the paper may have been somewhat limited compared to that of experienced scholars. However, the researchers have tried their level best to uphold the virtues of their research.
2. Content: The sample used for the survey is limited to the undergraduate students in Pune with the vast majority of them belonging to Symbiosis College of Arts and Commerce, Pune.

Analysis and Interpretation of Data

1. The intention of becoming an entrepreneur

Amongst all the respondents, a large majority of them- around 74%- wanted to become an entrepreneur, while the remaining 26% did not have the intention of pursuing entrepreneurship.

2. Reasons for not wanting to become an entrepreneur

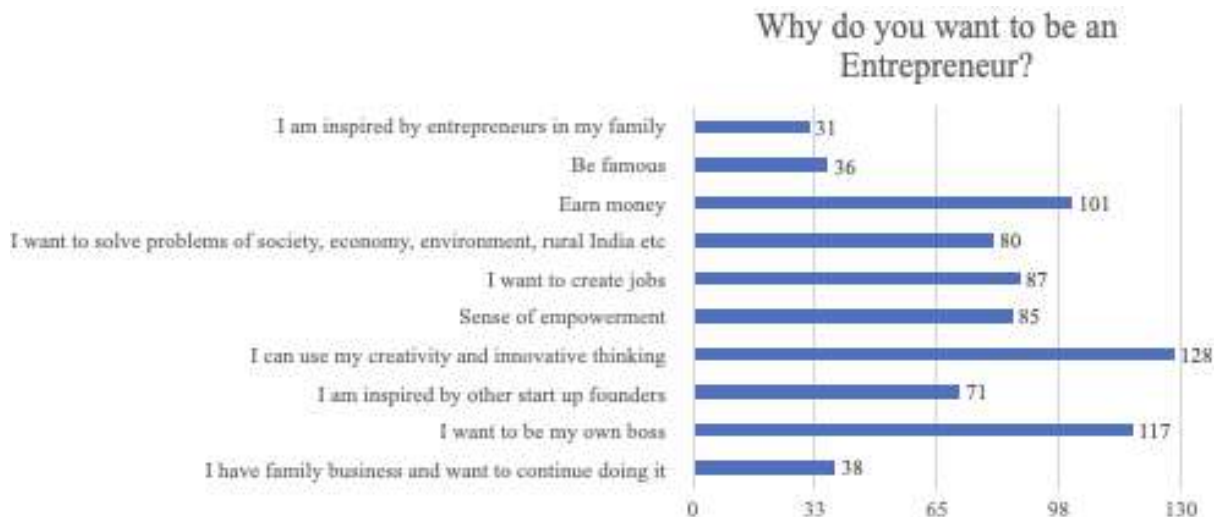


To understand why around one-fourth of the sample opted against entrepreneurship, the researcher inquired further about the factors that proved to be major deterrents in its pursuit. As can be seen in the graph above, according to around 26% of the respondents, the primary reason for students not wanting to be entrepreneurs is their preference towards jobs owing to them ensuring a secure source of income. The non-availability of finance and the lack of motivation are other major factors that dissuade students from pursuing entrepreneurship.

3. Starting a business in the future

When asked about their intentions of starting their own business in the future, just over half the respondents prefer getting a few years of experience working in a job before starting a business, while 14% of them intended to start one after completing their post-graduation degree. A fifth of the respondents are already working on their start-up, which is a positive sign in regard to the emerging trend of student entrepreneurs.

4. Reasons why students want to become entrepreneurs



In order to encourage students to pursue entrepreneurship, it is important to understand what factors motivate them in the first place. The three major reasons why students want to become entrepreneurs are their ability to use creativity and innovative thinking, their desire to earn money, and their wish to be their boss. From the responses, it can be understood that students are more motivated by the personal advantages of entrepreneurship than by wanting to contribute to society by solving its problems or creating more jobs.

5. Business Ideas of aspiring entrepreneurs

Exactly half of the respondents had a business idea in mind while the other half did not. Of the 158 students who already had a business idea, around 54% of them were for a service-oriented business and the remaining 46% were product ideas.

6. Assistance from the college in the pursuit of entrepreneurship

This question helped the researchers get an insight into the assistance required by aspiring student entrepreneurs from the college. Formal Training in entrepreneurship and mentorship from experts are the main expectations of students from their colleges. They also require assistance in finalizing their business idea and getting step-by-step guidance in converting

their idea into an actual business. By understanding what the students expect from the college, the necessary steps can be taken to ensure that their expectations are met and that the college is providing adequate assistance for the same.

Testing of Hypothesis (Quantitative)

After analyzing the data gathered through the questionnaire circulated among undergraduate students of Pune, it is safe to reject the null hypothesis that

Undergraduate students in India are not inclined towards entrepreneurship.

Therefore, it can be concluded that Undergraduate students in India are inclined towards entrepreneurship.

Analysis of the data gathered through the questionnaire also shows that the null hypothesis

Young entrepreneurs in India are not motivated by personal and external factors” can be rejected.

Therefore, it is safe to conclude that young entrepreneurs in India are motivated by personal and external factors.

Findings of the study

The survey indicates that a significant portion of the sample (74%) desires to become entrepreneurs, which highlights the increasing popularity of entrepreneurship among the younger generation. This trend can be attributed to the numerous benefits that entrepreneurship offers, including the opportunity to be creative, innovative, and autonomous, as well as the potential for financial rewards.

It is interesting to note that while most of the sample wish to gain some job experience before starting their entrepreneurial venture, a few want to jump straight into entrepreneurship after completing their graduation. This indicates that there is a significant proportion of individuals who are eager to take risks and start their businesses at a young age.

The survey also highlights the importance of institutional support for aspiring entrepreneurs. The sample expects help and guidance from their institutions in areas such as formal training, mentorship, and step-by-step guidance for execution. This emphasizes the need for universities and other educational institutions to provide comprehensive entrepreneurship programs that go beyond theoretical knowledge.

Regarding the type of business ideas, the majority of the sample who have a business idea in

mind is inclined towards the service domain, which is in line with the growing trend of service-based businesses. This is likely due to the low overhead costs associated with service-based businesses, making it easier for entrepreneurs to get started with their ventures.

However, it is worth noting that not everyone in the sample wants to become an entrepreneur. A significant proportion (26%) prefer job security and stability in terms of income over the risks associated with entrepreneurship. Others cite a lack of funds and motivation as reasons for not pursuing entrepreneurship.

Overall, the survey indicates that entrepreneurship is becoming an increasingly popular career path among the younger generation, and institutions need to provide support and guidance to aspiring entrepreneurs to ensure their success.

Conclusion

In conclusion, this research has revealed a strong inclination towards entrepreneurship among undergraduate students in India, with half of the sample already having a business idea in mind. Today's youth has grown up in an era of rapid technological change, with easy access to ubiquitous information and as a result, they have developed a unique perspective on the world, one that values creativity and innovation. Additionally, they are also more aware of the pressing global challenges, such as climate change and social inequality, and are eager to create businesses that can rightly address these issues. This mindset, combined with access to technology, a passion for solving social problems, and a willingness to take risks, make today's youth well-equipped to create new and innovative business ideas.

However, lack of income security emerged as a major deterrent to pursuing entrepreneurship. Therefore, it is crucial to provide aspiring entrepreneurs with access to funding, mentorship, and training programs to help mitigate the risks associated with starting a business.

Thus, our study highlights the importance of fostering a culture of entrepreneurship within educational institutions and the wider community. By providing aspiring entrepreneurs with a supportive ecosystem and access to resources, we can inspire and encourage more young people to pursue entrepreneurship as a viable and desirable career option.

Suggestions

The researchers' opinion on the growing interest in entrepreneurship among the youth is backed by the survey data, which indicates that a significant proportion of the sample desires to become entrepreneurs. Therefore, introducing entrepreneurship courses in the curriculum can help students develop the necessary skills and knowledge to start their ventures

successfully.

In addition to establishing entrepreneurship cells and hosting events, institutions can also organize workshops and seminars where successful entrepreneurs can share their experiences and insights. This can provide students with practical knowledge and motivate them to pursue entrepreneurship as a career.

Setting up incubation centres and offering mentorship programs can also help aspiring entrepreneurs turn their ideas into successful businesses. These centres can provide resources, infrastructure, and support to students who need them. Moreover, mentorship programs can help students receive guidance and feedback from experienced entrepreneurs, helping them refine their ideas and strategies.

Another way to support entrepreneurship is by setting up a fund to provide seed capital to students who have promising business ideas. This can help overcome the primary barrier to entrepreneurship, which is a lack of funding. Moreover, institutions can also facilitate partnerships between students and investors or venture capitalists who are willing to invest in promising ventures.

Finally, institutions can collaborate with government and industry partners to create an ecosystem that fosters entrepreneurship. This can involve providing access to resources, infrastructure, and networking opportunities to students who wish to start their ventures. It can also involve offering tax incentives or subsidies to startups, providing access to government schemes, and facilitating industry-academia partnerships.

References

Journals/Articles

- Obschonka, M., Silbereisen, R. K., & Schmitt-Rodermund, E. (2013). Entrepreneurial intention as a developmental outcome. *Journal of Vocational Behavior*, 82(3), 199-208.
<https://doi.org/10.1016/j.jvb.2013.01.005>
- Sivarajah, K., & Achchuthan, S. (2020). Entrepreneurial intention among undergraduates: Review of literature. *Journal of Entrepreneurship Education*, 23(2), 1-11.
<https://doi.org/10.1177/1528-2651-23.2.1>
- Díaz-García, M. C., & Jiménez-Moreno, J. (2010). Entrepreneurial intention: The role of gender. *International Entrepreneurship and Management Journal*, 6(3), 261-283.
<https://doi.org/10.1007/s11365-010-0146-z>

- Ferreira, J. J., Raposo, M. L., Rodrigues, R. G., Dinis, A., & do Paço, A. (2019). A model of entrepreneurial intention. *Journal of Business Research*, 98, 82-92. <https://doi.org/10.1016/j.jbusres.2019.01.019>
- Turker, D., & Selcuk, S. S. (2009). Which factors affect the entrepreneurial intention of university students? *Journal of European Industrial Training*, 33(2), 142-159. <https://doi.org/10.1108/03090590910939069>
- Obschonka, M., Silbereisen, R. K., & Schmitt-Rodermund, E. (2013). Entrepreneurial intention as a developmental outcome. *Journal of Vocational Behavior*, 82(3), 199-208. <https://doi.org/10.1016/j.jvb.2013.01.005>
- Liñán, F., Rodríguez-Cohard, J. C., & Rueda-Cantuche, J. M. (2011). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal*, 7(2), 195-218. <https://doi.org/10.1007/s11365-010-0154-z>
- Moriano, J. A., Gorgievski, M., Laguna, M., Stephan, U., & Zarafshani, K. (2012). A cross-cultural approach to understanding entrepreneurial intention. *Journal of Career Development*, 39(2), 162-185. <https://doi.org/10.1177/0894845310384481>

Role of Digital Payment System in Achieving Sustainable Development :

Goal 9- Industry, Innovation and Infrastructure

Ms. Isha Nimje, Student,
Dr. Ambedkar Institute of Management studies and Research,
Nagpur(Maharashtra)

Ms. Rinki S. Moolchandini
Assistant Professor,
Dr. Ambedkar Institute of Management Studies and Research,
Nagpur(Maharashtra)

Abstract

Purpose: The main purpose of this paper is to come up with a theoretical overview of digital payments. Thus, this study covers the concept, benefits, methods of digital payments.

Methodology: The researchers have under taken qualitative research through the survey of existing literature. The research papers published in Journals, Google Scholar and other internet resources etc. were referred for literature review.

Results: The newer digital payment systems or financial echnologies when rendered productively and responsively in a very structured environment, will enable growth and faster achievement of Sustainable Development Goals (SDGs) for a rustic.

Keywords: digital payments, sustainability, transformation, economy growth.

INTRODUCTION

Digital payments, also electronic payments, in India gained the limelight on 8th November 2016 when the Government of India announced the demonetization. Keeping in mind the primary objective of demonetization was to avoid terror financing of money, a parallel economy and counterfeit currency, the secondary aim was to achieve a cashless economy. After this, the COVID-19 pandemic helped to gain significant growth in digital payments but to maintain the sustainability after this had been the major task globally. With the advance men tin echnologies, digitization got the help in ghand from artificial intelligence, means of tech-communications, and information technology making the roots of the payment system stronger with branches like NEFT, RTGS, P2P apps, Quick Response

codes intelligent equipments, etc. The Government gave training and awareness programs to all sections of society and also provided them with financial incentives, still there is a question of reluctance among the consumers to use this digital system of payments.

However, the digital payment system is gaining popularity among the youth adults and Gen-Z. Therefore, it is important for them to understand the reason behind the cashless economy is sustainable development. Moreover, the system is affected by the myths such as the high reluctance of transaction prices, security subjects and many more. Hence, the literature and literacy on Digital Payment systems have become a necessity into day's era.

LITERATURE REVIEW

Author and the year	Title of research paper	Objectives	Findings
Franciska,A.M.,& Sahayaselvi, S. (2017).	An Overview On Digital Payments	To study the different modes of digital Payment transactions that is offered by various financial institutions	The demonetization has affected the payment System in India directly or indirectly, paving Way towards the era of digitization. The efforts Required to make this Possible future is of Awareness and practical training.

Patil, P.P., Dwivedi, Y. K., & Rana, N.P. (2017, November)	Digital payments adoption: an analysis of literature.	To understand the frequently used Theories in consumer mobile payment adoption	To understand the adoption of digital Payments and analysis the approach of consumers towards it as Well to study the risk Involved towards it. It Also makes us aware of the reasons for reluctance of the consumers in digital payments.
Baghla,A. (2018	A study on the future of digital payments in India	To study the expected future of digital payment system in India	The digitization being The fastest growing era in today's date. However, the present trend in digital Payments in India is Blooming but we see a significant decline in its usage among the lower Sections of society.
Angamuthu, B. (2020)	Growth of Digital Payments in India.	To study the overall growth of digital payments in India	The financial system of India is evolving towards online transactions providing personalized banking, Also dealing with loop holes in its growth

			process. There is also the major take on sustainability with a cashless environment.
Terras, M. M. (2011).	The rise of digitization.	To study and analyze the origin and method of digital payment system	The digitization of the Payment system saves Staff time in re-filling and re-printing of cash. A part from this it also deals with technical and legible objections in the society.

RESEARCH GAP

In the present research, different research scholars have mentioned in their previous research about the rise of digital payment methods ,growth of digital payments, adoption of digital payments and its overview, but there is not much research on digital payment system and sustainable development goals. Therefore, this research addresses different aspects of the digital payment system with sustainable development goals.

RESEARCH OBJECTIVE

To study and understand the digital payment system as a sustainable method of payment.

RESEARCH METHODOLOGY

The researchers have undertaken qualitative research through the survey of existing literature. The research papers published in Journals, Google Scholar and other internet resources etc. were referred for literature review.

ANALYSIS AND INTERPRETATION

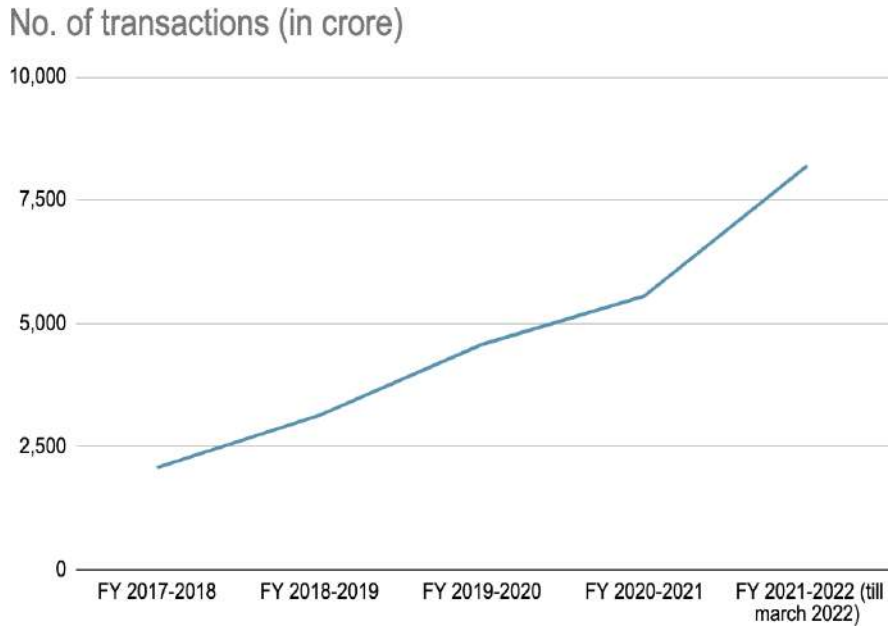
Role of Digital Payment System

On 8th November 2016, in India demonetization was announced, paving the way for the digitization era simultaneously. The Government of India aimed to make the country paperless, faceless, and cash less by empowering digital methods. It allowed each enterprise to add an element of sustainability to its business. The digital payment system includes the transaction of payment taking place digitally. Some of the popular digital payment systems include banking cards, USSD, APES, UPI, mobile wallets, Point of Sale terminals, mobile

banking, internet banking, and many more. In digitization, the use of transaction modes becomes more convenient and faster than those traditional methods. Digital payments are faster, safer. It keeps the proper transparency and record of all the transactions. It also shows the economic progress, in a report issued by ET stated that India to have 66.6 billion payment transactions of \$270.7 billion are anticipated to have a shift from cash to cards as a result of digitization by 2023. The digitization helped the Government of India to keep transparency, ease in record keeping, reduce the printing and paper cost by some margin, also helped to gain inclusive growth, and also encouraged women's participation in it. The time when the banks started with sustainability objectives and shifted more of their focus towards the digital system, made the foundation for eco-innovative ways for digital payment systems. The digital system itself made an extension of sustainability to it. It not only helped to go cashless. However, here we link the payment system to the environment, the digitization helps friction less payments go hand in hand. Fintech, a Sweden-based company released an app showing how much CO2 the consumer contributes to the traditional payment system. The sustainability factor helps the fast-growing urban world, to make it more live able, it promotes gender equality too. More sustainable consumption can be done with the data generated digitally.

According to the Ministry of Electronics and IT, India made a total of 7,422 crore transactions digitally during the first quarter of the year, which is much more progressive than the previous FY2020- FY2021, also in the recent article of Business Standard, it is stated that India to achieve a landmark of \$10 trillion digital payments by 2026. The numbers, surveys, reports and articles depict the much significant and tremendous results and the added value for sustainability.

Chart 1.



Source:<https://www.businesstoday.in/latest/economy/story/8193-cr-digital-transactions-in-fy22-upi-most-preferred-payment-mode-meity-327350-2022-03-25>

The above data from chart one shows the number of transactions (in crores) that took place in the following years FY2017-2018, FY2018-2019, FY2019-2020, FY2020-2021, and FY 2021-2022 (till march 2022). The above data also depicts that India's digital payments have transformed and seen significant growth dramatically over the past five years.

Today, the number of at least 40% of digital payments are electronic, making its contribution in a US\$3 trillion payment on account of UPI-led migration to digital, rapid expansion in its infrastructure, a boost to the customer preferences, and the developing merchant acceptance network. Despite this impulsive growth, certain sections of the market remain under penetrated with consideration for growth. The subsequent wave of growth is probably going to come back from Tier 3-6 locations, as evidenced within the past two years wherein Tier 3-6 cities have contributed to almost 60-70% of latest mobile payment customers. Expanding merchant acceptance, digitization of important chains, and establishment of economic services market place in under penetrated sections are the first factors that may spur the ascension of digital payment in India. The emergence of immersive payments via 5G and also the Internet of Things, and therefore the launch of India's sovereign Digital Rupee are, together, expected to supply further impetus.

Fig.: 2

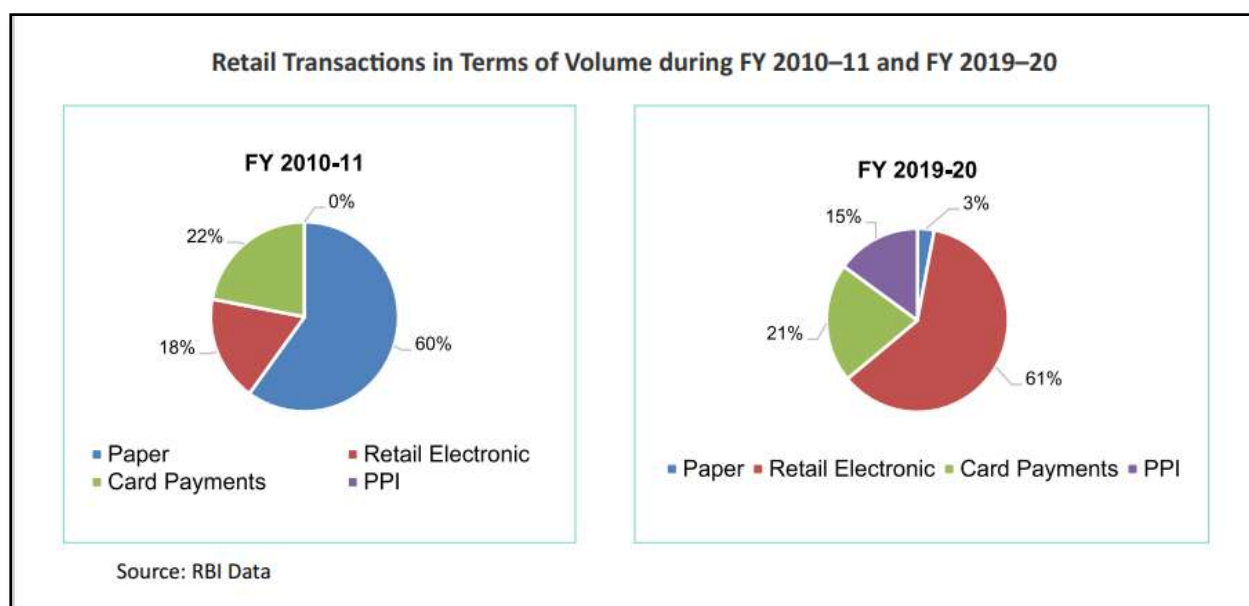
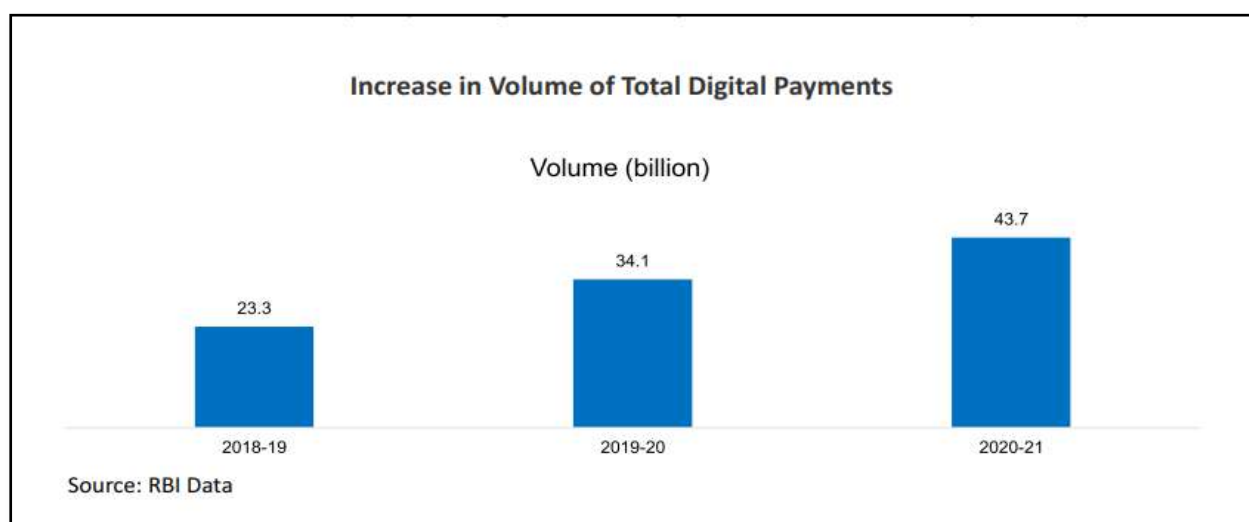


Fig.: 3



Digital payments have grown sharply in the past few years and the payments industry in India is expected to grow to US\$ 700 billion in 2022. The pandemic gave a strong boost to the Indian digital payments industry and increasingly more users are switching to digital modes every day. As part of aggressively working towards achieving a digital economy, the government of India has launched various initiatives to promote the use of digital payments.

The popularity of digital payments is also affected by myths such as the bank's high reluctance to charge for each transaction digitally and also of data sharing. Many of the security issues are still to be monitored by the government but yes they can be avoided by one's intelligence and proper knowledge and awareness about the use of the resource. The

digital system of payments must get more attention from the unaware sections of society so that they also inculcate the factor of this eco-innovation in their livelihood. However, the frictionless, paperless, effortless, and cashless economic progression is growing in fast motion providing the notion of sustainability to each enterprise and moving its business at a steady growth. The sustainable environment does not only mean to have its definition in links, books and various subjects but it needs to be involved in our day-to-day life to maintain a certain rate or level of the natural resources in the eco system and the digital payment system fulfills the demand of it. It does reduce the carbon footprints and also the cutting cost of trees. It will help to maintain the ecological balance in the business enterprises too. This provides at least one factor of sustainability to one's enterprise.

CONCLUSION

The digital payment system plays an important role after the emergence of Covid-19, which made each enterprise achieve a source of sustainability by going cashless. It also helped the Government to keep transparency, ease of access, reduced data entry errors, quick processing and improved productivity which also reduced the printing costs and its storage. The different types of electronic payment methods include the use of creditcard, debitcard, smartcard, RTGS, NEFT, Amazon pay, Google pay, Net-banking, E-wallets, etc. This also helped enterprises to stay in the race of sustainability with the structured environment.

REFERENCES

1. Adamska, M.P. (2022). A model of the impact of customer loyalty motives on sustainable enterprise value. ICIEMC Proceedings, 3, 1–10. <https://doi.org/10.34624/iciemc.v0i3.29602>
2. Angamuthu, B. (2020a). Growth of Digital Payments in India. 4, 11.
3. Baghla, A. (n.d.). A STUDY ON THE FUTURE OF DIGITAL PAYMENTS IN INDIA. 5(4), 5
4. Chofreh, A. G., Goni, F. A., Shaharoun, A. M., Ismail, S., & Klemeš, J. J. (2014). Sustainable enterprise resource planning: Imperatives and research directions. Journal of Cleaner Production, 71, 139–147. <https://doi.org/10.1016/j.jclepro.2014.01.010>
5. 'Digital payment frauds will continue unless second half of process is streamlined.' (2022, June 12). The Times of India. <https://timesofindia.indiatimes.com/city/nagpur/digital-payment-frauds-will-continue-unless-second-half-of-process-is-streamlined/articleshow/92152463.cms>
6. Digital Payments Adoption: An Analysis of Literature | SpringerLink. (n.d.). Retrieved September 30, 2022, from https://link.springer.com/chapter/10.1007/978-3-319-68557-1_7
7. Digital payments in India projected to reach \$10 trn by 2026: Report | Business Standard News. (n.d.). Retrieved September 30, 2022, from <https://www.business-standard.com/article/economy->

- policy/digital-payments-in-india-projected-to-reach-10-trn-by-2026-report-122060201089_1.html
8. Hao, Z., Zhang, X., & Wei, J. (2022). Research on the effect of enterprise financial flexibility on sustainable innovation. *Journal of Innovation & Knowledge*, 7(2), 100184. <https://doi.org/10.1016/j.jik.2022.100184>
 9. Modeling and Assessing Sustainable Enterprise Excellence-Edgeman-2014-Business Strategy and the Environment—Wiley Online Library. (n.d.). Retrieved September 30, 2022, from <https://onlinelibrary.wiley.com/doi/abs/10.1002/bse.1779>
 10. Parrish, B.D. (2007). Designing the sustainable enterprise. *Futures*, 39(7), 846–860. <https://doi.org/10.1016/j.futures.2006.12.007>
 11. Sahayaselvi, S. (2017). An Overview On Digital Payments. *International Journal of Research*, 04, 2101–2111
 12. Terras, M.M. (2011). The Rise of Digitization. In R. Rikowski (Ed.), *Digitisation Perspectives* (pp. 3–20). Sense Publishers. https://doi.org/10.1007/978-94-6091-299-3_1
 13. The rise of the sustainable enterprise | IBM. (n.d.). Retrieved September 30, 2022, from <https://www.ibm.com/thought-leadership/institute-business-value/report/sustainable-enterprise>
 14. Weichhart, G., Molina, A., Chen, D., Whitman, L. E., & Vernadat, F. (2016). Challenges and current developments for Sensing, Smart and Sustainable Enterprise Systems. *Computers in Industry*, 79, 34–46. <https://doi.org/10.1016/j.compind.2015.07.002>
 15. What Companies Use Sustainable Business Practices? 8 Sustainable Companies Across the Globe—Clean River. (n.d.). Retrieved September 30, 2022, from <https://cleanriver.com/8-sustainable-companies-across-the-globe/>

A STUDY ON THE WORKING CONDITIONS OF SANITARY WORKERS IN PUNE

Nandini Singh, Vaidarbhi Ghinmine, Debolina Das
Symbiosis College of Arts and Commerce

Abstract:

Five Billion people spend almost 70% of their life serving the country and its people in the most unconventional way and yet they receive no credit, no humanity and no help.

India as a developing nation has had its fair share of basic hygiene issues and are around five million men, women and even children of our nation who have made it their entire life's mission to help us live a better, cleaner and safer life.

Looking back at the rich history of our nation, we can witness that any person working as a sanitation worker has always been looked down upon and not met with the same respect and rights. This research was conducted on the sanitation workers of Pune city, where they were asked questions based on various spectrums as in their age, gender, salary, education, and income. Through this study, it is concluded that the workers are generally uneducated or school dropouts and they are not paid fairly and do not have access to basic equipment and health facilities.

Key words: *Informal Sector, Challenges faced by Sanitation Workers, Working Conditions Informal Sector*

Introduction

In India, municipal corporations have a long history. In the old Presidency Town of Madras, the first Municipal Corporation of this kind was established in 1688.

Similar, corporations were later established in the era's Bombay and Calcutta in 1726. The protection of democracy in Parliament and state legislatures is explicitly provided for in the Indian Constitution. The civic organization in charge of Pune, India's inner boundaries is called the Pune Municipal Corporation (PMC).

It is in charge of the metropolis's infrastructure and civic requirements, which cover 484.61 sq km and house 3.4 million people. The Municipal Commissioner, an Indian Administrative Service (IAS) officer chosen by the Government of Maharashtra, is granted executive

authority over the PMC, which was established on February 15th, 1950.

In India, municipal corporations are in charge of collecting rubbish, and bins are typically given for recyclable and inert material. Waste that is collected and handled by or for municipalities is referred to as municipal waste. It consists of family waste, consisting of cumbersome waste, waste from trade and trade, workplace buildings, institutions, and small enterprises, as well as backyard and lawn waste, avenue sweepings, clutter box contents, and marketplace cleaning waste.

The definition excludes waste from municipal sewage networks and treatment, as well as garbage from construction and demolition activities. This indicator is expressed as kilograms per person and thousands of tons. Manual scavengers, street sweepers, drain and manhole cleaners, and rag pickers are among the employees who gather these trashes. Because of their lengthy exposure, these workers are more likely to develop a variety of occupational disorders (Tiwari, 2008). The ongoing task of cleaning the city is continued by street sweepers. Street sweepers are exposed to a number of risks because they work with waste and grime (*Dutkiewicz, 1997 and Krajewski et al., 2002*). They are primarily exposed to occupational respiratory disorders as one of their main morbidities (*Sabde and Zodpe 2008; Nayera et al., 2015*). Long-term inhalation of such complex dust during street driving is caused by the mixture of bioaerosols (*Lavoie and Dunkery, 2002*), high concentration of dust, and ongoing creation of live microorganisms (bacteria and fungus) and endotoxins (*Krajewski et al., 2002*).

In the course of managing trash, microbes cause the formation of bioaerosols that could result in poisonous, allergic, or infectious risks (*Nielsen et al., 1997*). A variety of respiratory conditions, such as mucous membrane irritation, rhinitis, allergy, asthma, bronchitis, conjunctivitis, hypersensitivity, pneumonitis, allergic broncho-pulmonary mycosis, dermatitis, and diarrhea, may be brought on by street sweeping and garbage collection (*Allmers et al., 2000, Lavoie and Dunkerley, 2002, Wouters et al., 2002*). Rapid urbanization is just one of several factors contributing to the problem of street sweeping employment that is growing in emerging nations (Ramchandra and Varghese, 2003).

Also, most underdeveloped nations do not implement occupational safety and health measures to prevent sweeper's morbidities, predisposing workers to the development of respiratory ailments including chronic obstructive pulmonary disorders (*Anwar et al., 2013*).

Because of the scarce resources, outdated technologies, low socioeconomic standards, and low educational levels, this issue is both urgent and difficult (Stambuli, 2012). The risk of infection, open wounds, road accidents, and noise exposure, particularly in crowded settings, are additional morbidities (LeGrande, 2014). Also prevalent among street sweepers are cardiovascular and eye conditions (Sabde and Zodpe, 2008).

Objectives

- To understand the working conditions of the sanitation workers.
- To understand the untouchability aspect with respect to sanitation workers.

Literature Review

Pradeep S. Salve & Suresh Jungari (2020) in their work *“Sanitation workers at the frontline: work and vulnerability in response to COVID-19”* concluded the maintaining clean cities put sanitation workers, along with health professionals, on the front lines of the fight against disease. Sanitation employees perform grueling, dangerous, filthy and dehumanizing job that exposes them to a variety of harmful substances and toxic gases that are released from solid waste, making them susceptible to acquiring chronic respiratory infections. Contractual sanitation employees are not included in the social and labour laws that are crucial to the fight against the pandemic. Due to their lack of literacy, poor money management skills, and underrepresentation in the sanitation employees' union, women sanitation workers are much more at risk.

Ravikant Kisana & Nioshi Shah(2021) in their work *‘No one understands what we go through’* During the COVID-19 pandemic, women sanitation workers in Pune, India, self-identified as being at risk for health problems. They highlighted on how caste and gendered labour standards make the women doubly vulnerable. Also, they looked into how the female sanitation employees identified their own health needs and dangers. Additionally, they have concentrated on the hierarchy-based distinction that characterizes these workers as "impure" and has treated them as untouchables throughout history.

R. H. Raghavendra & R. Anil Kumar(2022) in their work *“Sanitation Workers: A Neglected Community of Indian Civilized Society”* have concentrated on the underrepresented and undervalued segment of our society. The stigmatized caste system in India continues to be the fundamental factor in determining how these labourers would do. This study covers numerous issues such as the large prevalence of sanitation workers in India, their dismal conditions, their social and economic standing, mortality due to sanitation-related works and an

alternate living to sewage employment. The last point makes recommendations on what the government can do to enhance the lives of sanitation employees.

B. K. Nagla(2020) According to the author of "Problems of Sanitation in India: Does Culture Matter," sanitation has not received the sociological attention it deserves, despite being a crucial component of healthy family and community life and a key indication of social development. The article reveals the connection between subpar sanitation, particularly rural people's preference for open defecation, and habits and views that are firmly ingrained in cultural norms. In the end, it is contended that in order to improve sanitary conditions in India, people's ideas, habits, and conventions towards health and the environment are more important than available resources.

Sukanya Rangamani, Kannamede Bheemappa Obalesha, Rakhal Gaitonde in their work "Health issues of sanitation workers in a town in Karnataka: Little attention has been paid to the health and safety of sanitation workers in public health studies, according to findings from a lay health-monitoring study. Unlike other dangerous occupations, sanitation labour does not have special protective regulatory rules to address health hazards. They have emphasized the precarious condition our sanitation workers are in at work and the simple things that can be taken to improve it.

Research Methodology

This study is basically a survey-based study aimed at describing the working conditions of the sanitation workers under PMC & PCMC. Primary data to be collected from permanent and contractual sanitary workers. The data is collected with the help of a questionnaire.

Data Collection

The primary data was collected from 30 sanitary workers from Pune.

Data Analysis

The primary data was collected from 30 sanitary workers working in Pune to understand the working conditions. Analysis is as follows.

Fig1:Gender wise classification of Sanitary workers



Source: Primary Data

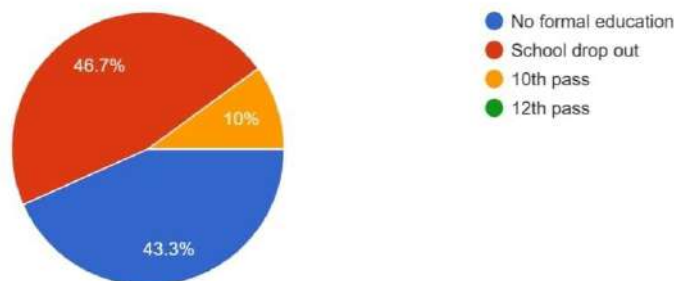
The above Chart shows the gender of the respondents. 60 percent of the respondents are female and the remaining 40 percent of the respondents are male.

Age wise Classification of Sanitary workers : The highest percentage of the respondents i.e. 16.7% are of age 40 and 55.

Fig 2: Educational Qualification

The study infers that 46.7 percent of the sample size are school dropouts. And 43.3 percent of the sample population of sanitary workers have gained no formal education. The remaining 10 percent of the sample population have cleared their 10th grade. It is clearly visible that most of the sanitary workers either have no formal education or are school dropouts.

Education
30 responses

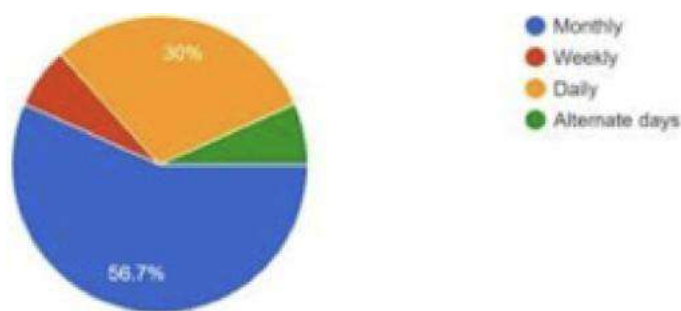


Source: Primary Data

Marital Status wise Classification of Sanitary workers: As per the data collected 86.7 percent of the sample size are married. And 10 percent of the sample population of sanitary workers are widows. The remaining 3.3 percent of the sample population are unmarried. Most of the sample population is married.

Are they the only bread earner in their house? :As per the study 33.3 percent of the sample size are the only bread earners in their house. And 66.7 percent of the sample population of sanitary workers are not the only bread earners.

Fig 3: Payment

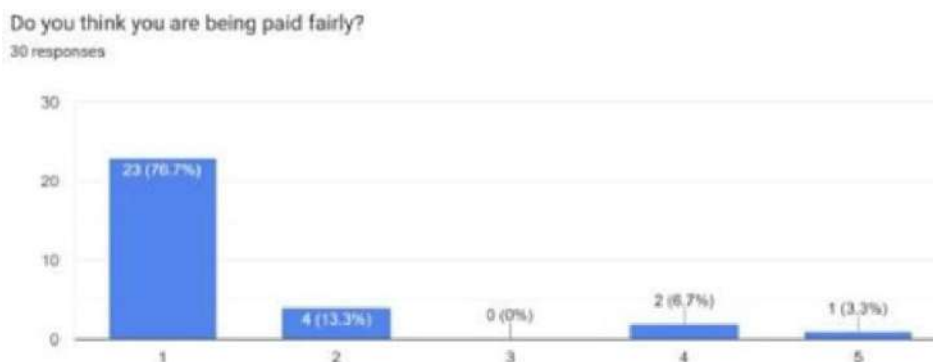


Source: Primary Data

The above chart shows that 56.7 percent of the sample size are paid monthly. And 30 percent of the sample population are paid daily. The others are paid either daily or on alternate days.

Timely payment to Sanitary workers :_The data collected reflects that 90 percent of the sample size is paid on time. And 10 percent of the sample population is not paid on time.

Fig 4: Fair payment to Sanitation workers



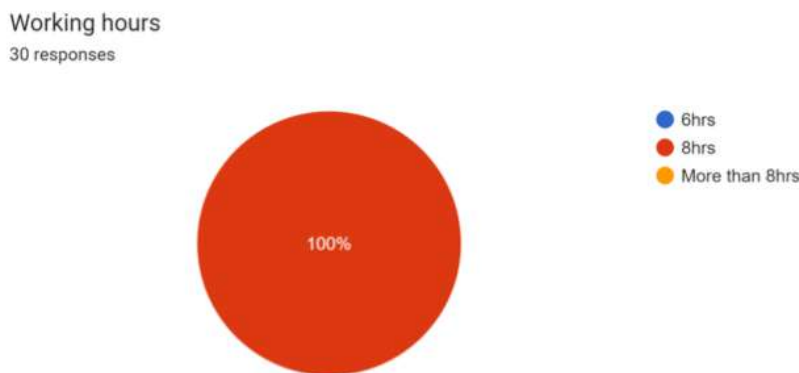
Source: Primary Data

The above chart shows that 76.7 percent of the sample size strongly disagree that they are being paid fairly.

Equipment provided to Sanitation workers : The study infers that 63.3 percent of the sample size are not provided with proper equipment at the workplace. And 36.7 percent of the sample population are provided with the equipment.

Sanitation workers experiencing illness during work : The data collected shows that 90 percent of the respondents has not experienced illness at the workplace. And 10 percent of the sample population have experienced illness.

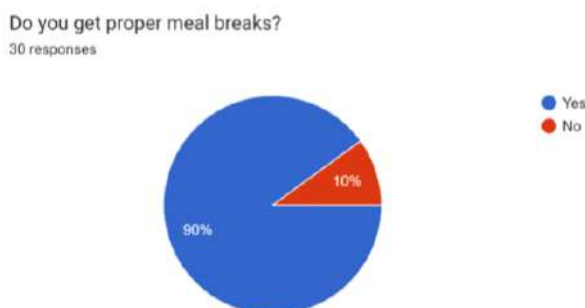
Fig 5: Working hours



Source: Primary Data

Nearly all the respondents have agreed on average 8 hours of working.

Fig 6: Proper meal breaks

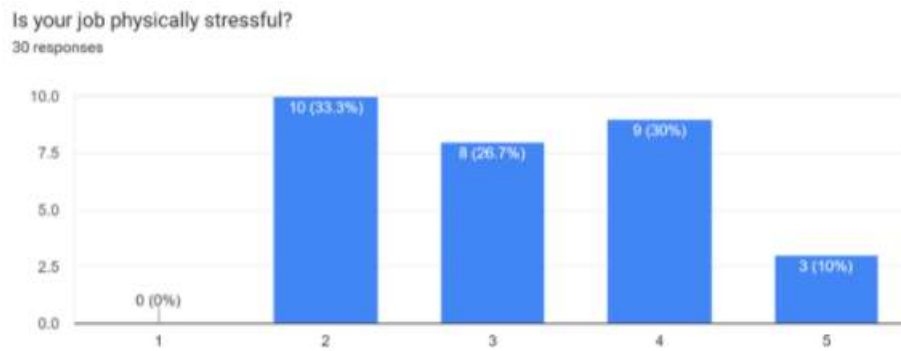


Source: Primary Data

The above chart shows that 90 percent of the respondents are provided proper meal breaks.

Availability of health facilities to the sanitation workers: The study shows that 83.3 percent of the respondents receive health services.

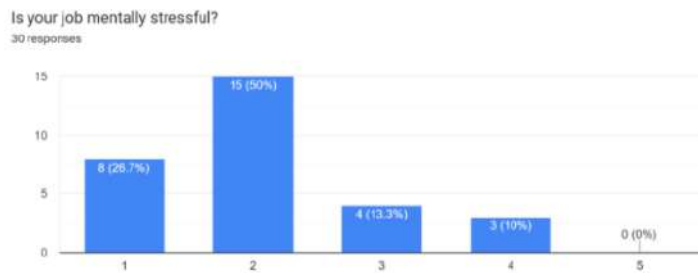
Fig7: Physical stress during work



Source: Primary Data

33.3% of the respondents finds the job physically very stressful.

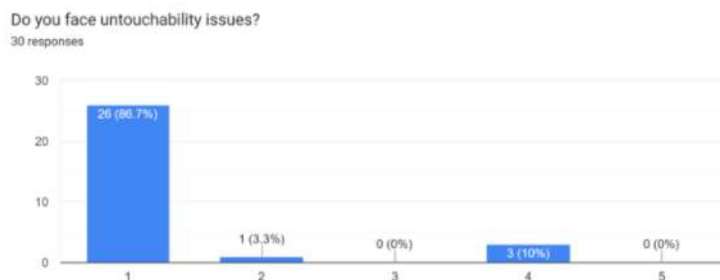
Fig 8: Mental stress during work



Source: Primary Data

50% of the respondents find the job mentally very stressful

Fig 9: Faces untouchability



Source: Primary Data

86.7% of the respondents strongly disagree, they never experienced un touch ability due to their work

Discussion

Among the total 30 sanitary workers, 93% of the respondents were contractual workers,

while remaining 7% were permanent workers. Through the gender classification we can see that the number of female sanitary workers are more as compared to the male.

The educational qualification of the sanitary workers highlights that most of the respondents either have no formal education or are school dropouts. All this information helped us to understand the background of the sanitation workers. While the other data related to the payment, timely payment, fair payment, equipment provided to the workers, workers experiencing illness during work, working hours, meal breaks, health facility, physical and mental stress at workplace and untouchability issue helped us to understand the decent work agenda and the working conditions of the sanitation workers.

The workers do not agree that they are being paid fairly, they feel they are paid less as to the work done by them. The majority of the workers from the sample size do not get proper equipment for their work. We tried to understand the untouchability aspect with respect to the sanitation workers and with the sample size we were able to find out that most of the workers strongly disagree on being treated differently by others.

Conclusion

Our study conducted on the sanitation workers of Pune city under PMC highlights the challenging working conditions faced by these workers. Majority of the female workers are married and most of the workers have limited or no formal education making them more vulnerable to exploitation and poor working conditions.

The study reveals that the sanitation workers are not paid fairly for their work and this is a serious issue, as it can lead to financial instability and a lack of motivation among workers. Furthermore, the workers do not have access to basic equipment necessary for their work, which further exacerbates their difficulties.

Moreover, our study suggests that there are no proper health facilities available to the sanitation workers. Given the nature of their work, which involves handling waste and exposure to various environmental hazards, this is a critical concern. Additionally, the study highlights the physically demanding nature of the work, and the workers are not provided with any overtime compensation for the extra hours worked.

In conclusion, the study indicates that the working conditions for sanitation workers in Pune city under PMC are not adequate. The workers need access to basic equipment, including PPE, and health facilities to ensure their well-being. It is crucial that the authorities take appropriate measures to improve the working conditions of these workers to ensure their dignity and safety in our society.

Limitation

The present study is based on the study area specific to the city of Pune. So, this study should not be generalized.

References

1. WaterAid. (n.d.). Sanitation workers: A repository. Retrieved from <https://www.wateraid.org/in/sanitation-workers-a-repository#:~:text=Who%20are%20sanitation%20workers,operating%20sewage%20treatment%20plants%2C%20etc.>
2. The Wire. (n.d.). How to improve conditions of sanitation workers. Retrieved from <https://thewire.in/caste/how-to-improve-conditions-of-sanitation-workers>
3. UNFPA India. (n.d.). Fresh start for women sanitation workers in India. Retrieved from <https://india.unfpa.org/en/news/fresh-start-women-sanitation-workers-india>
4. KPMG. (2020, July). Protecting our sanitation workers. Retrieved from <https://kpmg.com/in/en/home/insights/2020/07/protecting-our-sanitation-workers.html>
5. The Citizen. (n.d.). Sanitation workers' safety must be prioritised. Retrieved from <https://www.thecitizen.in/in-depth/sanitation-workers-safety-must-be-prioritised-350979>
6. <https://www.wateraid.org/in/sanitation-workers-a-repository#:~:text=Who%20are%20sanitation%20workers,operating%20sewage%20treatment%20plants%2C%20etc.>
7. <https://thewire.in/caste/how-to-improve-conditions-of-sanitation-workers>
8. <https://india.unfpa.org/en/news/fresh-start-women-sanitation-workers-india>
<https://kpmg.com/in/en/home/insights/2020/07/protecting-our-sanitation-workers.html>
<https://www.thecitizen.in/in-depth/sanitation-workers-safety-must-be-prioritised-350979>

ESG Reporting of Indian Companies: A Comparative Study

Pranav Sood, Vaishak Savanur
Symbiosis College of Arts and Commerce

Abstract:

The changing reporting standards across the globe has brought forward the idea of Environmental, Social and Governance (ESG) reporting. The main reason and logic of producing ESG reports is to take into consideration the full impact of the products that any company produces so that a true value of a company can be estimated along with providing the investors with more disclosures and information regarding the company, mainly in 3 headings, i.e, Environmental, Social and Governance so that value can be created over the long-term for the shareholders. Due to unregulated ESG standards, companies can prepare ESG reports in whatever format they like. But are these reports really useful to an investor in deciding on which company to invest in conflicting decisions? This paper examines such ESG reports prepared by Indian companies and tries to find the comparability factors among the ESG reports of the companies. The study concludes that ESG reports of firms from the same sector are not comparable.

Keywords: *ESG (Environmental, Social and Governance), reporting standards, unregulated, value creation, investors.*

Introduction

ESG stands for Environmental, Social, and Governance, which are three key factors that are increasingly being considered by investors when making investment decisions. ESG factors provide a framework for evaluating a company's non-financial performance and its impact on society and the environment. ESG reporting standards first came to light in the early 1970s when the world started to incline towards sustainable development. Standard setters all over the world started exploring their options which would enable companies to produce reports which not only showed the financial aspects of the company but also the footprint it was leaving on society as a whole. ESG reports, or sustainable reports, mainly have three components in them, which are Environment, Social and Governance. These reports have become a compulsion for certain companies in India. With SEBI making it compulsory for the top 100 companies (by market capitalization) to produce such reports and publish them

along with the companies' financial statements annually from the year 2012. This threshold changed to top 500 companies in 2015 and is all set to change to top 1000 companies in 2022 (*Times of India, 2017*). Many companies publish these reports even if they are not required to do so by the law to gain public goodwill. Even though the law requires these companies to publish ESG reports, there is no particular format in which these have to be published, leading to comparability issues of the ESG reports of companies even when they belong to the same sector, causing problems for investors.

Background of the Study

With more and more companies incorporating ESG principles and publishing ESG data in their annual reports, there is a need to increase the awareness about what it actually means. With the help of this paper, we wish to test the usefulness of ESG data published by top companies in India, and in particular concentrate on the comparability of ESG data between any two companies operating in the same sector. The rising popularity of ESG amongst companies and the general public comes with its limitations. Currently in India, there is no separate law which governs the ESG requirements for companies. There aren't any laws that are specifically focused on ESG, but several laws, including the Environment Protection Act of 1986, the Companies Act of 2013, and the Social, Environmental, and Governance regulations, such the Factories Act of 1948, regulate how ESG is implemented in India. Unlike the financial data published by public companies, there are no proper set of guidelines and requirements for ESG metrics, despite it being recognised by both the organisations and the public that they are as important if not more.

A recent SEBI consultation paper on ESG stated that, “since the activities of ESG ratings providers (ERPs) are typically not subject to regulatory oversight at present, increasing reliance on such unregulated ESG rating providers in securities markets raises concerns about the potential risks it poses to investor protection, the transparency and efficiency of markets, risk pricing, and capital allocation, among others. Moreover, a lack of transparency in this area gives rise to the risk of greenwashing and misallocation of assets, which could lead to infirmity in such an ESG rating and a consequent lack of trust thereof. Therefore, there arises an imperative need, more than ever before, to ensure that the providers of such products operate in a transparent and regulated environment that balances the needs of all stakeholders. (*Consultation Paper on Environmental, Social and Governance (ESG) Rating Providers for Securities Markets, Securities Exchange Board of India, 2022*)

It will be helpful to both the investors and the firm to know if the ESG reports published in the Indian markets are comparable to each other, and if so, to what extent. Similar line items and formats will make it easier for the users of the reports to make comparisons and form their own conclusions on the basis of the data. On the other hand, differences in the methodology and information published in reports will make it more difficult for the readers to make informed decisions, rendering the reports ambiguous. Incomparability amongst reports will also increase the risk of greenwashing and decrease the reliability of the report. Thus, it is necessary for the stakeholders of Indian firms to understand the relevance of ESG reports and how they can benefit from them.

Literature review

The extant literature in the field of ESG is reviewed to understand the emphasis given by other researchers on various aspects of ESG reporting.

A study was conducted previously in the same field by *Dr. Ryan Clements in 2022* in his research paper on ‘Why Comparability is a Greater Problem than Green washing in ESG ETFs’(Clements, 2022) The study suggested three methods to improve the comparability of ESG ETFs. The three methods are:

If a fund is to be termed as an ESG ETF, then there should be justification of its name through specific ESG disclosures. Standardise ESG measurement metrics. Mandate uniform information presentation layouts on ETF issuer websites.

A report published by the *Organization for Economic Cooperation and Development (OECD) in 2020(Boffo & Patalano, 2020)* mentioned the performance and market penetration of ESG stocks and further classified them according to the performance of those stocks. The report also discussed the current scope of producing ESG reports and some of the limitations faced by NASDAQ companies.

A study conducted by *Logan Crace and Joel Gehman in 2022* in their research paper, ‘What Really Explains ESG performance? Disentangling the Asymmetrical Drivers of the Triple Bottom Line’ (Crace & Gehman, 2022) concluded that the negative ESG performance is because of the external factors, whereas positive ESG performance is because of internal factors of a company.

Objectives of study

The objective of this research paper is to test the comparability of the data found in the ESG reports of various companies competing in the same sectors and comment on the results obtained after testing the data along with the hypothesis.

Statement of Hypothesis

H0: The data published in ESG reports of similar companies is comparable, hence making it useful for investors interested in responsible investing.

H1: The data published in ESG reports of similar companies is not comparable, hence making it less useful for investors interested in responsible investing.

Correlation: A statistical tool used to measure the change in the dependent variable based on the change in the independent variable.

Sampling

The research is based on the ESG reports prepared by Indian companies. As of now, SEBI makes it mandatory for the top 500 companies by market capitalization to produce these reports. Therefore, the universe of this research are these 500 companies along with some other companies outside the top 500 companies who make ESG reports just to gain public goodwill. From the population, it is carefully identified and selected five major sectors of the stock market based on the comparability of the financial performance of the companies operating in that sector. The five sectors found most appropriate for comparing are the IT sector, the energy sector, the auto-OEM sector, the chemical sector and the pharmaceutical sector.

Stocks from these sectors were handpicked by us according to the current market capitalization of these companies so that a bigger company is not compared with a small company which could possibly deviate the results of this study. The market capitalization data was extracted from *money control website*.

The topic is such that random sampling cannot be used as there is a greater chance that companies which lie in different market capitalization zones can be chosen. For the purpose of this study, judgemental sampling was considered as the most appropriate method of sampling as the researchers had to choose companies which were similar in nature.

Table 1: The companies chosen are listed in the table below

Name of the company	Market capitalization (latest)
HCL technologies (IT)	2.83 trillion INR
Wipro (IT)	2.14 trillion INR
ONGC (Energy)	1.74 trillion INR
NTPC (Energy)	1.70 trillion INR
Mahindra and Mahindra (OEM)	1.62 trillion INR
Tata motors (OEM)	1.56 trillion INR
Tata Chemicals (Chemical)	285.94 billion INR
Deepak nitrites (Chemical)	318.5 billion INR
Lupin (Pharmaceutical)	322.42 billion INR
Aurobindo Pharma (Pharmaceutical)	326.51 billion INR

Source: SEBI

Data collection, Analysis and Interpretation

The data is collected at source from all the companies from their published sustainability and integrated reports, which is the best possible.

Since the research is on the comparability of ESG reports, which is a qualitative characteristic, it is essential to mark the companies against certain parameters for them to be comparable. Certain objectives have been identified and presented that should be present in an ideal ESG report based on a web report published by *Price Water house Cooper Slovakia*. Further, the companies will be marked on the identified objectives that were covered or not, and if they were covered, to what extent they were covered. The idea is to allot 20 points to each objective and to rate the companies on the publication of those objectives.

The study focuses on the following parameters in ESG reporting: -

- Climate change
- Toxic emissions and waste
- Product carbon footprint
- Water stress
- Health and Safety
- Product Safety and quality
- Access to Finance
- Board Diversity
- Corruption
- Tax transparency

The first four parameters belong to the Environment component of the ESG report, followed by three components of Social and Governance objectives. A correlation analysis was conducted on

the identified companies so that a proper view can be derived of whether the companies operating in the same sector are comparable or not.

The points were awarded based on the following criteria: -

- Relevant mentioning of the topic in the ESG report - 5 points
- Description of the topic - 10 points
- Description along with numerical figures - 15 points
- Description along with numerical figures and what the company is doing to improve the topic – 20 points

Points were further added or subtracted based on the quality of information.

The correlation model is based on Karl Pearson's coefficient of correlation. Correlation has

been calculated through the use of computers, thus eliminating any human error. A correlation of 0.7 and above means that there is a strong correlation between the variables. A correlation value between 0.5 and 0.7 means that the variables are moderately correlated. A correlation value less than 0.5 means that the correlation between the variables is poor. The formula used by Microsoft Excel is: -

Fig 1:IT Sector

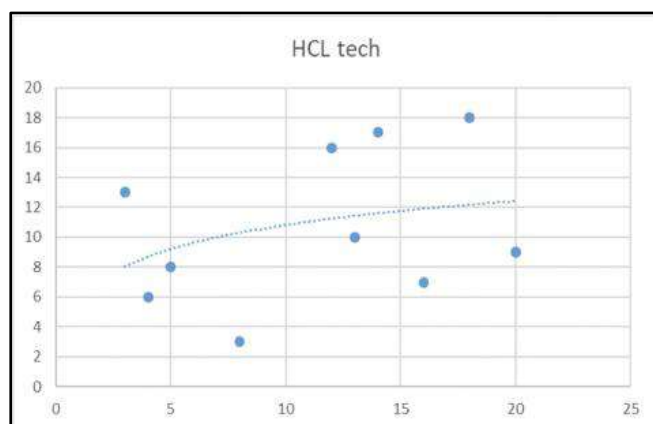
$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Table 2:

Objectives	Wipro	HCL Tech
Climate change	12	16
Toxic emissions and waste	18	18
Product carbon footprint	5	8
Water stress	4	6
Health and safety	13	10
Product safety and quality	8	3
Access to finance	3	13
Board diversity	16	7
Corruption	14	17
Tax transparency	20	9

Source: Primary Data

Fig 2: The correlation value of these two companies is 0.34.



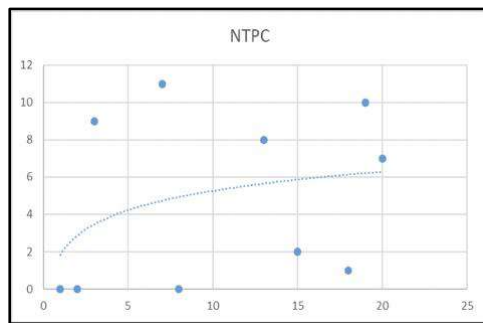
Source: Primary Data

Table 3:Energy Sector

Objectives	ONGC	NTPC
Climate change	15	2
Toxic emissions and waste	13	8
Product carbon footprint	3	9
Water stress	7	11
Health and safety	19	10
Product safety and quality	1	0
Access to finance	18	1
Board diversity	2	0
Corruption	8	0
Tax transparency	20	7

Source: Primary Data

Fig 3:



The correlation value of these two companies is 0.26.

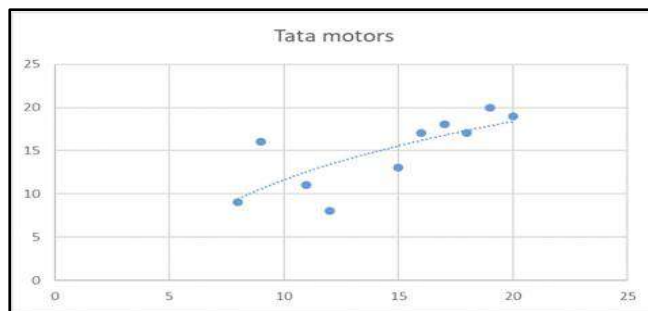
Source: Primary Data

Table 4: OEM Sector

Objectives	Mahindra	Tata Motors
Climate change	20	19
Toxic emissions and waste	19	20
Product carbon footprint	18	17
Water stress	8	9
Health and safety	15	13
Product safety and quality	12	8
Access to finance	9	16
Board diversity	17	18
Corruption	11	11
Tax transparency	16	17

Source: Primary Data

Fig 4: The correlation value of these two companies is 0.78.



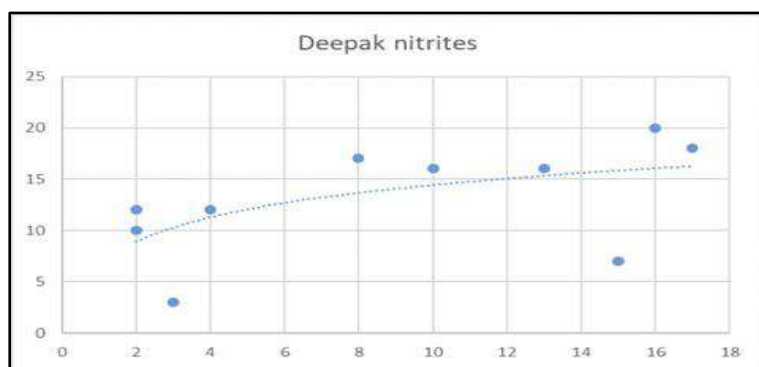
Source: Primary Data

Table 5: Chemical Sector

Objectives	Tata Chemicals	Deepak Nitrite
Climate change	10	16
Toxic emissions and waste	8	17
product carbon footprint	4	12
Water stress	2	10
Health and safety	16	20
Product safety and quality	3	3
Access to finance	2	12
Board diversity	17	18
Corruption	15	7
Tax transparency	13	16

Source: Primary Data

Fig 5: The correlation value of these two companies is 0.54.



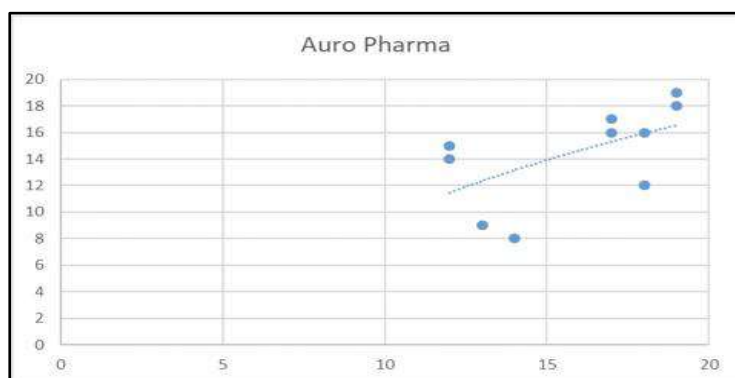
Source: Primary Data

Table 6: Pharmaceutical Sector

Objectives	Lupin	Auro pharma
Climate change	18	12
Toxic emissions and waste	17	17
Product carbon footprint	12	15
Water stress	19	19
health and safety	17	16
Product safety and quality	12	14
Access to finance	14	8
Board diversity	19	18
Corruption	18	16
Tax transparency	13	9

Source: Primary Data

Fig 6: The correlation value of these two companies is 0.57.



Source: Primary Data

As per the data collected and analysed using MS excel, it is observed that the comparability factor of ESG reports through correlation. The results of the correlation analysis on 5 sets of data produced varied results. The companies of the OEM sector produced a high correlation figure which means that the comparability of ESG reports in the OEM sector is pretty high. The companies of the Chemical and Pharmaceutical sector produced a correlation figure that was between 0.50 and 0.70 which means that they are moderately correlated with reference to

their ESG reports. The companies in the energy sector and IT sector showed little correlation between them, with the correlation value falling below 0.50 indicating that the ESG reports of those companies were not comparable with their rivals. The combined performance of all the 5 sectors has given mixed results. Only one sector produces results which suggest that ESG reports are comparable and can be used by an investor in conflicting decisions within the sector.

Testing of hypothesis

For the purpose of testing the hypothesis, the arithmetic mean of all the results is taken so that one hypothesis can be rejected, and the other hypothesis accepted. The mean correlation of all the observations is 0.49, which indicates a weak correlation on the scale. Therefore, the null hypothesis is rejected and alternate hypothesis is accepted, which proves that ESG reports of similar companies are not comparable, making it difficult for investors to take ESG reports into account before investing.

Observations

From the research it is observed that there is a growing trend in ESG and sustainability reports in India, which is clearly a positive sign. There is no doubt that an ESG report enhances the usability of a conventional annual financial statements report and provides more information to the investors, creating value over time.

Different patterns are seen in ESG reports and there is no consistency in the information presented in those reports. Some reports were entirely made up of facts and no numbers, whereas the others were too numerical to be understood by an average investor in India. Also, the information in these reports is questionable as it is not subjected to any mandatory external audit.

A trend was observed in the ESG report of companies in all the sectors. For instance, information regarding the product's carbon footprint and product safety and quality was not even mentioned in the energy sector companies. The environmental aspect of the ESG report was generally well accounted for and described in these ESG reports by all the companies.

Research Limitations

From this research it can be inferred that the ESG reporting which is being done by different companies in different sectors, but it is limited to only a few companies in a particular sector which is chosen in this paper and the reports of other companies were not taken into consideration. Results might have been different if the companies present were different rather than the ones taken.

The calculation of correlation method cannot be used in more than two units, so if there was a

third company which was to be checked, this method of calculation of correlation would not have any use.

The data provided by the companies is qualitative, so most of the data used for analysis is imaginary. These results would have gained more authenticity if there were quantitative data present. The correlation patterns might have changed if there were qualitative data in these ESG reports.

Conclusion and Suggestions

The key problem identified in this research was the comparability of ESG reports published by the companies and whether such publications would help an investor in choosing stocks in a conflicting situation. After collecting data, analysing it and finally interpreting the results, the researchers can safely conclude that the ESG reports in their current form are not comparable and such reports cannot add value to an investor's decision. The approach taken to gathering such data was purely by judgement, which can also be one of the limitations of this research.

As seen in the ESG reports, the data which is provided by the companies is more qualitative, which can be difficult to analyse for investors. So, the data which is being provided must be more quantitative as it will be easy to understand and compare for the investors. Investors should use their own scepticism before investing because the data which is being published in the ESG reports can be whitewashed as there is no legal standard or format.

Karl Pearson's coefficient of correlation was used for calculating the level of inter-relatedness of the two variables. The results produced showed that the ESG reports of only one sector were comparable (OEM sector) and the other sectors either showed moderate correlation or less correlation among the variables.

This result was expected from the study due of the lack of a standard reporting framework for ESG and sustainability report publications.

SEBI should look into such reports and try to address this problem by creating an appropriate framework for ESG reports to increase the comparability of these reports.

Hence, The Securities Exchange Board of India should make rigid rules on the preparation of ESG reports so that these reports actually make sense to an average investor. These reports should consist of relevant facts and figures that are material in nature, rather than being an advertising campaign for companies and key performance indicators (KPI) should be set up by any relevant authority regarding the performance of a company based on its ESG or sustainability report.

References

- Clements, Ryan, Why Comparability is a Greater Problem Than Green washing in ESG ETFs (August 10, 2021). 13(2) William & Mary Business Law Review 441 (2022), Available at SSRN: <https://ssrn.com/abstract=3902820>
- Boffo, R., & Patalano, R. (2020). ESG Investing: Practices, Progress and Challenges. OECD Paris. <http://www.oecd.org/finance/ESG-Investing-Practices-Progress-and-Challenges.pdf>
- Crace, L., & Gehman, J. (2022). What Really Explains ESG Performance? Disentangling the Asymmetrical Drivers of the Triple Bottom Line. Organization & Environment, 0(0). <https://doi.org/10.1177/10860266221079408>
- Rajan, M., & Kumar, R. (2021). Outlast: How ESG Can Benefit Your Business.
- PwC. (n.d.). ESG reporting. PwC. <https://www.pwc.com/sk/en/environmental-social-and-corporate-governance-esg/esg-reporting.html>
- Money control. (n.d.). <https://www.moneycontrol.com/>
- Aurobindo Pharma. (n.d.). <https://www.aurobindo.com/>
- Tata Motors. (n.d.). <https://www.tatamotors.com/>
- Mahindra Group. (n.d.). <https://www.mahindra.com/>
- Lupin Limited. (n.d.). <https://www.lupin.com/>
- NTPC Limited. (n.d.). <https://www.ntpc.co.in/>
- Oil and Natural Gas Corporation Limited. (n.d.). <https://www ONGCINDIA.COM/>
- Tata Chemicals Limited. (n.d.). <https://www.tatachemicals.com/>
- Deepak Fertilisers and Petrochemicals Corporation Limited. (n.d.). <https://www.godeepak.com/>
- Wipro Limited. (n.d.). <https://www.wipro.com/>
- HCL Technologies Limited. (n.d.). <https://www.hcltech.com/>

A STUDY OF CHALLENGES FACED BY SUSTAINABLE START UPS

Shubham Yewale

Symbiosis College of arts & Commerce

Abstract:

Today India needs a lot of entrepreneurs to progress and become a superpower and it needs young entrepreneurs who are curious, energetic, willing to do something new and strive to improve the country's economy without degrading the environment. In early age students are experiencing many challenges to setting up new businesses even setting up sustainable start-up's is more difficult. In this study, we have tried to find out challenges faced by under-graduate students while setting up a sustainable start-up. This research based on main three challenges which are external factors, personality traits and business skills. For this research we have selected eight external factors including knowledge & experience, lack of demand, team, idea generation, finance, operations, family support and competition in market. Eight personality traits included Responsibility, Creativity, Self-confidence, Motivation, Risk taking ability, Emotional stability, passion and Innovation and eight business skills included communication & negotiation, marketing, financial management, leadership, networking, time management, planning and decision making and we have tried to find out which external factor, personality trait and business skill is biggest challenge for youngster's to setting up sustainable start-up's.

Keywords: *sustainable start-ups, challenges, under-graduate students.*

Introduction:

A platform where one or a group of people create and provide products and services for people to earn money is known as a start-up and it is a first step of business. The aim of some start-ups is only to earn profit but few start-ups want to created value to their customer through innovative, problem-solving products and services.

What is a sustainable start-up? Before that, what is sustainability? Sustainability talks about ethics and morals meaning in which manner we are managing all the operations and sustainable start-up means those start-ups which are trying to protect natural resources to maintain an ecological balance as well as to achieve 17 sustainable development goals. also there are three pillars of sustainability – people, planet and profit. People included both shareholders as well as stakeholders. Planet means environment, natural resources or overall

health of the earth and every business needs a profit to keep continuing the operations. It is also known as three P's of sustainability. Whoever is following these pillars of sustainability to manage their business or operations those businesses are also called as sustainable start-ups.

The Indian government is focusing on to promote entrepreneurship. That's why the Indian government is came up with start-up India scheme under that the main goal of start-up India scheme is the development and to increase the employment rate in India. Another benefit of start-up India scheme is finance support, networking, government tenders etc. for entrepreneurs. At the time of setting up new start-ups people are facing many challenges therefore under start-up India scheme government is trying to reduce that difficulties but still, there are some challenges like self- confidence, motivation, leadership, management skills, knowledge and experience about industry etc. People are facing. Mostly undergraduate and post graduate students are facing lot of problems especially while starting a sustainable business. Every entrepreneur has to face challenges throughout their entrepreneurial journey. Setting up a new enterprise is more difficult task than other challenges and youngster's don't have prior experience because they have not faced these challenges in other situations and have not taken critical decisions throughout their life.

This research paper focuses on and provides insight into the current scenario of today's B.Com undergraduate challenges while starting a sustainable business. According to the literature review, there are so many challenges some of which are mentioned above. To do a proper study we have divided all challenges into three constructs external factors, personality traits, and business skills. So, this research aims to study all challenges under these three constructs to analyse which external factor, personality trait, and business skill is posed to be the biggest challenge while starting a sustainable business.

Literature Review:

This section addresses the findings from different factual studies on the challenges experienced by young entrepreneurs while setting up sustainable start-ups.

Hood and Young (1993) suggested a theoretical framework consisting of four primary areas where entrepreneurs must be developed which are skills and behaviour, mentality, and personality.

S. Swathy and Y. Benazir (2014) determined that finance is the major problem faced by many the entrepreneurs while starting venture. Also views competition in market, financial challenges and marketing are the main challenges faced by the young entrepreneurs.

Dr. G. Yoganandan and Mr. T. Vignesh (2017) concluded that there are six stages of

business namely Idea gathering, scanning the environment, practice ability analysis, drawing up functional plan, project report preparation, assessment, control and review and planning is a crucial factor in each and every step. Project report preparation consist of major issue for young entrepreneur.

Padmaja Peram and Dr. Bala Koteswari (2018) found that the finance is the challenge of sustainable start ups is one side of the coin and the other side is acquiring right talent at the right time is very crucial for sustainability.

Aniket Katrodia and Rosemary Sibanda (2018) concluded that Financial institutions required history of venture as well as better revenue projections but while starting business in early age young entrepreneurs are not able to satisfy both the conditions. So, for young entrepreneur's biggest challenge is lack of support from financial institutions. They also founded that the lack of business experience and family commitment, which blocks the opportunities of young entrepreneurs, was one more well known challenge facing the young entrepreneurs.

Itai Kabonga, Kwashirai Zvokumba and Brighton Nyagadza (2021) found that the lack of capital is a major challenge also there are other challenges but harassment by municipal authorities is another major challenge after capital for young entrepreneurs.

Research Gap:

There has been an increasing interest in sustainability and entrepreneurship, however there is still limited research on sustainable start-ups. Such as lack of research on areas like personality traits, skills and lack of demand for products.

Research Objectives:

- To analyse external factors posing challenge while setting up a sustainable start-up.
- To determine personality traits that are a challenge while setting up a sustainable start-up.
- To examine which business skills are deterrent to setting up a sustainable start-up.

Research Hypothesis:

H0: There is no significant impact of external factor on setting up a sustainable start-up.

H1: There is a significant impact of external factor on setting up a sustainable start-up.

H0: There is no significant impact of personality trait on setting up a sustainable start-up.

H2: There is a significant impact of personality trait on setting up a sustainable start-up.

H0: There is no significant impact of business skills on setting up a sustainable start-up.

H3: There is a significant impact of business skills on setting up a sustainable start-up.

Research methodology:

This is a qualitative research and data collected from 34 entrepreneurship specialization students through google form. All these 34 participants have started sustainable businesses few months ago so, they have experienced these challenges. All responses are collected on Likert scale and for data analysis mean method has been used. The sampling method used is stratified random sampling.

Data analysis:

While doing study on the challenges faced by sustainable start-ups the focus of this research paper has been on eight personality traits, business skills and external factors.

Hypothesis:

H0: There is no significant impact of external factor on setting up a sustainable start-up

H1: There is a significant impact of external factor on setting up a sustainable start-up.

Responses collected from students

Table 1 represent the responses of students for above external factors on a scale strongly disagree to strongly agree.

Table 1: Calculation of average mean

Sr. No.	Factors	variables >	0	1	2	3	4	Total	Mean
1	Knowledge & experience	Frequency(F)	1	0	10	20	3	34	2.70
		Fx	0	0	20	60	12	92	
2	Lack of demand	Frequency(F)	1	5	14	14	0	34	2.20
		Fx	0	5	28	42	0	75	
3	Team	Frequency(F)	1	6	6	16	5	34	2.52
		Fx	0	6	12	48	20	86	
4	Idea generation	Frequency(F)	1	3	11	16	3	34	2.50
		Fx	0	3	22	48	12	85	
5	Finance	Frequency(F)	1	4	7	14	8	34	2.70
		Fx	0	4	14	42	32	92	
6	Regular operations	Frequency(F)	1	2	11	16	4	34	2.58
		Fx	0	2	22	48	16	88	
7	Family support	Frequency(F)	3	4	10	14	3	34	2.29
		Fx	0	4	20	42	12	78	
8	Competition in market	Frequency(F)	0	2	9	18	5	34	2.76
		Fx	0	2	18	54	20	94	

Table 1 represent the average mean of each factor. variables 0,1,2,3,4 consider as scale strongly disagree to strongly agree to calculate average mean of each external factor. Here responses collected from students is considered as frequency and it represented by F, Fx is a multiplication of frequency and variables.

Most of the undergraduate students who are sustainable start-up founders agree with the

external factors such as knowledge and experience, lack of demand, team, idea generation, finance, regular operations, family support and competition in the market as challenges for sustainable start-ups. The highest average mean i.e. 2.76 indicates that competition in market is the major challenge for sustainable start-ups. Similarly, second highest mean shows that finance knowledge and experience is the another major challenges. The mean of every external factor is above two (variable- Disagree) it means everyone is facing above external factors as challenge while setting up sustainable start-ups. So, there is an impact of external factors on setting up a sustainable business. Hence, alternate hypothesis is accepted.

Fig 1: Responses on factors

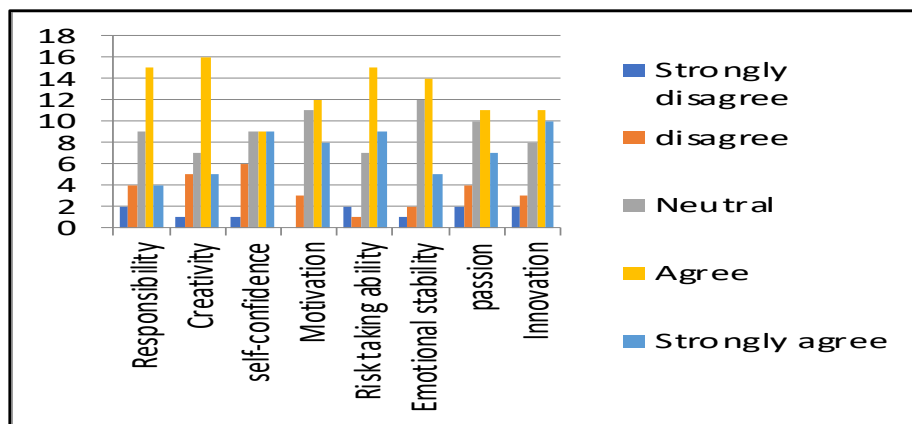
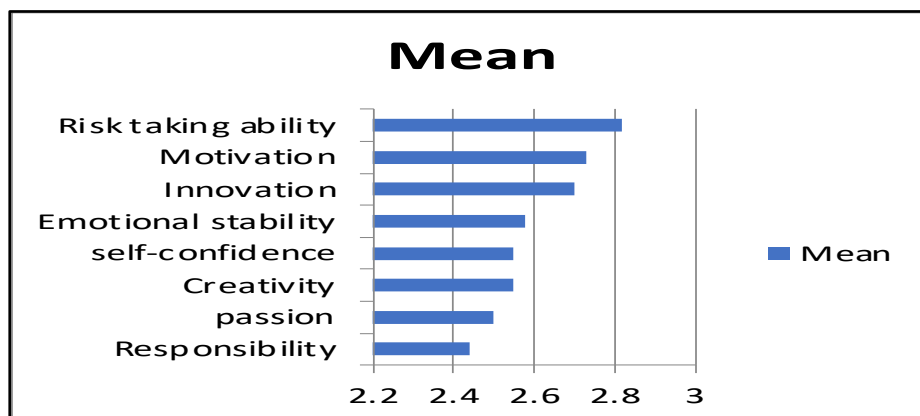


Fig 2: Mean



Hypothesis 1:

H0: There is no significant impact of personality trait on setting up a sustainable start-up.

H1: There is a significant impact of personality trait on setting up a sustainable start-up.

Table 2 represents the responses of students for above personality traits on a scale strongly disagree to strongly agree.

	Responsibility	Creativity	self-confidence	Motivation	Risk taking ability	Emotional stability	passion	Innovation
Strongly disagree	2	1	1	0	2	1	2	2
disagree	4	5	6	3	1	2	4	3
Neutral	9	7	9	11	7	12	10	8
Agree	15	16	9	12	15	14	11	11
Strongly agree	4	5	9	8	9	5	7	10

Table 2 represent the responses of students for above personality traits on a scale strongly disagree to strongly agree.

Table 3: Calculation for average mean

Sr. No.	Factors	variables ->	0	1	2	3	4	Total	Mean
1	Responsibility	Frequency(F)	2	4	9	15	4	34	2.44
		Fx	0	4	18	45	16	83	
2	Creativity	Frequency(F)	1	5	7	16	5	34	2.55
		Fx	0	5	14	48	20	87	
3	self-confidence	Frequency(F)	1	6	9	9	9	34	2.55
		Fx	0	6	18	27	36	87	
4	Motivation	Frequency(F)	0	3	11	12	8	34	2.73
		Fx	0	3	22	36	32	93	
5	Risk taking ability	Frequency(F)	2	1	7	15	9	34	2.82
		Fx	0	1	14	45	36	96	
6	Emotional stability	Frequency(F)	1	2	12	14	5	34	2.58
		Fx	0	2	24	42	20	88	
7	passion	Frequency(F)	2	4	10	11	7	34	2.50
		Fx	0	4	20	33	28	85	
8	Innovation	Frequency(F)	2	3	8	11	10	34	2.70
		Fx	0	3	16	33	40	92	

Table 3 represents the average mean of each personality trait. variables 0,1,2,3,4 are considered as scale strongly disagree to strongly agree to calculate average mean of each personality traits. Here responses collected from students is considered as frequency and it is represented by F, Fx is a multiplication of frequency and variables.

Most of the undergraduate students who are sustainable start-up founders agree with the personality traits such as responsibility, creativity, self-confidence, motivation, risk taking ability, emotional stability, passion and innovation are the challenges for sustainable start-ups and it is represented in table 2. The highest average mean i.e., 2.82 shows that risk taking ability is the major challenge for students while setting up sustainable start-ups. Similarly, second and third highest mean i.e., 2.73 and 2.70 indicates that motivation and innovation are

other major challenge after risk taking ability respectively. So, there is a impact of personality traits on setting up a sustainable start-ups. Hence, Alternate hypothesis is accepted.

Fig 3:

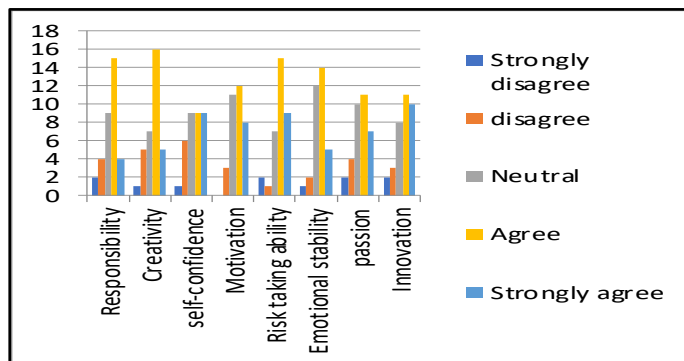
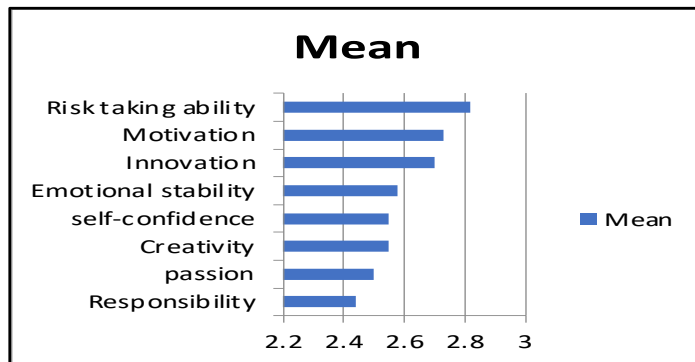


Fig 4:



Hypothesis 2:

H0: There is no significant impact of business skills on setting up a sustainable start-up.

H1: There is a significant impact of business skills on setting up a sustainable start-up.

Table 3: Represents the responses of students for above business skills on a scale strongly disagree to strongly agree.

	communication & Negotiation	Marketing	Financial management	Leadership	Networking	Time management	Planning	Decision making
Strongly disagree	2	1	0	3	1	4	1	1
disagree	3	3	5	3	2	1	2	3
Neutral	13	10	7	9	7	9	11	8
Agree	9	12	13	13	15	11	13	15
Strongly agree	7	8	9	6	9	9	7	7

Table 4 :Calculation for average mean

Sr. No.	Factors	variables ->	0	1	2	3	4	Total	Mean
1	communication & Negotiation	Frequency(F)	2	3	13	9	7	34	2.47
		Fx	0	3	26	27	28	84	
2	Marketing	Frequency(F)	1	3	10	12	8	34	2.67
		Fx	0	3	20	36	32	91	
3	Financial management	Frequency(F)	0	5	7	13	9	34	2.76
		Fx	0	5	14	39	36	94	
4	Leadership	Frequency(F)	3	3	9	13	6	34	2.47
		Fx	0	3	18	39	24	84	
5	Networking	Frequency(F)	1	2	7	15	9	34	2.85
		Fx	0	2	14	45	36	97	
6	Time management	Frequency(F)	4	1	9	11	9	34	2.58
		Fx	0	1	18	33	36	88	
7	Planning	Frequency(F)	1	2	11	13	7	34	2.67
		Fx	0	2	22	39	28	91	
8	Decision making	Frequency(F)	1	3	8	15	7	34	2.70
		Fx	0	3	16	45	28	92	

Table 4. represents the average mean of each personality trait. Variables 0,1,2,3,4 considered as scale strongly disagree to strongly agree to calculate average mean of each personality traits. Here responses collected from students are considered as frequency and it represented by F, Fx is a multiplication of frequency and variables. Most of the undergraduate students who are sustainable start-up founders agree with the business skills such as communication and negotiation, marketing, financial management, leadership, networking, time management, planning and decision making as challenges for sustainable start-ups and is represented in table 3. The highest average mean i.e., 2.85 shows that the networking is the major challenge for students while setting up sustainable start-ups. Similarly, second highest mean i.e., 2.76 indicates that financial management is the another major challenges after networking So, there is a impact of business skill on setting up a sustainable business. Hence Alternate hypothesis is accepted.

(Graphical representation of Table 3.1 and Table 3.2)

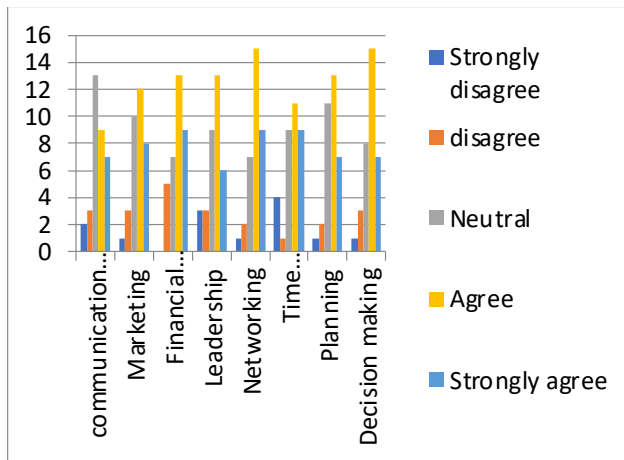


Table 3.1

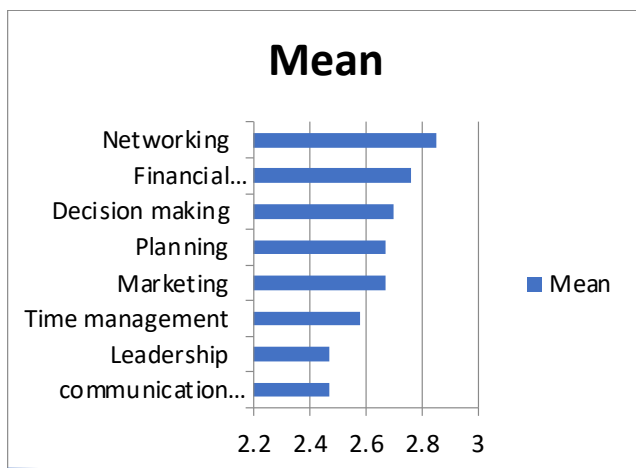


Table 3.2

Future scope for study:

There is an impact of gender on the sustainable start-ups. So, there is a scope to study how gender is impacting on sustainable start-ups and what are the reasons.

Student can collaborate with various NGO's and sustainability promoting platforms instead of starting on their own. So, there is a further scope for study as to how and when they can collaborate and the benefits of collaboration.

On funding and Government schemes front further study can explore how students can get fund for their own start-ups while studying and different government schemes that are beneficial for students.

Conclusion:

India needs many young entrepreneurs and as India is a country of youth, there is a scope for entrepreneurship. There for identifying correct problem and identifying suitable solution to

that problem is very important for a sustainable business. The study inferred that idea generation is not a major challenge. It was found that competition in market is the most challenging external factor. Risk taking ability is another biggest challenging personality trait for under-graduates. To run all operations and to grow business few general as well as technical skills are very important and entrepreneurs need to have those skills. Entrepreneurs can learn other skills with experiment and experience. Networking skill is very important as the success depends on these skills. Sustainable start-ups require definite skill sets and abilities in entrepreneur to succeed.

References

- Dutta, A. (2023). Challenges faced by young undergraduate students while setting up a sustainable start-up. *Journal of Entrepreneurship Education*, 26(2), 1-10. <https://doi.org/10.1108/JEE-07-2022-0123>
- Singh, A. (2023). Impact of External Factors, Personality Traits, and Business Skills on Setting up a Sustainable Start-Up. *Journal of Entrepreneurship*, 5(1), 12-22.
- John, R. A. (2017). Challenges faced by student entrepreneurs while setting up business. *International Journal of Research in Management, Science & Technology*, 5(1), 1-10. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=challenges+faced+by+student+entrepreneurs+while+setting+up+business+&btnG=#d=gs_qabs&t=1666682789552&u=%23p%3DFPh-qcVDMawJ
- Sultana, S., & Manzoor, Q. A. (2017). A study on the challenges faced by the Entrepreneurs. *International Journal of Economics, Commerce and Management*, 5(9), 210-216. Retrieved from https://www.researchgate.net/publication/318094156_A_study_on_the_challenges_faced_by_the_Entrepreneurs
- Hood, J. N., & Young, J. E. (1993). Entrepreneurship's requisite areas of development: A survey of top executives in successful entrepreneurial firms. *Journal of Business Venturing*, 8(2), 115-135.
- Swathy, S., & Benazir, Y. (2014). Challenges faced by student entrepreneurs in India. *International Journal of Research in Management, Science & Technology*, 2(2), 9-14.
- Yoganandan, G., & Vignesh, T. (2017). A study on the various stages of business development and the challenges faced by young entrepreneurs. *International Journal of Scientific Research and Management*, 5(8), 6191-6197.
- Peram, P., & Koteswari, B. (2018). Challenges faced by startups in India: An analysis. *International Journal of Recent Technology and Engineering*, 7(6), 479-484.
- Katrodia, A., & Sibanda, R. (2018). Challenges faced by young entrepreneurs in Zimbabwe. *International Journal of Applied Engineering Research*, 13(7), 5375-5380.

PIONEERING WOMEN AS PROMOTERS OF SUSTAINABLE BUSINESSES: A CASE STUDY APPROACH

Shraddha Paithankar, Archita Jain, Anushriti Majumdar
Symbiosis College of Arts and Commerce

Abstract

Women leaders around the globe have been making significant impacts in sustainable development. Women entrepreneurs are making immense contributions with regards to achieving sustainable businesses through small, medium, and micro enterprises. As leaders, women ensure that carbon dioxide emissions are measured and implement programs that lead to reductions. They are also working to integrate the effects of climate change into their models. Sustainability in businesses not only helps in the reduction of costs but is also helpful in increasing customers as it acts as an appeal to people valuing sustainability. Objective of this study covers an extensive range of the development of women entrepreneurs to their contribution as pioneers of sustainable businesses and economy. A combination of qualitative and quantitative research methodology has been used for this study. Be it in a developed or a developing country, it is a proven fact that women are running the most successful and largest enterprises in the world. The National Sample Survey Organization conducted a study that revealed 14% of businesses in India are operated by women who actively drive sustainability initiatives in various industries including textiles, cosmetics and healthcare. Considering the social impact such sustainable businesses have, it is extremely important for us to understand how women and their skills can be utilized completely for a more sustainable economy.

Keywords: *National Sample Survey Organization, Carbon Emissions, Women Entrepreneurs, Research Methodology*

Introduction

Women have the power to create, rebuild, nurture and transform. Investing in women's lives is an investment in sustainable development, which ultimately leads to global well-being. The concept of sustainable development aims to achieve a balance between three key elements: the environment, social equity, and economic growth. It recognizes that resources are limited and should be conserved and managed prudently. The concept of sustainable development

focuses on meeting the needs of the present generation without compromising the ability of future generations to meet their own needs in the long term. Sustainable development is a holistic approach that not only focuses on the conservation of nature, resources, and communities but also emphasizes the development of the economy, individuals, and society. It aims to ensure that the current needs are met without compromising the ability of future generations to meet their own needs. This research paper explores the contribution of women towards Sustainable Development through the choice of their business or through the business itself.

Background

The term ‘Sustainable Development’ was first introduced in 1987 by the World Commission on Environment and Development, also known as the Brundtland Commission. This concept aims to address current challenges while ensuring that future generations are not deprived of the resource’s necessity.

Sustainability is an important factor in the decision to invest in a particular company because it is closely related to the variables that affect Research and Development investments. The Sustainable Development Goals (SDG) are defined as a set of 17 different goals that will guide the achievement of sustainable development by 2030. These goals can be mapped into three different dimensions.(www.sdg.un.org/goals)

The economic dimension of sustainable development involves the analysis of the cost-benefit ratio and the creation of profitable business opportunities while minimizing risks. The social dimension of sustainable development is focused on ensuring personal health and safety and complying with relevant laws and regulations to improve the well-being of society. The environmental dimension focuses on improving efficiency, resource utilization, and minimizing the impact of activities on the environment.

But the question arises that how pioneering women as the promoters are going to contribute to the cause. A woman does not restrict herself to taking care of and meeting the needs of the family members but also makes more ethical choices and pays close attention to sustainable lifestyles. If we think carefully, if these women can run a house on a given budget to meet everyone’s needs without comprising their health and resources what wonder these women can do in running a sustainable business? The environment for women entrepreneurs in India is changing quickly. In 2017, there was at least one-woman director in 29.5% of all start-ups registered with the DPIIT (*Department for Promotion of Industry and Internal Trade*),

Ministry of Commerce and Industry, Government of India. The same percentage had exponentially climbed to 47% as of November 7th, 2022. Additionally, there is a rise in the number of female entrepreneurs operating in industries like healthcare and lifestyle, food and beverage, information technology services, and education, among others. (www.startupindia.gov.in). It is evident that businesses and corporations are actively incorporating Environment, Social and Governance dimensions into their Business Responsibility and Sustainability Reporting (BRSR). There is transition of businesses towards implementing environmentally friendly practices. At the backdrop of COP 26 and COP27, there is a much stronger push by the government towards sustainability and Corporate Social Responsibility (CSR). ESG is increasingly being viewed as more than just an unavoidable duty. Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) is clear: "The climate crisis is a global systemic threat. Some of the consequences of the climate crisis are already irreversible, even if global warming can be stopped in the future. If further irreversible damage is to be avoided, global action on climate change must be urgently and significantly stepped up. The connection between women's entrepreneurship and the promotion of more inclusive, "green" and "smart" growth is often underestimated. In fact, women are more attracted to "green" industries than to traditional ones. For example, the renewable energy sector has a higher percentage of women in the workforce - 32% compared to 22% in the fossil fuel sector. UNIDO research also shows that women entrepreneurs are more likely to start and expand their businesses in green industries than in traditional industries.

Literature Review

The extant literature reviewed brings to the forefront research done in the field of Women and Sustainable business. Paper written by **Stevens (2010)** on the topic '*Are women the key to sustainable development?*', talks about very few women reach the top ranks of business and management. Various explanations for this include traditional mindsets, the glass ceiling, or the old boys' network. She has concluded by stating, the failure to achieve sustainable development may be largely attributed to the lack of progress on gender equality. There could be more quick and confident advancement towards economic, social, and environmental sustainability if women held more productive and executive positions, because it involves excellent governance, which will be challenging to achieve until we are closer to gender parity, sustainable development is a political term.

Another paper written by **Miles (2011)** on the topic, '*Embedding gender in sustainability reports*', sheds light on major shareholders in businesses is the investor. In the world of

investing, there is a growing consensus that organisations that support gender diversity and empower women may do better in the long run than those that do not. One potential measure of an organization's financial health is gender performance.

Kaakeh, Shirazi, and Gokmenoglu (2019) in their research paper '*The Extended GREEN-A Framework: A Gender Comparison in Consumer Support for Sustainable Businesses Practices*', talks about characteristics of consumer support for GREEN-A model-based sustainable business practices. To study the influence of gender, three different models were developed. Findings for all three models show that customer support for sustainable business in Pakistan is most strongly influenced by green advertising strategies. Our gender-specific models show that while the quality of life is fundamental for males, ethical practices are crucial for women.

Mohan, Rubigha, and Nalin (2021) researched on, '*Re-thinking the Role of Women in Sustainable Business Leadership*', and according to their finding a tremendous potential to increase the participation of women in higher leadership positions is created by the worldwide shift towards gender equality and, consequently, sustainability. Despite the significant contributions that female leaders from all over the world have made to sustainable development, patriarchally characterised organisations do not always treat women's leadership abilities equally to those of men. Through their environmentally, socially, culturally, and economically responsible governance, women play a crucial part in advancing sustainability and moving towards the global goals. This literature study highlights the inherent skills and moral principles that female leaders bring to the table, pinpoints the underlying causes that slow the advancement of women into higher leadership positions, and suggests the areas that need immediate attention.

The review of literature done emphasizes the role of gender with specific reference to women in making a business sustainable. This study focuses on cases of women who have started their business with the vision of sustainability.

Research Methodology

This study is exploratory in nature and involves the collection of secondary data to review the experiences of women entrepreneurs who own sustainable businesses. The data for this study is gathered from a variety of sources, including academic articles, government reports, and case studies on women-led sustainable businesses in India.

Research Objectives

1. To explore the role of women entrepreneurs in sustainable development

2. To understand the nature of the sustainable businesses owned by women entrepreneurs.
3. To analyze the case studies of women led sustainable business and comprehend their contribution to triple bottom line.

Case Studies

From the Case studies reviewed it is observed that women entrepreneurs are seen to be making positive contribution towards sustainability through their businesses. One could argue that sustainability is a crucial area of attention for women-led start-ups, and this trend is seen across industries with dynamic products, services, and practices. Some of the women who have showcased sustainable work are:

Case 1: The Women's Company by Anika Parashar

Anika Parashar is a highly accomplished entrepreneur and business leader who has made significant contributions to the Indian startup ecosystem. With a strong background in technology and business, Anika has carved a niche for herself in the field of agri-tech by founding and leading one of India's largest fresh produce supply chain companies, The Women's Company. Anika is widely recognized for her expertise in building sustainable and scalable business models that have a positive impact on society. Her leadership and vision have enabled The Women's Company to become a leading player in the agri-tech space and create meaningful opportunities for women farmers and entrepreneurs in India. The Women's Company, led by Anika Parashar, is a sustainable business in multiple ways. Firstly, the company is committed to using only natural, organic, and ethically sourced ingredients in their products. This not only ensures the health and well-being of their customers but also supports local farmers and communities.

Secondly, the company is focused on promoting and supporting women's health and wellness, with a specific focus on menstrual health. The Women's Company provides a range of products, including menstrual cups and pads, that are eco-friendly and reusable, thereby reducing waste and promoting sustainability.

Thirdly, The Women's Company is a social enterprise, meaning that it reinvests a portion of its profits back into the community. The company partners with non-profits and organizations working towards women's health and empowerment, thereby contributing to sustainable social change. In terms of how The Women's Company is different from men, the company's focus on women's health and wellness is a key differentiating factor. The company understands the unique needs and challenges faced by women in terms of menstrual health, and provides products and services tailored to these needs. Additionally, as a social

enterprise, The Women's Company is committed to promoting sustainable social change, something that is often missing in traditional male-led businesses. (www.thewomanscompany.com).

Case 2: Rechakra by Amita Deshpande

Recharkha is a social enterprise based in India that aims to tackle the issue of waste management and promote sustainable living. The company produces eco-friendly products made from upcycled materials, such as bags, wallets, and home decor items. Recharkha not only provides a solution to waste management but also generates livelihood opportunities for underprivileged women through their training and employment programs. The company's unique business model focuses on creating value from waste and promoting a circular economy. With a vision to create a greener and cleaner planet, Recharkha is making a positive impact on both the environment and society. Amita Deshpande is an accomplished leader in the field of education and social development in India with a master's degree in Business from Purdue University. She worked with CSR teams of multinational corporations, consultancies, non-profits, and community-based organizations in the United States and India and eventually founded AarohanaEcoSocial Developments which is now renamed as recharkha. With her Eco Social vision and boundless energy, Amita designs our Eco Social projects, heads our communication and awareness generation efforts, and looks after the overall management of recharkha and My EcoSocial Planet. Amita's long-standing dream is to develop a sustainable village and live in it herself, which she wishes to fulfil through reCharkha and My EcoSocial Planet. (*Recharkha, n.d.*)

Case 3: Maisha Lifestyle by Esha

Maisha Lifestyle is a sustainable fashion brand that creates ethically made clothing using eco-friendly materials such as organic cotton, linen, and hemp. The studio has been created using more than 90% of inputs which are used and upcycled. Some of the articles that they have created are more than 70 years old and were lying in a run-down condition at a dealer of waste material. Their products are perfectly at home when they are displayed at their studio which itself is situated in serene surroundings. They believe in slow fashion and create timeless pieces that can be worn for years, rather than trendy items that go out of style quickly. Maisha Lifestyle also prioritizes fair trade and pays their workers fair wages. In addition, the brand uses eco-friendly packaging materials and aims to minimize waste throughout their production process. They were featured on Shark Tank India for their work

and through their sustainable practices, Maisha Lifestyle is contributing to a more sustainable fashion industry. Esha Shah is the founder of Maisha Lifestyle, a sustainable fashion brand that promotes eco-friendly and ethical practices in the industry. Esha has always been passionate about fashion and design, but she also believes in the importance of sustainability and ethical practices. This motivated her to create Maisha Lifestyle, where she could combine her love for fashion with her dedication to the environment.

Case 4: KaSha crafted by KarishmaShahani

Ka-Sha is an innovative and sustainable fashion brand that offers eco-friendly and contemporary clothing. They are well-known for their unique designs that incorporate new techniques, such as using discarded plastic bags to create jackets, revamping second-hand sneakers into stilettos, and converting discarded chandeliers into beautiful jewellery. Additionally, they hem skirts with old Benarasi sari borders and fashion crop tops out of discarded T-shirts and leftover fabric. This hip clothing brand aims to create a new style out of every piece of 'junk' and contributes towards a sustainable future. Karishma Shahani is a sustainable fashion designer and the founder of the label "Ka-Sha" based in India. She holds a Master's degree in Fashion Design from the Domus Academy in Milan, Italy. Her brand "Ka-Sha" aims to promote sustainable fashion by creating contemporary designs that are eco-friendly, socially responsible, and culturally rooted. She uses natural fabrics and dyes, upcycled materials, and handicraft techniques to create unique pieces of clothing. Karishma's approach to fashion is not only focused on sustainability but also on creating a positive impact on society and promoting the Indian handicraft industry.

Case 5: Boro by Paromita Banerjee

Paromita Banerjee's upcycling fashion label, Boro, takes its name from the Japanese term for "too good to waste." The brand's three distinct collections embody this philosophy, paying homage to its namesake. Banerjee challenges Indians to view recycling not as mere "jugaad" but as a creative approach to sustainable fashion. She blends a mix of fabrics, including traditional Ajrakh prints, weaves, and Bagh-printed textiles in Khadi, to create unique designs that showcase the beauty of upcycling.

Analysis of the Case Studies

Sustainability is crucial for businesses in today's world, and four sustainable businesses in India, namely The Women's Company, Rechakra, Maisha Lifestyle, KaSha, and Boro provide excellent examples of how companies can prioritize sustainability in their operations. The Women's Company, led by Anika Parashar, is a sustainable business committed to ethical sourcing and circular economy practices. The company only uses natural and ethically

sourced ingredients in their products, and their focus on promoting women's health and wellness through eco-friendly and reusable products reduces waste and supports sustainability. The Women's Company also contributes to sustainable social change through partnerships with non-profits working towards women's health and empowerment.

Rechakra, founded by Amita Deshpande, promotes a circular economy by creating eco-friendly products made from upcycled materials, generating livelihood opportunities for underprivileged women through their employment programs. The company's business model focuses on creating value from waste, making a positive impact on both the environment and society.

Maisha Lifestyle, founded by Esha Shah, is a sustainable fashion brand committed to ethical sourcing and minimizing waste through eco-friendly packaging materials. The brand uses eco-friendly materials such as organic cotton, linen, and hemp and pays their workers fair wages. Their focus on slow fashion and creating timeless pieces also contributes to a more sustainable fashion industry.

KaSha, founded by Karishma Shahani, is an innovative and sustainable fashion brand that incorporates circular economy practices. The brand uses discarded plastic bags and other materials to create new products and converts "junk" into beautiful jewelry, contributing towards a sustainable future.

Paromita Banerjee's fashion label, Boro's brand philosophy is reflected in its three distinct collections. Banerjee encourages people to see recycling as a creative approach to sustainable fashion and combines various fabrics, such as traditional Ajrakh prints, weaves, and Bagh-printed textiles in Khadi, to create one-of-a-kind designs that showcase the beauty of upcycling. This approach reflects the technical concept of upcycling, which involves taking discarded materials and turning them into something of greater value.

These case studies demonstrate how businesses can prioritize sustainability through ethical sourcing, circular economy practices, social responsibility, and minimizing environmental impact.

Women's involvement in sustainability

The aforementioned cases serve as a testament to the transformative power of women in business, who have the ability to elevate it to new heights while simultaneously making it sustainable.

It is evident that women-led businesses are actively contributing to sustainability through their innovative and unique approaches. They prioritize social and environmental responsibility, as they have a greater stake in promoting sustainable practices for future

generations. Furthermore, studies have shown that women are more likely to engage in pro-environmental behaviours such as recycling, energy conservation, and sustainable transportation options.

One reason for this trend is that women tend to be more aware of the impact of environmental degradation and climate change on society. They have a deeper understanding of the issues at hand and are more likely to take action to address them, both through individual action and collective efforts.

Additionally, women's socialization and role in society play a crucial role in their inclination towards sustainability. Women often take on caregiving responsibilities, which include taking care of their families, communities, and the environment. This sense of responsibility towards others and the environment can translate into a greater interest in sustainability and a commitment to making positive changes in the world.

In conclusion, women are more inclined towards sustainability than men. This trend is driven by various factors, including women's awareness of the impact of environmental degradation and climate change, their sense of social responsibility, and their underrepresentation in leadership positions in the business world. It is essential to recognize and support women-led businesses' efforts towards sustainability and encourage more women to take on leadership roles in promoting sustainable practices.

Conclusion

In conclusion, this research paper explores the role of women entrepreneurs in sustainable development through their choice of business or the business itself. Sustainable development focuses on balancing three key elements: environment, social equity, and economic growth. Women entrepreneurs are seen to be making a positive contribution towards sustainability through their businesses. The case studies reviewed in this paper provide examples of women-led sustainable businesses in India. Women entrepreneurs are committed to creating and running sustainable businesses that are socially responsible and environmentally friendly. These businesses have a positive impact on society, support local farmers and communities, promote a circular economy, and contribute to sustainable social change. Therefore, investing in women's lives and empowering them to become entrepreneurs is an investment in sustainable development, which ultimately leads to global well-being.

Suggestions

Firstly, establishment of a government-led initiative to provide financial and technical support for women-led sustainable businesses. While there are various schemes and programs that provide funding and support for women entrepreneurs in India, there is still a

lack of focus on sustainable businesses and the need for a triple bottom line approach to business. By establishing a dedicated program that focuses on sustainable women-led businesses, the government could provide much-needed support for these businesses and help them to scale and grow, while also contributing to sustainable development goals in the country.

Another potential solution is to promote greater collaboration between women-led sustainable businesses in India and international organizations or businesses. This could include partnerships with global brands that are committed to sustainability and ethical practices, or collaborations with international organizations that provide technical support or expertise in sustainable business practices. By establishing these partnerships, women-led sustainable businesses in India could gain access to new markets, technology, and expertise, which could help them to become more competitive and sustainable in the long run.

Take efforts to support women entrepreneurs with forward-thinking business practices that contribute to climate change goals should also be a priority. Energy, industry, forestry, transportation, and agriculture are the sectors with the greatest potential to reduce GHG emissions, mostly from the supply side. In the industrial sector, achieving zero carbon emissions by 2030 will require a bold and concerted commitment to a full range of mitigation measures, including energy and material efficiency, circular material flows, and the transformation of production processes. Measures must be taken.

References

- Purohit, H., & Bhardwaj, A. (2021). Women Entrepreneurs as Pioneers of Sustainable Businesses: An Exploratory Study. *International Journal of Management, Technology, and Social Sciences*, 7(1), 22-34.
- World Commission on Environment and Development. (1987). *Our Common Future*. Oxford: Oxford University Press.
- Startup India. (n.d.). Retrieved April 29, 2023, from <https://www.startupindia.gov.in/>
- Stevens, C. (2010). Are women the key to sustainable development? *Gender & Development*, 18(2), 263-274.
- Miles, V. (2011). Embedding gender in sustainability reports. *Journal of Business Ethics*, 99(4), 569-585.
- Kaakeh, B., Shirazi, F., & Gokmenoglu, K. K. (2019). The Extended GREEN-A Framework: A Gender Comparison in Consumer Support for Sustainable Businesses Practices. *Sustainability*, 11(20), 5771.
- Mohan, N., Rubigha, A. K., & Nalin, V. (2021). Re-thinking the Role of Women in Sustainable Business Leadership. *International Journal of Entrepreneurship*, 25(2), 1-9.
- Parashar, A. (n.d.). *The Women's Company*. Retrieved from <https://www.thewomanscompany.com>
- Shah, E. (n.d.). *Maisha Lifestyle: Sustainable Fashion Brand*. Retrieved from <https://maishalifestyle.com/>
- Shahani, K. (n.d.). *Ka-Sha*. Retrieved from <https://www.kapdavintage.com/pages/about-us>

- Banerjee, P. (n.d.). Boro - Sustainable fashion label. Retrieved from <https://www.paromitabanerjee.com/boro>
- Sustainable Development Insight, Boston University Publication. (n.d.). Retrieved from <https://www.bu.edu/sustainability/resources-tools/sustainable-development-insight/>
- Shinomiya, N. (2020, November 18). Empowering Women Through Sustainable Businesses. Forbes. <https://www.forbes.com/sites/japanesevisionarywomen/2020/11/18/empowering-women-through-sustainable-businesses/?sh=49242c616bd7>
- Choudhary, S. (n.d.). Sustainable Development: Unit 3. Chaudhary Charan Singh University. https://ccsuniversity.ac.in/bridge-library/pdf/DHA-MHA-403_Unit3.pdf
- OECD. (2006). Promoting entrepreneurship and innovative SMEs in a global economy: Towards a more responsible and inclusive globalisation. <https://www.oecd.org/cfe/smes/31919215.pdf>
- Recharkha. (n.d.). Our Eco-Social Tribe. Recharkha. <https://www.recharkha.org/pages/recharkha-our-ecosocial-tribe>
- Maisha Lifestyle. (n.d.). About Us. Maisha Lifestyle. <https://maishalifestyle.com/pages/about-us>

A Study on Gender Equality and Recruitment Policy at Workplace

Sakshi Popli, Jyoti Ratnani

M.COM, Symbiosis College of Arts and Commerce

Abstract

Recruitment, pay range and Experiences of employees are differentiated on the basis of the gender. The literature review reveals that there is a gap in the research in the field of the recruitment decision of an employer and the experiences based on the gender. The researchers are conducting this research to substantiate the findings. The data will be collected through primary as well as secondary sources. Primary data will be collected through a questionnaire from the employees of the financial and education sector and secondary data will be fetched from the various books and research papers written earlier. There has been observed an existence of gender parity, which affects the various factors while hiring and retaining the employees.

Key words -gender, employer, employees, pay, work place experience

Introduction

“Education is the most powerful weapon which you can use to change the world” – Nelson Mandela. Education sector plays a crucial role in the economy. It is an arrangement with the primary aim of providing education to the learners. It is a group of educational institutions, training centres, schools, universities, local educational authorities. The services in the sector are delivered by teachers, mentors and trainers.

“Money is a terrible master but an excellent servant.” P.T. Barnum. Financial sector is created by clubbing the financial institutions, banks, credit card company, consultancies, insurance, accountancy etc. They provide financial services and consultancy to the individuals, organisation and families. Financial sector has been a vital part of the economic development as all the economic transactions are monitored through the same sector.

In the last few years there has been a significant contribution by women in the corporate or employment sector but even in the 21st century the opportunities given to women are lesser and positions offered undervalued which results into lower pay to the females in comparison to the males. It has been seen that educated and working women help educate the entire family. Women are not only underpaid by they also sometimes they face harassment at their workplace. Today, also some organisations do not provide women with the maternity leave or menstruation leave and also they are not provided with good working conditions sometimes.

Women are still under presented in certain fields such as physical science, engineering and high level position though it said that women are given equal opportunity to pursue education and career. When there is a discrimination at workplace it reduces the morale of the employees which leads to the reduction in the productivity of the organisations. Discrimination at workplace can be on the basis of age, gender, experience, educational qualification, etc. Women are considered to have various responsibilities including raising a child, looking after family etc and thus are given unequal opportunities by an employer. For economic and holistic growth, it is important to have gender equality. Economic, legal and social laws are manipulated to discriminate against women. Recently gender inclusivity and equality has become a concern and we as a society needs to follow the same to have an overall growth. This paper aims to understand what all are the experiences of the women employees throughout the journey and also understand how gender affects the decisions of the employers.

Literature Review

Wage differential and wage discrimination by gender, sector of employment and caste: A study of secondary school teachers in Chennai (2002) by Geetha. The paper talks about the engagement of women in the work force and the working conditions of women work force. It also talks about the theories of discrimination and the wage differentials. The conclusion has been drawn that there has been significant gap in the pay between males and females.

Urbanization, Economic Development and Gender Equality in Employment in India (2018) by Ruby Jain. The paper focuses on urbanization, economic and social development and co relate the factors affecting the same. There researcher emphasized on the role of gender equality in the development of the nation in various aspects and highlights the drawbacks of undervaluing women employability.

Gender Inclusivity in Corporate Leadership in Indian IT Industries (2014) by Dr. Aisha Sheriff. The study focuses on the evolution of the IT sector in India and its history. It also suggests that IT sector has the most women employees and the has been paving the way for equal opportunities irrespective of the gender as talent is very much required in the IT field and gender inclusivity has become a need of an hour.

Gender Micro aggression in Corporate Workplaces – An Exploratory Study (2021) by Medha Paranjape. The paper defines what genre micro aggression is and what all are the factors causing the micro aggression at the workplace. The study focuses on to understand the experiences of women employees during their corporate journey and are being caused based on the gender. The paper also states that gender equality also includes right to giving equal

responsibilities, opportunities, and pay.

Analysis and Comparison of Stress among Males and Females in BPOs in NCR, India (2010) by Sonal Pathak. The paper specifically differentiates between the level of stress among employees with respect to their gender. The way of dealing with stress differs from person to person and the responses of the stress too. Males tend to have certainly different response than females as the body reacts differently. Various factors are considered including shifts, culture, work life balance, health, job security, self-esteem, etc. It also defines the stress and its type.

Bullying of Teachers in the Workplace: A Phenomenological Study (2016) by Alma C. Tolentino. This paper focuses on bullying of teachers specially in Davao City and Davao del Sur in the Philippines. Four major types of bullies are experienced by them emotional bullying, verbal bullying, physical bullying, and cyber bullying. These bullies affect them negatively in their workplaces.

Status of women at workplace an understanding of gender discrimination and harassment (2017) by Bhattacharyya, Shalmoli. This paper focuses on to which extent women faces harassment at their workplaces and how they cope with it. Mainly the causes, impact and consequences of harassment are discussed. Different type of theories and perspectives of scholars are also given. The solution for minimizing this problem is also discussed.

Women's rights in India A study with special reference to gender justice at workplace (2020) by Maurya, Amit Kumar. In this paper, it is discussed that women are denied of the basics right which are minimum or equal wages, education, property right, skill training, etc. Women at their workplace are considered as a supplementary worker and not provided with the same benefits as of male employees. Workplace where the chemical exposure is more there they do not take care of a female reproductive health and poor working conditions. Therefore, fundamental rights of workplace are also discussed.

A Study on Workplace Discrimination in Banking Sector of Rajasthan with Reference to Selected Public and Private Banks in Seven District of Rajasthan (2019) by Vasudha Sharma. This paper focuses on the study whether discrimination is existed in the banking sector or not and if existed than what type of discriminations are there and their impact on the employees of the banking sector of Rajasthan.

Perceived impact of gender issues on organizational performance in banks (2015) by Mahindra and Kapila. This paper focuses on the discrimination at bank work place take place on the basis of age, gender, designation, marital status, family type, background, educational qualification and experience,

Research gap

The researcher has studied the topic and found that there was no prior research done about the different situations experienced by employees based on gender from the education and financial sector. The literature review revealed there is no concrete study done on the same.

Objectives

- To understand how gender affects the selection/recruitment decision of an employer in the financial and education sector.
- To know and understand the existence of pay gap with reference to the gender in the financial and education sector.
- To know the different situations experienced by the employees from the financial and education sector based on gender.

Hypothesis

H0-Gender does not impact the recruitment.

H1-Gender impacts the recruitment.

H0-Gender and pay scales are not related.

H1-Gender and pay scales are related.

Research methodology

This research study is focused to understand the impact of gender in the decision of employers with respect to aspects including pay range, hiring and retaining the employees along with the challenges faced. The source of research was broadly classified into primary and secondary data.

Sample Size is inclusive of 30 employees interviewed. 15 from the education sector and 15 from the financial sector.

Source of data

Primary Data

It is collected through questionnaires and observations from the employees of the financial and education sector, 15 employees were interviewed from each sector respectively. A few interviews were taken over the telephone, some were taken on the place of their business and some on email. Secondary data was collected through the various research papers and articles which are mentioned in the literature in the review section of the paper.

Analysis and interpretation

Education sector

- The survey has been conducted and responses has been collected from teaching staff working in different institutions across states in India.

- Among 15 respondents, 80% (12) were females and 20%(3) were males.
- The survey has been circulated in different states in India and responses have been collected from employees working in the education sector. Responses have been raised by the staff from different schools, institutes and universities.
- Statement has been made saying that they have encountered gender-based discrimination during the hiring process, 13.3% (2) of the respondents choose to disagree with the same and rest 86.7% (13) strongly disagreed, which reflects that in the education sector there is no discrimination happening based on the gender of the employees.
- To conclude the status of the opportunities for growth for the employees based on gender, a statement was made that you have noticed a lack of opportunities because of the gender. 6.7% (1) of the respondents agreed to the same, 6.7% (1) of the respondents disagreed and rest 86.7% (13) strongly disagreed with the statement. It shows that there is a slight possibility of encountering lack of opportunities by female in the education sector.
- The women employees are paid lesser was the statement put forward for the respondents and 13.3% (2), 86.7% (13) of the respondents disagreed and strongly disagreed respectively which concludes that there is no pay gap based on gender in the education
- The capabilities of women employees are underestimated, 6.7% (1) of the respondents was neutral to this, 13.3% (2) of them disagreed and 80% (12) of them strongly disagreed to the same. This also states that women employees are not underestimated in the sector and are exposed to the opportunities.
- It was asked that their growth and promotion is being affected due to their gender. So, 6.7% (1) agree to it, 13.3% (2) were neutral to this, 6.7% (1) disagree and remaining 73.3% (11) strongly disagree with it. This shows that promotion and growth does not get affected due to their gender in the educational sector.
- Opportunities are given on the basis of gender in the educational sector. On this 13.3% (2) strongly agree, 6.7% (1) was neutral, 13.3% (2) disagree and the remaining 66.7% (10) strongly disagree. This shows that in few institutions of the education sector still gender basis exists but most of it do not have this gender basis.
- The employees of the education sector were asked if they have ever experienced the gender biased nature of their manager or employer. So, everyone strongly disagrees

with it. That means managers or employers do not discriminate on the basis of gender of their employees.

Financial sector

- The survey was conducted and the response was collected from the employees of the different banks working all over India.
- There were 15 responses in which 67% (10) were males and 33% (5) were females.
- The data was collected through the circulation of form to the employees of the financial sector. The employees of the financial sector were bank employees of different banks from across India.
- It was asked that there was any discrimination that they faced during their hiring process. So, 13.3% (2) were neutral, 13.3% (2) disagree to it and 73.3% (11) strongly disagree with it. This shows that for the financial sector every employee is equal whether it is a male employee or a female employee.
- The statement was that the employees had ever experienced lack of opportunities due to their gender. For this, 6.7% (1) was neutral, 13.3% (2) disagreed and the remaining 80% (12) strongly disagreed. This shows that in the financial sector none of the opportunities are given on the basis of gender and every employee is treated equally for the opportunities.
- Female employees are paid less in the financial sector. So, in response to that 6.7% (1) employee agrees to it and the remaining 93.3% (14) strongly disagree with it. This shows that 6.7% agrees which means still gender biases exist in the financial sector of India. On the other hand, it was noticed that almost 93.3% disagree which means that gender bias is not practiced by most of the banks in India.
- The statement was that the capabilities of women are underestimated. In this, 6.7% (1) strongly agree, 13.3% (2) agree, 6.7% (1) neutral, 6.7% (1) disagree and 66.7% (10) strongly disagree. It can be estimated that women employees are still not being treated equally at par with male employees. It is mostly heard that males are more good in finance than women due to which women are underestimated in the financial sector.
- Gender affects the growth and promotion in an organization was another statement to which 13.3% (2) of respondents choose to give neutral reaction and 13.3% (2), 73.3% (11) of them disagreed and strongly disagreed respectively. Which draws that 13.3% employees in the financial sector are still dicey and feels that gender might affect the

promotion and growth while the other 96.7% does not feel that gender affects the promotion at all.

- Opportunities are given on the basis of the gender in the corporate sector, to the above-mentioned statement 13.3% (2) of the respondents were neutral and 20% (3) of them disagreed while 66.7% (10) of those strongly disagreed and thus it is seen that gender basically does not affect the opportunities given to the employees in the corporate and employees from financial sector are not facing gender inequality.
- None of the respondents from the financial sector have encountered any situation where they would have to see gender biases of the employer or the manager. Which states that women employees are not underestimated nor see lack of opportunities.

Conclusion

- To a certain level the opportunities in the education sector are given on the basis of gender and it also affects the growth and promotion.
- Female employees are underestimated in the education sector as per the responses from 13.3% of the employees.
- There is no significant pay gap based on the gender in the education sector but in the financial sector pay gap has been seen.
- In the financial sector, women employees are underestimated for their capabilities.

Limitations

- The research has been conducted among less number of employees.
- The research does not have responses from the equal number of male and female employees.
- The research is limited to education and financial sector only.

Further scope

- Further research should be conducted from employees from the different sectors.
- Research should be stretched to have more responses and equal responses from both male and female employees.

Conclusion

In conclusion, the education and financial sectors are vital parts of the economy, providing services that impact individuals and organizations. However, there are still issues of gender discrimination and inequality in the workplace, with women being undervalued, underpaid, and facing harassment. The literature review highlights various studies that focus on gender discrimination, wage differentials, stress levels, and bullying, among others. It is crucial to

promote gender inclusivity and equality in all sectors to ensure holistic and economic growth. Women's rights and equality should be prioritized to create a fair and just workplace.

References

- Paranjape, M. (n.d.). *Gender micro aggression in corporate workplaces*. Shodhganga@INFLIBNET: Gender Micro aggression In Corporate Workplaces. Retrieved April 30, 2023, from <https://shodhganga.inflibnet.ac.in/handle/10603/378412>
- Pathak, S. (n.d.). Analysis and comparison of stress among males and females in BPOs in NCR India. [Unpublished doctoral dissertation]. Shobhit University. <https://shodhganga.inflibnet.ac.in/handle/10603/169999>
- Geetha, N. (2009). Wage differentials and discrimination by gender sector of employment and caste a study of secondary school teachers in Chennai. *Economic and Political Weekly*, 44(8), 85-92.
- Jain, R. (2014). Urbanization, economic development and gender equality in employment in India. *Journal of Economic and Social Development*, 10(1), 83-96.
- Tolentino, A. C. (2016). Bullying of Teachers in the Workplace: A Phenomenological Study. *International Journal of Learning and Teaching*, 2(1), 1-10.
- Mahindra, K. (n.d.). Perceived impact of gender issues on organizational performance in banks [Unpublished master's thesis]. Institute of Management Studies, Ghaziabad.
- Sharma, V. (n.d.). A study on workplace discrimination in banking sector of Rajasthan with reference to selected public and private banks in seven district of Rajasthan. Retrieved from <https://shodhganga.inflibnet.ac.in/handle/10603/241538>
- Maurya, A. K. (n.d.). Women's rights in India: A study with special reference to gender justice at workplace.
- Bhattacharyya, S. (n.d.). Status of women at workplace: An understanding of gender discrimination and harassment. Retrieved from <https://shodhganga.inflibnet.ac.in/handle/10603/186090>

SOLVING WATER SHORTAGE CRISIS: ADDRESSING SDG 6- CLEAN WATER AND SANITATION THROUGH IOT

Idhika Nikhil Vaidya
Symbiosis Institute of Geoinformatics

Abstract

Urban water crisis is a major problem being faced today, major Indian cities are predicted to run out of water over the next decades. The Internet of Things (IoT) enables us to monitor water consumption and water quality remotely and easily. Smart Water Meter is a device which uses IoT technology and increases the amount of water conservation. We look into the major challenges and setbacks in using this technology and how a startup can deliver these solutions. Software solutions include how the user interface can be optimized, by displaying the key parameters using data visualization techniques. Hardware solutions include implementation of IoT devices or making the existing water meters IoT enabled.

Keywords: *Smart Water Meter, IoT, Water Crisis, Startup, Urban Challenges*

Introduction

With emphasis on one of the 17 United Nation's Sustainable Development Goals (SDGs), SDG-6 that aims to ensure the availability and sustainable management of water and sanitation for all by 2030. To support this initiative, overall water wastage needs to be minimized at the household level for which the consumers need to be made aware of their water consumption pattern. Smart Water Meters are devices which use Internet of Things technology to effectively monitor the necessary parameters for water supply management. Unlike traditional water meters, smart water meters eliminate the need for manual reading. Smart Water Meters enable a two-way communication between the utility and the customer. Basically the Smart Water Meter (SWM) can monitor the flow, distribution, quality and consumption of water and makes this information available to the user via a web application. These meters can play a key role in enabling water suppliers to enhance their water distribution network and consumers to be able to track their usage patterns. The consumption based billing system provides incentive to consumers to save water. Then the consumer can incorporate robust water management and conservation practices. In Bengaluru, Apartments in Mantri Residency society which installed app-controlled smart water meters managed to reduce their water consumption by one-third.

Today, widespread usage of this technology is the need of the hour and thus it is very crucial to make it more accessible, cost effective and user friendly. This can be achieved by resolving some of the major challenges faced in the setup and operation of the SWM.

A combination of the optimal algorithms for leak detection and data visualization tools are required to make the web application more efficient and comprehensive for users.

The hardware can be made using a smart grid, mesh topology and the model should be optimized to make it more efficient and easy to maintain, operate. There should also be awareness and marketing campaigns for the users. SWM will greatly improve the GRIHA rating of a building.

Based on the data, water shortage has been increasing, per capita and especially in cities. The massive urban population growth and rapid, unplanned urbanization has led to cities facing acute water shortages.

Conceptual Background

Currently the majority of urban households use the traditional water meter which only measures the volume of water consumed. The consumer has to end up reading it manually and is prone to leakages, theft or paying more than their usage.

All these problems can be resolved by using IoT enabled smart water meters.

Smart Water Meters can detect not only water consumption accurately but also the pH Value, temperature, water pressure, water quality etc.

Basically the SWM has sensors to collect the data, it is then wirelessly transmitted to the consumer's electronic device. The data is displayed on a user friendly interface and is thus made easily accessible and comprehensive for the users.

Components of a Smart Water Meter:

- Things or Device: smart water meter
- Gateway: pre-processing of data is done
- Cloud: Data is updated and stored on the cloud
- Analytics: data gets analysed using various ML techniques
- User Interface: web application to monitor and control data

Currently this technology is not affordable and accessible to the masses as there are many limitations and challenges faced in implementing this technology in urban Indian households. This paper will be looking at resolving these problems so that this technology can be widely used at various scales (government, societies, building, household) to conserve water.

Literature review

Chakraborti, Rajat K., Jagjit Kaur, and Harpreet Kaur. 'Water Shortage Challenges and a Way

Forward in India.’ *Journal: American Water Works Association* 111.5 (2019): The paper works on ways of adapting smart management strategies for water in combination with green and gray infrastructure. The paper gives insights on water shortage challenges. Smart water management is a key to resolve the urban water shortage crisis faced in an Indian scenario, in this paper we look into ways to build solutions for the same.

The article titled ‘A Survey on Smart Water Monitoring and Control Using Internet of Things’ was published in the International Journal of Scientific Development and Research (IJS DR).: The paper looks into increasing convenience for residents by allowing them to monitor water consumption and usage on their smart phone. Comparing different technologies and sensors for a smart water meter. The proposed IoT solution is robust, easy to install, small in size and convenient. This paper shows how evaluation of different technologies, on relevant parameters, is essential to build a model which is overall best suited to our requirements.

The paper titled ‘Future global urban water scarcity and potential solutions’ (Chunyang He, Zhifeng Liu, Jianguo Wu, Xinhao Pan, Zihang Fang, Jingwei Li & Brett A. Bryan) published in the Nature Communications journal, volume 12, with the article number 4667 (2021): Increase in urban population and climate change leads to more water scarce regions. This will lead to the urban water scarcity problem for tier 1 cities in India is predicted to worsen over the coming decades. This paper shows the imminent nature of the problem and its causes.

Research Gap

- The limitations faced in implementing Internet of Things in Urban areas of India
- The ways in which startups can provide IoT solutions
- Ways in which IoT technology can be made affordable and accessible so that it reaches a larger number of households in urban India

Objectives

- To understand the water shortage challenges faced in urban areas in India
- To explore the existing hardware and software solutions can be implemented to solve the water crisis challenges
- To propose how start-ups can successfully provide these solutions, in the form of services and products

Research Methodology

This is a conceptual paper written with the help of secondary data from various sources has been used to explore the existing IoT technology in depth and the traditional water meters which are currently used in the majority of households. The challenges and limitations of a Smart Water Meter are analysed. Secondary data about the hardware and software aspects of

different types of smart water meters has been collected from various sources.

Based on these proposed solutions are discussed regarding the hardware as well as the software aspects. The different types of IoT enabled water meters are critically analyzed and compared to determine the best suited usage for each services that can be provided by start-ups at various stages of solution implementation (hardware and software) are listed.

Major challenges:

- **Affordability:** Smart Water Meters (sensors) have high set up costs. Even though they are justifiable in the long run it is difficult for consumers to afford them. Maintenance costs are also incurred at times, which are expensive.
- **Awareness:** In India, a majority of the population is not aware of the technology and how to go about implementing it.
- **Complex Supply Chain:** The SWM is a complex device with many parts which are manufactured by different manufacturers, leading to higher costs.
- **Accessibility:** There are very few technicians who are trained to set up the hardware.
- **Supply chain for SWM is not widespread.** SWMs require the internet thus weak communication signals and power cabling challenges are obstacles faced in some remote locations. There is also a lack of sufficient infrastructure to support smart metering at certain locations.

Data Analysis and Interpretation

Comparative Analysis of Different Types of Water Meter:

In TableA showcases different types of water meters and their benefits as well as weaknesses.

Table A:

Sr. No	Water Meter Type	Benefits	Limitations / Weakness
1	Positive Displacement	The flow measurement device claims to have high accuracy, with an accuracy of $\pm 0.1\%$ of actual flow rate, and good repeatability. It is not affected by pulsating flow and many designs do not require a power supply or lengths of straight pipe upstream and downstream during installation.	These devices are known to be prone to failure, exhibit noticeable pressure loss, require frequent calibration, and may record air flow and reverse flow of water, resulting in low accuracy.
2	Electromagnetic Flow Meter	Electromagnetic liquid flow meters are capable of accurately measuring the flow of liquids in both upstream and downstream	Expensive units The formation of gas bubbles inside the electromagnetic flowmeter can cause errors, and it requires periodic

		directions. They can measure liquids with both low and high flow rates in terms of volume	electrical and mechanical cleaning. Additionally, this type of flowmeter is not appropriate for measuring low-velocity flows.
			This type of flow meter is designed to work with fluids that have a conductivity higher than 20 micro ohm/cm.
3	Multi-jet Flow Meter	Multi-jet meters are very accurate. They are available in small sizes They record airflow and reverse flow of water.	Larger pipe diameters require a straight-through flow path which is not feasible for certain types of flow meters, including those with moving parts. As a result, these meters are typically not available in larger sizes. However, the use of moving parts in flow meters can also make them more susceptible to failure.
4	Turbine Flow Meter (Mechanical Water Flow Meter)	Records airflow. Least expensive	Turbine meters have lower accuracy compared to displacement and multi-jet meters. Their installation requires long straight pipe sections. Calibration is needed periodically and they are prone to failures. High maintenance costs.
5	Ultrasonic Flow Meter	Since there are no moving parts,	Higher upfront cost:Ultrasonic
		Ultrasonic meters have a long lifespan and do not require calibration. They exhibit minimal pressure loss and are capable of measuring very low flow rates, as low as 0.1 LPM for water. Moreover, they offer high accuracy, with a value greater than 98%, and can be installed in any direction. Additionally, ultrasonic meters are not affected by the airflow or the reverse flow of water.	flowmeters are significantly more expensive than many of the others. The high cost of the acoustic parts is one of the main reasons for the high cost of ultrasonic flowmeters. Additionally, these flowmeters are not suitable for measuring heavily contaminated liquids or slurry.
6	IoT enabled Ultrasonic Water Sensor (Smart Water Meter)	The sensors have no moving parts and are enabled with IoT technology, allowing them to send real-time data to the cloud. In case of sensor downtime or failures, the service teams are immediately notified, helping them to promptly address issues and minimize data loss.	High Setup cost

Source: secondary data

In Table B represents the non-IoT water meters can be made IoT enabled in a way in which their original benefits are retained along with the benefits of IoT. This method saves costs of setup and installation making it more affordable and accessible.

Sr. No	Water Meter Type	Suitable Usage	Reason (why is it best suited for a particular usage)	Compatibility with IoT
1	Positive displacement	Residential and small commercial properties	The device has good accuracy, requires low maintenance and has a long lifespan. It provides excellent accuracy and repeatability, and is not affected by uneven flow distribution across the pipe, including pulsating flow.	Transducers or sensor-only systems are devices that function like switches, providing electronic outputs to processors, controllers, or data acquisition systems.
2	Electromagnetic Flow Meter	Caravan, camping Commercial and industrial buildings	high-flow rates are expected. In addition, caravanning sites are also subject to warm temperatures.	The meter can share data in wireless. In case, the meter lacks wireless capabilities, then sensor nodes can collect the data from the meter and share it with the gateway (IoT software).
3	Multi-jet Meter Flow	Residential and small commercial users.	Small in size	
4	Turbine Meter Flow	Household Irrigation (Gardening/landscaping)systems Large commercial distribution system	Low cost alternative. Producer accurate readings.	Converting a mechanical water meter into an IoT enabled device requires the installation of a digital metering device and a sensor. This transformation enables the meter to collect data electronically and communicate wirelessly, making it a smart water meter.
5	Ultrasonic Meter Flow	Caravan, camping Agriculture	high-flow rates are expected. In addition, caravanning sites are also subject to warm temperatures. More accurate, less maintenance required	Ultrasonic flow meters calculate temperature, density, viscosity and suspended particulates depending on the exact flow meter which can be wirelessly transmitted
6	IoT enabled Ultrasonic Water Sensor	Household, Commercial, Caravan, Camping, Agriculture	Smaller in size, high accuracy, real time updates	The use of ultrasound technology extends beyond just flow meters. It is also used for measuring wind speed and direction (anemometers), fluid

				level in tanks or channels, and speed through air or water. The data generated by the ultrasound sensors can be directly collected and processed.
--	--	--	--	---

Table B:

Solutions:

- Should be comprehensive: The data should be visualized in such a way that it is understandable to the end user and he can use it to make decisions regarding consumption. It should be comprehensive for users without a technical background.
- Software Solutions: The most important aspect of IoT is the user interface, which should be an interactive and interesting dashboard which gets updated in real time. The dashboard should not only display the parameters, it should also provide various features and controls depending on the user.

A key purpose of IoT technology is that the user receives information based on his water consumption, therefore the controls buttons should be linked to the dashboard for the user's convenience. The users should get alerts in case of leakage, fraud, theft or problems in the water quality or when any necessary action needs to be taken.

The main goals of integrating IoT in water consumption are:

1. Water conservation by making the user aware of consumption
2. Accurate billing: to provide user incentive to consume less water and save costs
3. Leak detection: invisible leaks too can be detected
4. Theft detection: water theft can be prevented
5. Potability of water: the user will be alerted if the water quality declines and it doesn't remain fit for drinking.

The parameters to be considered are amount of water, location, water pressure, water quality: Amount of water: consumption and supply can be tracked. Should be displayed using a line/bar graph so that the user can see the trends and patterns. There should be an option for changing the time span: weekly, monthly or yearly. The consumption should be categorized into water for drinking and water for other uses using a pie chart.

Location: coordinates of the window with numbers, associated with a particular household. Billing can be more accurate, consumers pay for only what they use.

Water Pressure: It is useful in leak detection. Must be displayed as a percentage value on a graph and the normal range should be highlighted.

Water Quality:

- Ph value: should be displayed using a colour and a number
- Dissolved oxygen: should be displayed as a percentage value in a pie chart
- Oxidation-reduction potential: Should be displayed as a percentage of the current level of oxidation-reduction.
- Conductivity: The figure should be displayed, it is an important measure of water quality.
- Temperature: Should be displayed in a flash card.

Additional features for other users: Government and Infrastructure Developers

They will need additional features as they need to know the data for multiple households for billing purposes or to take necessary measures, formulate policies. The users should be able to see the cumulative data which they need as well as individual households. This can be visualized using stacked column charts. Cumulative data can be displayed using pie charts/ columns.

Data should be secure. The consumer should get data privacy for any aspect, if they wish so.

The water for domestic consumption should be categorized separately from water used for irrigation or other such purposes. This can be shown using a pie chart.

These features will give authorities the information required to find ways to avoid water wastage and at the same time lead to cost savings for consumers. It is a win-win situation for both parties and successful implementation will be good for the environment.

Hardware Solutions:

There are two ways of using IoT technology:

- Using IoT sensors:
- Higher accuracy

More features like ph. measured, temperature, water quality can be measured making the existing water meter IoT enabled. The data of the water meter is read and converted to electronic data which is shared wirelessly to the necessary devices. More accessible to users who have other water meters put in place, easier setup, lower cost.

Role of Start-ups in Smart Water Management:

Start-ups are playing a crucial role in promoting smart water management and conservation, with several emerging companies utilizing IoT technology to monitor water usage and detect leaks (WEGoT, 2021; Smart Joules, n.d.; Hydrotech Solutions, n.d.; VestaSpace, n.d.). One such example is WEGoT, which provides an IoT-enabled water management solution for

homes and apartments (WEGoT, 2021). This system not only tracks water usage but also alerts users in real-time, helping to conserve water and reduce water bills (WEGoT, 2021).

Moreover, start-ups like Cranberry Analytics from Pune have developed data analysis platforms and algorithms to save over 150 billion litres of water in recent years (Your Story, 2021). The impact of these start-ups on smart water management cannot be understated, as they have the potential to revolutionize the way we conserve and manage water resources. With continued innovation and investment in these start-ups, the future of smart water management looks bright.

Ways in which start-ups can implement the hardware and software solutions are proposed. Start-ups can provide products and services over all the stages of smart water management:

- **Manufacturing:** In the existing supply chain, different parts of the smart water meter are manufactured by different vendors. If a start-up manufactures the entire smart water meter or as many components as possible, the overall costs will greatly reduce, making it more affordable
- **Installation:** Once the best SWM hardware model is selected based on the required application, it needs to be installed at the location in the water distribution network.
- **Using IoT sensors:** Replacing the existing water meter with IoT sensors
- **Making the existing water meter IoT enabled:** The data of the water meter is read and converted to electronic data which is shared wirelessly to the necessary devices.
- **Maintenance:** Repairing and maintaining the hardware in case of damage. Ensuring the accuracy of the SWM. Ensuring the software i.e. user interface runs smoothly and updating it with better features.
- **Customer Support:** It involves answering the customer's queries and addressing their complaints.

Conclusion

The water shortage crisis in the urban areas of India is predicted to worsen over the next decades. Fixing it is the need of the hour. The widespread usage of smart water meters in Indian urban cities would increase water conservation and greatly reduce the water stress being faced by urban areas. These meters provide incentive to consumers to save water as it ensures fair and separate billing empower the consumers to see water as a commodity.

Software dashboards should make data understandable to people who aren't from a technical background and show relevant information which enables the users to derive insights and take necessary actions. The user interface should have features like alerts, controls and interactive visuals.

Hardware solutions involve either setting up new SWMs or making the existing water meters IoT enabled in a way in which their original benefits are retained. It is important to select the right hardware solution depending on the required application.

As start-ups are versatile, flexible and personalized thus they can implement the necessary solutions to fix the urban water shortage crisis in the best possible way. Start-ups can collaborate with the government to promote effective data driven governance.

Scope for Further Research

- Optimize the dashboard (UI) based on usage of resident, society head, government
- Increasing awareness about IoT technology to the masses
- Creating a common framework for residents as well as government which is secure
- Developing the business model for start-ups and providing them with incentives as well as opportunities to expand their business
- Exploring alternative sources of electricity to power (like solar energy) the SWM would go a long way to make it more accessible especially in areas that lack access to electricity.

References

1. WEGoT. (n.d.). Understanding the Different Types of Water Meters. Retrieved from <https://www.wegot.in/blog/understanding-the-different-types-of-water-meters/>
2. Wikipedia. (2021). Ultrasonic Transducer. Retrieved from https://en.wikipedia.org/wiki/Ultrasonic_transducer
3. ThingPark Market. (2021). Top 5 Smart Water Metering Solutions. Retrieved from <https://market.thingpark.com/blog/post/top-5-smart-water-metering-solutions>
4. Smartflow. (n.d.). Smart Water Meter. Retrieved from <https://www.mysmartflow.uk/smart-water-meter/>
5. Arad Group. (2021). Smart Water Meters: Benefits and Applications. Retrieved from <https://arad.co.il/blog/smart-water-meters/>
6. (n.d.). Understanding the different types of water meters. WEGoT. Retrieved April 28, 2023, from <https://www.wegot.in/blog/understanding-the-different-types-of-water-meters/>
7. Ultrasonic transducer. (2022, February 17). Wikipedia. https://en.wikipedia.org/wiki/Ultrasonic_transducer
8. Top 5 smart water metering solutions. (n.d.). ThingPark Market. Retrieved April 28, 2023, from <https://market.thingpark.com/blog/post/top-5-smart-water-metering-solutions>
9. Smart Water Meter. (n.d.). MySmartFlow. <https://www.mysmartflow.uk/smart-water-meter/>
10. Tapakah68. (n.d.). Yandex.Toloka Water Meters Dataset. Kaggle. Retrieved April 28, 2023, from <https://www.kaggle.com/datasets/tapakah68/yandextoloka-water-meters-dataset>
11. Smart water meters – How can they benefit you? (2021, December 29). Arad Group. <https://arad.co.il/blog/smart-water-meters/>

SUSTAINABLE PRACTICES LED BY WOMEN ENTREPRENEURS-

CASE STUDY OF MAMAEARTH

Poornima, Mansi Lakhotia
Symbiosis College of Arts and Commerce

Abstract

Sustainable brands are essential for this generation. The aim of writing this research paper was to understand the broader outlook of the sustainable practices done by the woman entrepreneur behind the Mamaearth brand and to know of people's views about the performance of the brand. The study was conducted by using both primary and secondary data. To critically evaluate the sustainable as well as social practices done by the company, data has been collected through secondary sources like the company's website, case studies, and past research papers. As for primary data, researchers have collected the responses from the customers of the company to understand the direct review about of the products of the company. This would provide insightful information on how this brand has effectively applied theoretical principles of sustainability into their practice and will give an insight on whether the products of the company are the only reasons why people buy their products or does sustainability plays a role in it.

Keywords: *Mamaearth, Green Investment, Consumer awareness of Sustainability Practices*

Introduction

The key to our better future is sustainability. Human beings rely entirely on natural resources for their day-to-day activities, from survival to business. The needs of Human society are limitless; as a result, they use natural resources without thinking about future generations. To avoid the elimination of natural resources, over the last few decades, many more arrangements and efforts have been made to promote a supporting sustainable economic development. Progressively, since sustainable development was defined by WCED 1987 as “meets the needs of the present without compromising the ability of future generations to meet their own needs,” many companies have started putting more effort into CSR (Corporate Social Responsibility) activities in business which has also increased the goodwill of their company.

Mrs. Ghazal Algah is a woman entrepreneur and the co-founder of Mamaearth Company, which is leading the market in terms of sustainability in business and investing activities. Mamaearth was established in 2016; it is the first company in Asia to receive Made Safe certification for its toxin-free products in just four years. Mamaearth products are free from 8000 harmful toxins and are all made from resources provided by mother nature. Mamaearth is a brand built on commitment to honesty, and natural and safe care; therefore, Mamaearths products are designed from the best of nature, have no harmful chemicals, are plastic positive, and are animal cruelty-free. In April 2021, to celebrate the theme of 'Restore Our Earth,' the company launched its annual 'Goodness Report Card' to highlight the significance of sustainable choices in business. This report has conveyed the impact of the brand's choices to reduce their carbon footprints by planting trees, recycling more plastics than they use, eliminating the use of toxins and harmful chemicals in products, making green investments, and many more. In this research paper, we aim to study sustainable practices performed by the brand and its green investments.

Literature Review

Basumatari et al. (2020), in her research work studied remarkable shifts in the cosmetics, beauty, and personal care industries in recent years and how consumers' approaches shifted towards green beauty brands. This research was conducted, and the data was collected by a survey form circulated on social media, and the responses were analyzed. In order to prove the hypothesis, they also used statistical methods like regression, and two-sample t-tests were run on Ms-Excel. In the research, the researcher has mainly focused on Indian organic brands and finding out how current millennial customers are developing an interest in organic, sustainable, and natural products. In the research paper, they have also considered how social media trends act as an essential factor in shaping customers to purchase more green products.

Nayana S (2021) - in his research work the researcher has studied the sustainable approach by 3 Indian brands- Phool, Mamaearth, and Id Fresh. The study was conducted with the support of a literature review to understand the integrated approach of sustainable branding. The three brands selected in the paper are outstanding examples of how a small business could expand as a brand and earn revenue with a straightforward approach to sustainability. The paper further discussed how the brands have tried to reduce their harmful impact on the environment and their carbon footprints. All three brands focused on adopting pillars of sustainable marketing with innovation at the product level. In addition, all the brands contributed much more to recycling efforts and CSR activities.

Radhika Kapoor et al. - In this paper, researchers have studied how green cosmetics are

changing the minds of young consumers and modifying cosmetic industries. The research study was conducted by using structured surveys covering 150 respondents from various cities of India like Delhi, NCR, Ghaziabad, Noida, and Faridabad. This study analyzes the health problems faced by the present generation, especially hair and skin diseases due to environmental degradation and the use of harmful toxins in day-to-day cosmetic products. In this paper, the researchers have made an attempt to identify the factors that are motivating consumers to buy green products. By the overall analysis, it is summed up that changes need to be adopted by marketers for segmenting, targeting, and motivating the consumer base.

Objectives

- To study the sustainable practices performed by the selected company
- To study the sustainable investment strategies that come under the sustainable practices of the company.

Hypothesis

- Sustainable green investment strategies contributed substantially to the overall practices and performance of Mamaearth.
- There is no relationship between sustainable practices and the performance of Mamaearth.

Research Methodology

The paper's primary objective is to do a critical analysis of the sustainable practices, shedding light on green investments conducted by the company, and bring out an accurate picture of the sustainability trend within the company. Since Mamaearth is a cosmetic company that has almost dominated the beauty sector of India with its affordability.

Researchers have used primary data for analyzing the second objective of the research which was collected through online surveys, i.e., by circulating google forms. secondary data for the research is used to learn about green investment done by the company by collecting through the company's website.

Sustainable practices performed by the Brand:

During the last decade in India, researchers have not seen many prominent brands coming up with the idea of developing sustainable products. Although initially, sustainable practices in our country were publicized by bigger brands through biodegradable and recycled packaging, developing toxin-free products, and conducting CSR Activities. This research paper discusses the case of the Mamaearth brand, which is putting a lot of effort into the green and social investment and activities.

Mamaearth, a toxin-free personal care brand has never failed to fulfil its promise of “Goodness Inside” since its establishment in 2016. It is the first brand in Asia to receive the

certificate of made safe for producing toxin-free products and also ensures that the products are animal-cruelty free. The brand has a holistic approach in the field of Energy, Environment, and Sustainable living. It is a plastic-positive brand i.e they recycle more plastic than they use, by recycling more and more plastic bottles, the company makes sure that less amount of waste goes to landfills. The company also introduced a scheme to their customers by asking them to send their used empty bottles and in return the company will provide INR 200 off their next orders and for every 10 bottles they would get 1 baby T-shirt free. According to the “Goodness Report Card” of 2021, over the last year, it has recycled 1,135 metric tonnes of plastic. The company also has a CSR program named “We Plant Goodness” that links a tree to every order on its website. Along with the delivery of the product, all the details related to the plant are also shared with the customer. According to the data of the 2021 report, the company has grown 1 lakh trees in a span of six months and aims to grow more than 1 million trees in a period of five years.

Green Investment

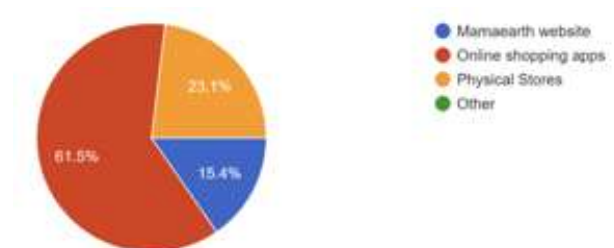
Mamaearth offers green investments on a basis of helping society socially without compromising the idea of sustainability. The Mamaearth foundation deals with wood investment and majorly invests in ‘Mahogany’, ‘Teak’, and ‘Cocoa’. They rent land from local farmers i.e. they don't grab land from local farmers and as a socially responsible company, they contribute towards employment of the country by bringing work into the villages and providing 50% of the money from wood investment to local farmers. Therefore, they invest in the betterment of nature, people, and society.

Data Analysis and Interpretation

Below is the analysis and interpretation of primary data collected by circulating google forms to know the relation between the sustainable practices of the company and its performance and reputation in the market.

All the respondents knew the brand Mamaearth.

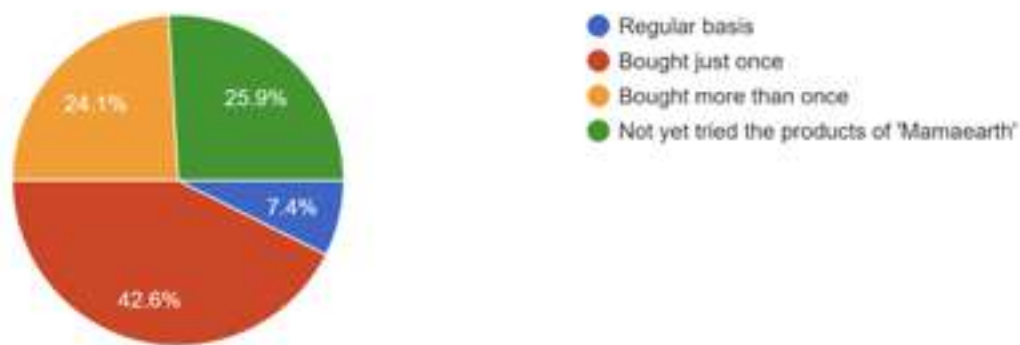
Figure 1. How do the respondents purchase the products of Mamaearth



Source: Primary Data

Majority of the respondents purchase products from online apps

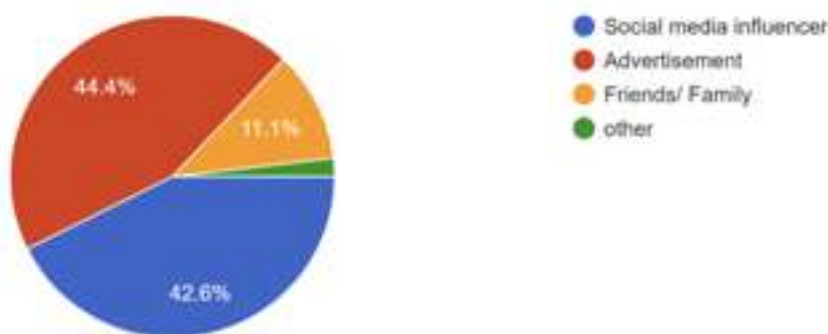
Figure 2. .How often respondents buy products of Mamaearth?



Source: Primary Data

42.6 percent of the respondents have bought the Mamaearth product at least once.

Figure 3. How do respondents know about the brand?



Source: Primary Data

Advertisement remains the major source of communication with 44.4percent of respondents agreeing.

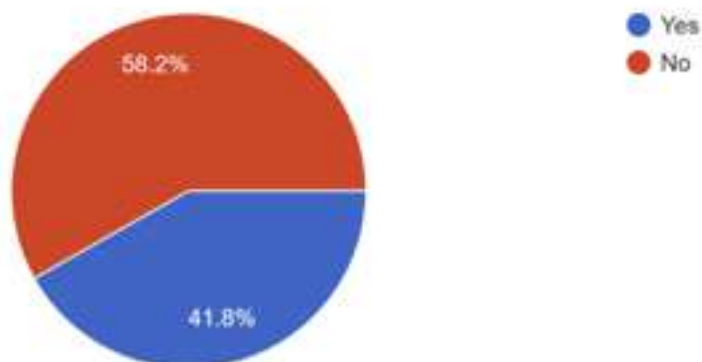
Figure4. What made respondents purchase the product?



Source: Primary Data

Brand name of the product is the major impacting factor influencing the purchase decisions.

Figure 5. Would you recommend product?

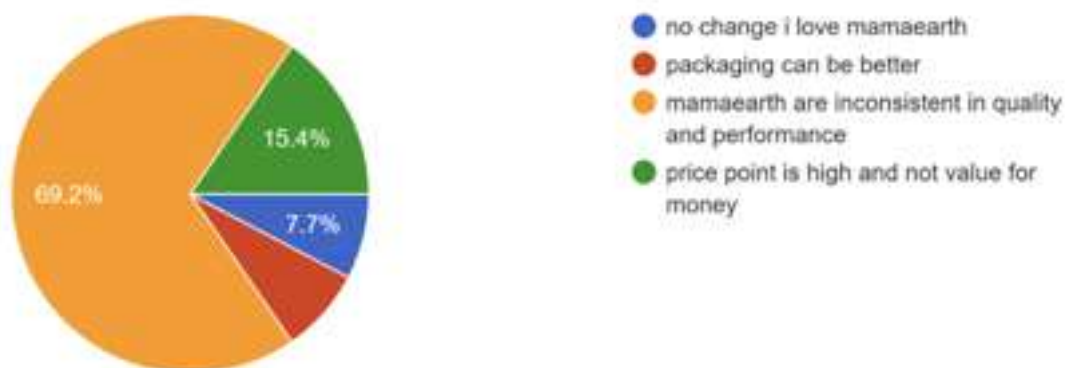


SEP

Source: Primary Data

58.2 percent of the respondents strongly recommend the brand.

Figure 6. What can Mamaearth do to improve their performance?



Source: Primary Data

Findings:

- The survey conducted by the researchers conducted as a part of our research project reveals that all of the respondents are aware of the product 'Mamaearth' and most of them are aware of the sustainability practices performed by the company.
- The customers are familiar with the brand through various mediums mostly through advertisements and social media influencers. Because of social media influencers, the company has created a huge brand name that made the customers purchase the product.

- From further findings researchers found that customers aren't satisfied with the quality of the product and do not want to recommend the product to anyone.
- Researchers have seen that the majority of the respondents have given average as well as very low ratings to the product. This shows that even though the company is contributing a lot towards the environment. They still could not manage to create a good image of its product and services.
- Most of the customers recommended that there are inconsistencies in the quality and performance of the products of mama earth and they will not recommend the products of the company.

Conclusion:

Sustainable practices are much more than caring for the environment. It is a broad outlook which includes sustainability in every aspect of the business. The brand discussed here provides a holistic approach to their business not only by manufacturing toxin-free innovative products but also adopting the pillar of sustainability by taking steps towards bio-degradable packaging, by recycling more plastic than they use and making sure their products are animal cruelty free. The company is also investing towards plantation of mahogany, teak and cocoa trees and giving employment to farmers for taking care of their plantation.

In the survey conducted in this research paper it can be seen that there is no relation between quality of products and the sustainability practices performed by the company, and that the people are not satisfied with the services and products of the company.

Although this is the picture of the company in front of customers the company has not stopped investing in sustainable projects..

References:

1. Flodemi. "Mama Earth - Green Projects and Social Environment Projects." Mama Earth - Green Solutions, Flodemi https://Mama-Earth.de/Wp-Content/Uploads/2017/11/Logo_300x70.Jpg, 20 June 2022, <https://mama-earth.info/mama-earth-green-inves>.
2. Basumatari, Mainaosri, and Ronita Mondal. "Study of Consumer Perception towards Green Beauty Brands." IIMB, Indian Institute of Management Bangalore, 1 Jan. 1970, <https://repository.iimb.ac.in/handle/2074/19604>.
3. "Blog." Mamaearth, <https://mamaearth.org/blog/>.
4. "Grüne Investments - MIT Sicherheit Geld Anlegen✓." Mama Earth - Green Solutions, 6 July 2020, <https://mama-earth.info/green-investments/>.

CLOUD KITCHENS: BUSINESS MODEL FOR SUSTAINABILITY AND INCLUSION

Nandini Parashar, Dr. Namrata Singh, Mrs. Shruti Sharma
Miranda House, University of Delhi

Abstract

This paper aims to look at how cloud kitchens as business models are gender inclusive and sustainable. A cloud kitchen utilizes home or commercial spaces for the purpose of preparing food for delivery or takeout, with no dine-in customers. Over the past few years, such businesses have mushroomed throughout the city, especially with the rise of food-based apps. Cloud kitchens offer a sustainable alternative to restaurant-based businesses in terms of minimum initial investment required to begin with. At the same time, they also offer opportunities to women to enter the food delivery field and set up businesses of their own. This paper looks at women led cloud kitchens in the Delhi - NCR area, challenges they face while running their kitchens and how sustainable their businesses are. The researchers believe that cloud kitchens, due to their local base, can provide a viable business model that supports local initiatives and allow more women to become financially independent by running their own businesses through their kitchens. Lastly, the paper would also look into strengthening and providing possible solutions to the challenges faced by women cloud kitchen entrepreneurs to further their businesses and a partnership role between the private and the government sector to make this business model more inclusive and profitable for our primary stakeholders.

Keyword: Cloud Kitchen, Women Entrepreneurs & Sustainability

Introduction

The 21st century is a fast-changing world. With advancements in technology and automation, humans are taking bigger and bigger leaps towards scientific and economic development every day. However, with development comes the age - old conundrum of sustainability and inclusion. Higher economic development often comes at the cost of environmental degradation. This is especially true for resource heavy industries like the restaurant industry. With high infrastructure costs, food wastage, use of single use plastic, increasing attention is being garnered towards making restaurants green and sustainable.

The restaurant industry is fraught with examples of gender discrimination and sexual harassment. In fact, this is not a country specific phenomenon but comparable across borders. Male workers dominate the restaurant industry in Pakistan, around 80 - 90% of chefs in India are men, in Bangladesh, the largest gender gaps are found in the restaurant and hospitality industry and sexual harassment cases filed against the industry are higher than any other industry in the US. As the times change, the industry is evolving too and new forms of functioning are emerging like 'cloud kitchens'. The cloud kitchen, through its various models, challenges the gender biasness of this industry as well as its sustainability quotient. Thus, this paper focuses on female owned cloud kitchens to analyze the impact of cloud kitchens on gender inclusion in the restaurant industry and whether their cloud kitchens are sustainable or not.

What are Cloud Kitchens

Cloud Kitchens are commercial facilities that only serve food through delivery. Since the restaurant(s) functioning within a cloud kitchen does not have a physical front for customers to reach out to, they are also known as 'virtual kitchens', 'ghost kitchens' or 'shared kitchens'. Cloud kitchens are of 6 types, out of which the independent cloud kitchen model will be studied in this paper. The emergence of cloud kitchens is due to the challenges faced by physical and conventional forms of restaurants like high operational costs, stiff competition in the industry with decreasing margins, lack of physical space in cities, etc. However, three of the biggest factors that have led to an increasing number of cloud kitchens are covid 19 imposed restrictions, digitalisation, and changing customer preferences.

Literature Review

The given research aims to add to the existing literature on cloud kitchens by examining their gender inclusiveness and the challenges that female cloud kitchen owners face while opening a cloud kitchen from their homes. Research on cloud kitchens has focused on their emergence, dependence on digitalization, changing customer preferences, marketing strategies, but no research has been done on their gender inclusiveness, a gap this paper aims to fill.

Moreover, focusing on sustainability, the existing literature talks about either sustainability of all cloud kitchens models in general or of certain cloud kitchen models like shell and outsourced cloud kitchens. However, during the pandemic and as a response to changing consumer preferences, many women have taken the opportunity to open cloud kitchens in their homes., which would fall under the category of 'independent cloud kitchens. This paper analyze show the sustainability quotient plays out vis-a-vis female-run independent cloud

kitchens. Lastly, the paper also offers suggestions that can be implemented to increase the sustainability quotient of these kitchens and support more women to join the industry.

Research Gap

Cloud Kitchens are an emerging phenomenon and there has not been a lot of research done in the area. As mentioned above, some aspects of cloud kitchens have been studied, but not whether cloud kitchens allow greater entry of women in the food business. Even while studying their sustainability quotient, studies have been conducted analyzing the overall sustainability of all cloud kitchen models, with some specifically focusing on models like shell and fully outsourced kitchens. Focusing on overall cloud kitchen sustainability, while important, is not enough as research has shown that different models have different sustainability levels. Building on these foundations, the paper focuses on cloud kitchens run by women and whether their business models are sustainable (and to what extent).

Research Objectives

- To determine how gender inclusive cloud kitchens are.
- To determine the sustainability quotient of the female – run, independent, cloud kitchen model

Research Methodologies

In order to fulfil the above objectives, 6 female cloud kitchen owners, functioning in the Delhi NCR Region, were interviewed telephonically in a structured format. The telephonic format was chosen keeping in mind how they were spread through the area and their convenience. Out of the six interviewees, 5 ran cloud kitchens from their homes, while one had rented a space in Delhi's Meherchand Market for the same.

Based on the interviews, the researcher has identified 7 broad themes running across the interviews, and used them for the analysis :

Table 1: Themes identified in female cloud kitchen owners' interviews.

No.	Themes	Analyzing criteria
1.	Reason for Starting/ Background	
2.	Business and Managerial Sense / Professional Training -	<ul style="list-style-type: none"> • Comfort with handling the business • Any prior professional degree or work experience
3.	Sustainability	<ul style="list-style-type: none"> • Sustainable packaging • Food wastage • Cultural Sustenance
4.	Food Aggregator dependence and satisfaction	
5.	Ease of Doing Business	<ul style="list-style-type: none"> 2. Initial investments 3. License and other documentation convenience 4. Staffing situation.
6.	Support Structure (and workload)	<ul style="list-style-type: none"> Family support Membership of female support groups

		Acquaintance with other female cloud kitchen owners Increase in workload
7.	Self and Societal Perception	Changing perception of self Changing perception by the society

Apart from the above, two semi - structured telephonic expert interviews were also taken on cloud kitchen consultants, in order to present a holistic and bird's eye view of the issue at hand. Both experts run their own consultancy firms, helping their clients open their own cloud kitchens.

Data Analysis and Interpretation

In this section, the empirical material gathered and interviews taken will be elaborated and interpreted. The section begins with the two cloud kitchen consultants' interviews -

Expert Interviews -

The expert interviews consist of two cloud kitchen consultants who, through their consultancy business, help their customers set up and run cloud kitchens, both from their homes and from external kitchen space. Both consultants were asked questions on whether, based on their experience, they feel that females face more difficulties (and of what kind) than males and if yes, then of what kind. Their answers were -

Analysis of expert interviews -

When summarizing the two expert interviews, there are a lot of similarities that one can find in them. They both believe that home - run cloud kitchens are not gender specific business models and the problems that owners face are common to both males and females. They also agree that having a business mindset is more important than any other factor. However, despite their claims of being gender - neutral, both of them host very few female clients vis - a - vis their total clients. Their reasons range from lack of business experience and sense in females to the fast - pace working conditions in the F&B industry. Answering this question, one of the consultant also focused on food aggregators extracting excessive revenues, which leaves owners dissatisfied and they ultimately shut down their business. They also specify that obtaining licenses and other maintenance work tend to be problematic, if ever, for both males and females equally. However, one of the consultants did agree that since males have more experience in working outside of home, they are comfortable with these tasks.

INTERVIEWS - FEMALE CLOUD KITCHEN OWNERS - The following interview analysis builds upon the seven themes that were highlighted while interviewing female cloud kitchen owners as mentioned in Table 1.

Interpretation - The interview data collected shows that cloud kitchens offer a low - investment opportunity for females to enter the food and beverage industry. They appreciate

the convenience of working from their homes which gives them the opportunity to enter the workforce and look after their families as well. It is probably due to this convenience that the women interviewees did not report much increase in their overall workload as well. At the same time, however, they do require some hand holding vis-a-vis running a business. For many female owners, their husband's look after the technical aspects of the business (like obtaining the license), while the wife cooks. While such an arrangement is convenient to many, it does restrict the women from exercising complete autonomy over their businesses.

Moreover, home - based cloud kitchen models are not entirely sustainable. Most cloud kitchens use unsustainable and non - biodegradable plastic packaging due to its low cost. Even those who use sustainable packaging do find it expensive to use. Moreover, while cloud kitchens are known to depend on digitalization to predict customer orders and prevent food wastage, the interviews conducted did not reflect any use of data analysis to plan meals. Rather, all owners depended on their own expertise and knowledge to plan their meals. While such a method has worked out for most of the interviewees, it did lead to excessive food wastage for one. Thus, showing the unreliability of basing meal prepping on one's own expertise and knowledge of cloud kitchens. It becomes even more unreliable for first - time entrants into the food and business industry. One possible reason why they do not depend on digitalization can be the steep learning curve required to conduct successful data analysis for their business. None of the interviewees sell indigenous or family recipes that could amount to cultural sustenance.

However, cloud kitchens do not come without their own challenges. One of the biggest issues that they face is their dependence on food aggregator platforms like Zomato and Swiggy. They all, as well as the consultants, agree that food aggregators extract a lot of their profits, leaving their own revenues to be reduced. Moreover, there is also a lack of accountability of food aggregators that the owners have to suffer from. As a solution, most businesses wish to move out of the platforms but find the task of managing deliveries and marketing themselves to be quite a complex task. Such practices of food aggregators defeat the purpose of cloud kitchens bringing in extra income in the household since their revenue is too low to be meaningful, as mentioned by the consultant.

Moreover, while the women interviewed had adequate family support, they were not a part of any female support group or in touch with any female cloud kitchen owner with whom they could share their experiences. All, however, wished to be part of any such support group.

Despite the above challenges, these kitchens do serve the purpose of enabling the women to become empowered, enter the workforce and earn themselves. While they were not aware of

any change in society's perception towards themselves, they did feel confident and empowered on their own. In fact, upon settling into their own businesses, many of the interviewees further reached out to help other women stand on their own feet and become financially independent. Therefore, one can call the home - based cloud kitchen model to be gender inclusive in their functioning.

Suggestions

Based on the above interpretation, this section offers some suggestions to improve the working of females in the cloud kitchen industry. These solutions could be implemented by enabling a partnership between the private and the government sector to make this business model more inclusive and profitable for our primary stakeholders. Such a partnership would allow the government to take on an overview – and – regulatory role, while letting non – government organizations step forward for implementation.

Skill Enhancement - One of the challenges females face in running and starting their own cloud kitchens, is lack of work experience and business understanding. Due to this, they often have to depend on the male members of their families, at least in the initial stage, to help run their businesses. Thus, skill enhancement workshops to help women understand the basics of running cloud kitchen businesses will ensure their long-term survival and increase their autonomy over their enterprise.

Financial Assistance for sustainable packaging - Since green packaging is expensive in comparison to plastic packaging, financial assistance or subsidies could be offered to cloud kitchens to make them more sustainable.

Digital Training - Despite using food aggregator apps to receive orders, none of the interviewees used data analysis to plan their meals as they were either unaware of such a provision or did not have the skills to use it. However, data analysis to predict customer preferences can go a long way in preventing food waste. Thus, skill workshops to increase their comfort and knowledge with using digital data analysis software to predict meals will help in better meal prep and making them more sustainable.

Cloud Kitchen Owners' Support Group – Support groups should be formed for cloud kitchen owners to share their experiences in. This would help them handle their own troubles better through mutual discussion and also support each other's businesses in times of crises. Moreover, mutual discussion can also lead to healthy competition and innovation among the group members.

Limitations

Some of the challenges that the researcher faced was paucity of time, due to which only a

limited number of interviews could be conducted. Moreover, due to the researcher's geographical constraints, only those interviewees functioning in the Delhi NCR region could be interviewed telephonically. Further research into the subject can look into a larger number of cloud kitchen owners, spread across a wider geographical area.

Contribution and Conclusion

The given research contributes to the existing literature on cloud kitchens by examining the convenience and comfort they offer females to depend on. Moreover, the paper also contributed to the challenges that female cloud kitchen owners face while opening a cloud kitchen from their homes. Focusing on sustainability, while the existing literature talks about the sustainability of certain cloud kitchen models, this paper analyses in detail how it plays out in independent home - run cloud kitchens. Lastly, the paper also offers suggestions that can be implemented to increase the sustainability quotient of these kitchens and support more women to join the industry. Thus, fulfilling the first research objective, one can successfully claim that cloud kitchens present a gender - inclusive model, giving females a low investment entry into the restaurant industry. However, this version of the model is not as sustainable as its other variations due to lack of sustainable packaging, or options for common deliveries. Thus, focus should be given to further support female cloud kitchen owners, while also making it a sustainable model.

References:

1. Madanaguli, Arun et al. "Environmental Sustainability in Restaurants. A Systematic Review and Future Research Agenda on Restaurant Adoption of Green Practices." <https://doi.org/10.1080/15022250.2022.2134203> (2022): n. pag. Web. 14 Jan. 2023.
2. "Check Please! Gender Dynamics in Indian Restaurants | Blog | Monk Prayogshala." N.p., n.d. Web. 30 Jan. 2023.
3. Asadullah, Muhammad Ali et al. "Gender Differences and Employee Performance: Evidence from the Restaurant Industry." *Journal of Hospitality and Tourism Management* 48 (2021): 248–255. Web. 30 Jan. 2023.
4. "Why India Has an Abysmally Low Number of Woman Chefs." N.p., n.d. Web. 30 Jan. 2023.
5. Kapsos, Steven. "The Gender Wage Gap in Bangladesh Regional Office for Asia and the Pacific." (2008): n. pag. Web. 30 Jan. 2023.
6. Slonaker, William W., Ann C. Wendt, and Bud Baker. "Employment Discrimination in the Restaurant Industry." <http://dx.doi.org/10.1177/0010880406297591> 48.1 (2016): 46–58. Web. 14 Jan. 2023.
7. "Everything You Need to Know About Cloud Kitchens (Aka. Ghost Kitchens) in 2020 - The Food Corridor." N.p., n.d. Web. 30 Jan. 2023.
8. "The 6 Cloud Kitchen Business Models and How They Work." N.p., n.d. Web. 13 Jan. 2023.
9. Choudhary, Nita. "Strategic Analysis of Cloud Kitchen – A Case Study." *Management Today* 9.3 (2019):

- 184–190. Web.
10. Choudhary, Nita. “Strategic Analysis of Cloud Kitchen – A Case Study.” *Management Today* 9.3 (2019): 184–190. Web.
 11. John, Kishore Thomas. “Digital Disruption: The Hyperlocal Delivery and Cloud Kitchen Driven Future of Food Services in Post-COVID India.” *International Hospitality Review* ahead-of-print.ahead-of-print (2021): n. pag. Web. 30 Jan. 2023
 12. Gosai, Ms Kinjalmadhukant, and Deelip Palsapure. “A Study on Cloud Kitchens As An Emerging Food And Beverage Industry.” n. pag. Web. 13 Jan. 2023.
 13. Chatterjee, Rudrani, Animesh Singh, and Vikas Singh. *Ethical and Sustainable Perceptions on Cloud Kitchen Business-A Study of Consumers and Stakeholders during the Covid-19 Pandemic*. N.p. Print.
 14. “Effects of Social Media Marketing in Cloud Kitchen Towards Online Platform in Indonesia - Google Search.” N.p., n.d. Web. 30 Jan. 2023.
 15. Choudhary, Nita. “Strategic Analysis of Cloud Kitchen – A Case Study.” *Management Today* 9.3 (2019): 184–190. Web.

A STUDY OF URBAN HEALTHCARE CHALLENGES AND SUSTAINABLE SOLUTIONS VIA START UPS IN INDIA

Rankit Singh

Chhatrapati Shahu Ji Maharaj University, Kanpur

Abstract

Urban areas in India face a range of healthcare challenges, including inadequate medical facilities, high costs, and a shortage of trained medical professionals. Start-ups in the healthcare sector have the potential to address these challenges and provide sustainable solutions. These companies are leveraging technology and innovative business models to improve access to affordable and high-quality healthcare in urban areas. Examples include telemedicine platforms, diagnostic centers, and health insurance providers. By addressing the unique healthcare needs of urban populations, these start-ups are helping to build a more sustainable and equitable healthcare system in India.

Keywords: *Urban Health Care, Sustainable Solutions for Health Care, Startups & Health Care*

Introduction

Urban healthcare in India is facing a major crisis. As a nation, we are not taking care of our health. It is time to change this and make sure that people have access to quality care at affordable prices. The shortage of doctors and nurses in urban India has led to prolonged wait times for medical treatment and inadequate quality of healthcare services offered by both private and government-run hospitals. Furthermore, there is also a lack of adequate infrastructure in most cities like Mumbai (Bombay), Delhi/NCR region etc., leading many patients who need urgent care beyond their means into debt or even suicide due to financial distress caused by the provision of poor healthcare practices across sectors including education/employment opportunities with employers refusing job offers due to lack of proper documentation showing proof that one has completed relevant courses like MCA/MBA etc.

The urban population in India has significantly increased from 286 million in 2001 to 377 million in 2011. It is projected that by 2030, more than 80% of India's population will be living in cities. Additionally, the number of people living in slums has also increased from 2.9 million in 2001 to 5.5 million in 2010.

By 2030, it will grow to 590 million people.

There are over 65 million people living in urban India, which is growing at an annual rate of

4% and will reach about 80 million by 2025. The urban population is expected to be much larger than that of rural India, which currently stands at 69% compared with 39.6% in 2011-12. In addition, the majority of Indians-over 64%-now live in cities or towns rather than villages where they used to live before independence. So far, there has been little progress on addressing both rural and urban healthcare challenges in India due to lack of resources especially by the state governments which have been saddled with fiscal deficit and debt burden as well as poor infrastructure facilities such as hospitals and medical colleges etc.

The widening disparity between the demand for healthcare services and the traditional healthcare system has emerged as a significant issue, resulting in healthcare services becoming expensive and out of reach for many individuals. These factors have contributed to the growth of healthcare start-ups, which are driven to innovate.

Literature Review

Kumar and Gupta (2012) discussed the current state of healthcare facilities and personnel and proposed a healthcare plan that focuses on developing a long-term strategy for quality improvement.

A 2015 study by *Isabelle Joumard and Ankit Kumar* found that India's healthcare system comprises both private and public providers, with a severe shortage of healthcare workers in densely populated and rural northern regions. The study recommends that preventive measures could have the greatest impact on improving health status, with improvements in living conditions and lifestyle habits having the most significant effect. The Swachh Bharat Mission, which includes total sanitation campaigns, has a substantial effect on reducing premature deaths and developmental abnormalities later in life. Furthermore, improving medication use could enhance healthcare quality while lowering out-of-pocket expenses.

Objectives of the Study

1. To identify the difficulties in the urban healthcare industry.
2. To deliberate on solutions for challenges in healthcare
3. To discuss how start-ups might assist to fill gaps in the healthcare sector.

Research Methodology

The study uses both analytical and descriptive approaches to identify gaps in India's healthcare infrastructure and potential solutions provided by start-ups. The research draws from various sources such as research papers, articles, and reports from organizations such as WHO, World Bank, Inc 42, and Mint. Data from these sources are collected, analyzed, and synthesized to arrive at conclusions.

Discussion, Analysis and Interpretation

Urban India currently faces many challenges including shortage of trained doctors, lack of access to healthcare, rising cost of diagnosis and treatment, and poor disease management especially for lifestyle diseases like diabetes and hypertension.

According to a recent report by the World Health Organization (WHO), there is a shortage of more than 600,000 doctors compared to the World Health Organization's norm of one doctor for 1,000 people. This has led to an increase in non-communicable diseases and mental health issues. In addition, there is also an alarming trend of rural-to-urban migration accompanied by social changes like increased divorce rates or single parent families due to lack of employment opportunities in rural areas or higher cost of living in urban areas resulting in reduced access for healthcare services

On an average, there were 4 beds for every 10,000 people, less than the WHO standard of 5 beds per 10,000 populations.

The average bed occupancy rate by India was 0.40 while the WHO recommended standard was 1.0. In other words, less than half of India's hospitals met the minimum requirements for providing sufficient care to their patients.

The need for healthcare is evident in India with a large percentage of its population suffering from chronic diseases such as diabetes and heart disease which can be prevented through early detection and treatment. However, there are not enough doctors or nurses available to provide adequate medical care for all these patients as well as those who fall sick during epidemics such as dengue fever or chikungunya virus outbreak that occur annually across many parts of rural India due to lack of proper sanitation facilities within villages surrounding housing complexes where people live together

More than 70% of government hospitals have been found in need of basic facilities like operation theatres and patient wards. Even the best-equipped private hospitals have not been able to cope with the demand for medical services, which has accelerated over time due to increasing urbanization. As a result, patients often face long queues at clinics and wards. This results in poor patient care and high costs for insurers as well as patients who have to pay out of their own pockets if they need expensive treatments or surgeries.

Health care services should be affordable for all Indians. This can be done by providing free primary health care, providing medicines at reasonable prices (which are not available in rural areas), improving delivery system by reducing waiting time even while ensuring quality service.

The per capita expenditure on health decreased from \$196 in 2009-10 to \$178 in 2012-13 at current prices. This is the lowest level of spending on health since independence, and is a result of poor governance and rising costs.

In addition, the proportion of Indians who are uninsured has risen from 11% in 2005 to 24% today. Common wealth Medical Association has estimated that 1 million people (5% of population) are pushed into poverty due to high out-of-pocket spending on medical care every year in India.

The Commonwealth Medical Association has estimated that 1 million people (5% of population) are pushed into poverty due to high out-of-pocket spending on medical care every year in India. This can be attributed to a lack of access and affordability, as well as the high cost of healthcare services.

Healthcare professionals should have better pay scales so that they can afford their education without taking loans or debts in the process which would prevent them from going into clinical practice later on after completing their graduation degree course or medical qualification course at any particular college or university affiliated with MBBS/BDS program.

These issues are further compounded by the lack of a robust primary healthcare system in India and by the lack of a robust primary healthcare system in India. The government has been unable to provide funding for hospitals and health centers, which forces many people to seek treatment at private medical facilities or even go abroad for treatment. While this is not ideal, it does provide some relief for those who can afford it—and these costs are likely to increase as time goes on and there aren't enough resources available within India's current healthcare model.

Several startups have emerged in the areas of primary care delivery, remote monitoring and chronic care management, prevention and wellness management, disease management for cancer and rare diseases, mother and child healthcare among others.

The healthcare sector has witnessed tremendous growth in recent years. The rapidly growing population, rising disposable income levels and increasing awareness about healthcare service are some of the reasons behind this trend. Several startups have emerged in the areas of primary care delivery, remote monitoring and chronic care management, prevention and wellness management, disease management for cancer and rare diseases etc., which are revolutionizing healthcare delivery systems across India. In this article we will discuss some of these innovative ideas which can help transform the way we look at healthcare delivery system in India.

Startups and their solutions

For example MediCtrl focuses on appropriate function and giving an adequate patient experience to patients, hence increasing hospital income and allowing them to work on medical facilities. , digital health platforms like Daily Rounds focus on continuous medical education (CME) for doctors; HealthifyMe provides a platform to track nutrition and fitness through mobile applications; Biosense offers non-invasive diagnostic tests; Portea Medical provides home nursing services; Wrig Nanosystems tracks the molecular signatures of disease progression in blood samples; Neurosynaptic uses artificial intelligence algorithms to provide personalized treatments based on the patient's genetic profile; mfin provides instant online consultation with doctors while Medikabazaar is an online platform that enables efficient procurement of medical devices.

These start-ups offer services like digital health platforms, home nursing services, non-invasive diagnostic tests etc.

Sector	Description	Start-ups
Online Pharmacy	E-commerce of medicines	Netmeds, PharmEasy
Personal Health Management	Health advisory content aggregators, and personal health tracking apps	myUpchar
Home Healthcare	Healthcare services brought to the patients' home	Maya, CareJoy
Fitness & Wellness	Enablers of fitness and wellness services such as gym, yoga, and mental health counselling among others	CultFit, Healthify
Telemedicine	Enables doctor consultations virtually through apps or web-based videos, chats, and voice guidance	DocsApp
Diagnostics	Uses technology to speed up diagnosis of diseases	Qure.ai, Healthians
Biotech R&D	Uses biological and technological advances to repair health and wellbeing	BeatO
Medical Devices	Technological devices to enable self-diagnose of diseases	Bagmo, Prantae Solutions
Healthcare IT	SaaS offerings to help accelerate healthcare organisations decisions, and other services such as insurance	Policybazaar, Plum
Operations & Management of Hospitals	Managing hospital network that patients can rely on for superior outcomes, price transparency, and a high-quality experience	MediCtrl
Genomics	Focused on innovation in the field of genome research, DNA studies and gene editing	XCode Life Sciences, MapMyGenome

- In 2021, India's health tech industry had 3,548 active start-ups with \$2.2 billion in funding across 131 deals.
- India ranks fourth in attracting VC capital to the health-tech industry, with a total investment of US\$ 4.4 billion between 2016 and 2021, with an investment of US\$ 1.9 billion in 2021 alone.
- HealthifyMe added half a million new members monthly and generated US\$ 40 million in ARR in January 2022.
- Tata Digital Limited announced in June 2021 that it would acquire a controlling position in the digital health business 1mg.
- The medical equipment industry is predicted to reach US\$ 11 billion by 2022 due to an aging population, more medical tourism, and lower medical service costs.
- Online pharmacies received \$726 million, or 33%, of all capital that the health tech industry received in 2021.
- Fitness and wellness got \$422 Mn (19.2%), followed by healthcare analytics at \$454Mn (20.6%). Medtech received \$256 Mn in total.
- In 2021, four start-ups - Innovaccer, Pharmeasy, Curefit, and Pristyn Care - became unicorns in the Healthtech Sector with the help of increased late-stage capital. Late-stage financing increased 3.4 times in 2021.
- McKinsey's analysis suggests that India could save up to \$10 billion in 2025 by utilizing telemedicine instead of in-person doctor visits, with Practo, mfine, Lybrate, and Docsapp being notable examples of Indian telemedicine startups.

Conclusion

Urban healthcare remains a big challenge for India. In India, healthcare start-ups are addressing these problems with innovative solutions. However, a lack of regulation and transparency in the sector makes it difficult for these startups to gain traction. They are using technology to resolve health issues and provide affordable healthcare.

References:

1. Siddharth Agarwal*, Aravinda Satyavada**, S. Kaushik† and Rajeev Kumar+
Urbanization, Urban Poverty and Health of the Urban Poor: Status, Challenges and the Way Forward
2. Kumar, I. J. (2015, January 8). Improving Health Outcomes and Health Care in India. 2. OECD, Economics Department Working Paper No. 1184. Retrieved January 1, 2019,

from [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP\(2015\)2&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2015)2&docLanguage=En)

3. Dimpal Vij's paper Health Infrastructure in India: Need for Reallocation (2019) and Regulation
4. Articles » India's Startup Revolution Accelerates the Healthcare Innovation
5. <https://www.investindia.gov.in/sector/healthcare>
6. Healthcare Landscape Of India: The State Of India's Healthtech Startups By YattiSoni
7. Healthcare Startups Play An Important Role In India's Economic Growth In 2021| By KanavKahol
8. World Health Day: How Indian Startups Are Revolutionising Healthtech Sector By CNBCTV18.com

A CASE STUDY ANALYSIS OF PRE AND POST COVID IMPACT ON BUSINESS PERFORMANCE AND CHANGE MANAGEMENT STRATEGIES OF CORPORATIONS

Tania Aggarwal
Jyoti Kumari
M. Com SCAC, Pune

Abstract

The pandemic has affected the business operations, financial performance, and workforce all around the world. This paper analyses the change of management strategies in corporations, including how they have adapted their business model implementation of remote working management of supply chain during the pandemic. The findings suggest that the corporation was able to mitigate the negative impact of the pandemic on their business performance through proactive and adaptive change management strategies. This paper concludes with recommendations for other corporations facing similar challenges in the pandemic, emphasizing the importance of being proactive and adaptive in response to changing market conditions.

Keywords: *change management strategies, pre and post pandemic impact on business, proactive and adaptive strategies.*

1. Introduction

The survival of businesses in this dynamic world is becoming difficult with time. For a business to survive, one main thing is to make use of the available resources in the most efficient way. There are both internal as well as external factors that affect the businesses. In fact, in the last couple of years the external environment as well as factors have adversely affected the functioning of businesses in every sector in a significant way. In the current scenario, businesses are still experiencing the aftermath of the pandemic. Before the pandemic hit, India's growth slowed for three years without an external factor. The government's policy response to the slowed growth before 2019-20 was mostly supply-side. The government slashed corporate tax rates to promote investment and boost the economy. The RBI slightly reduced the interest rates or kept them stable and their intention was to reduce the cost of capital. However, even after the businesses tried to invest when capacity utilisation was low, the demand did not grow. The pre pandemic situation was very critical even after the government's policies and the pandemic further added challenges for

businesses to survive.

The sudden and widespread outbreak of the virus has forced businesses to adapt to a rapidly changing landscape, often with little warning or preparation. As a result, many companies have had to make difficult decisions and take drastic measures to survive.

This research paper aims to examine the impact of the COVID-19 pandemic on businesses, with a specific focus on the differences between the pre-pandemic and post-pandemic periods. By analysing data from various industries and sectors, the paper will explore how businesses have adapted to the challenges posed by the pandemic, what strategies have been most effective in mitigating the effects of the pandemic, and what the long-term implications of the pandemic might be for businesses.

2. Literature Review

Pinzaru, Florina & Zbucnea, Alexandra & Anghel, Lucian. (2020), the research paper aims to provide an initial understanding of the effects of the COVID-19 pandemic on businesses globally. The researchers conclude by mentioning a few studies that have shown the pandemic's adverse effects on various sectors, including tourism, retail, and hospitality.

IBM, (2023), the company provided insights through the report into the impact of the COVID-19 pandemic on businesses and how they can prepare for the future. The IBM Institute for Business Value, in collaboration with Oxford Economics, surveyed 3,450 executives in 22 industries and 20 countries from April to June 2020. The report also emphasizes the importance of resilience in businesses and provides suggestions for how they can become more resilient. The report concludes by providing useful insights into how businesses can prepare for the future and become more resilient in the face of uncertainty.

Appiah, K.O., Addai, B., Ekuban, W. (2022) The article aims to provide a bibliometric review of the existing literature on the impact of COVID-19 on organizational performance and to suggest areas for future research. The article suggests several areas for future research, including the impact of the pandemic on non-financial performance measures such as employee well-being and customer satisfaction. The article concludes that exploring the role of different types of management practices, such as digital technologies and agile management, in adapting to the challenges posed by the pandemic.

Olena Khlystova, Yelena Kalyuzhnova, Maksim Belitski. (2022). The article aims to provide a comprehensive review of the existing literature on the impact of the COVID-19 pandemic on the creative industries, and to suggest areas for future research. The article also suggests several areas for future research, including the impact of the pandemic on the careers of individual artists and creatives, the role of digital technologies in supporting the creative

industries, and the potential long-term impact of the pandemic on the industry.

3. Need of The Study

It is vital to comprehend how businesses have been affected by the pandemic's disruption on global economies. The pandemic has led businesses to adopt new strategies and practices to survive, making it crucial to examine the effectiveness of these strategies and their long-term implications. The study will enable policymakers and stakeholders to make more informed decisions about how to support businesses during crises by understanding the challenges businesses have faced and the most effective strategies to mitigate them. Finally, the study of the pandemic's impact on businesses can provide insights into the broader social and economic implications of the pandemic. Studying the impact of the pandemic on businesses is essential for comprehending challenges faced, identifying effective strategies, and informing policy decisions to support businesses during crises.

4. Objectives

- To understand the pre and post covid impact on selected businesses.
- To study the strategies deployed to overview the challenges.
- To suggest general strategies to the corporate sectors.

5. Research Methodology

A case study-based research has been designed to fulfil the objectives. For this research we will be focusing on qualitative data by collecting secondary as well as primary data related to the impact of the Covid-19 pandemic on the performance of business with special reference to pre and post pandemic period.

Selection of sample

In total, four businesses from different sectors have been selected for the research by using a convenient sampling method. The following table shows the details of the selected sample.

No.	Business name	Sector/industry
1.	Axis Forming Technology Private Limited	Manufacturing
2.	My Stationery	Stationery Industry
3.	S.G. Lanke construction company	Construction Industry
4.	FojmalJitaji& Co	Jewellery industry

9.Data Analysis and Interpretation

Case Study No. 1

Company name: Axis Forming Technology Private Limited

Introduction: Axis Forming Technology Private Limited

Axis Forming Technology Private Limited is a manufacturing company located in Pune that specializes in producing basic iron and steel components using industrial piercing punches, bold forming sleeves, and industrial punching. The company has a factory outlet in Tirumala Industrial Estate, Pirangut, and employs a day and night shift of 20 employees, including labour, operators, and supervisors. The company's directors are Vishwanath Ratnakar Kalyanshetty and Sujata Vishwanath Kalyanshetty.

Analysis of the case:

Before the pandemic, the company's operations were running smoothly, and they followed traditional business strategies with a focus on a few fixed customers. The company faced no cash flow problems as they had confirmed orders from their reliable clients. They were only working in the automobile sector and did not diversify into other industries. The credit period for customers was lenient due to their long-term collaboration.

During the pandemic, the company faced several challenges, such as customer retention, labour shortage, Covid restrictions, and raw material sourcing. To overcome these challenges, the company adopted various strategies such as diversifying their target segments, reducing the credit period, changing their HR policy, and introducing an online daily improvement group for employees. They also focused on providing accommodation and ration to their employees and obtained necessary passes to operate the manufacturing unit.

Case Study No. 2

Company Name: My Stationery

My Stationery was founded in November 2016 by Ruchika Giri. My Stationery started with a total of 10,000 different products which has diverse options available, - An ultimate destination for Stationery lovers, a wide variety of Stationery ranging from different types of pens broadly categorized into General stationery and Luxury premium stationery products.

Analysis of the case:

My Stationery incurred heavy losses in its first year of operation, but through intelligent marketing and networking, it flourished and opened two more branches in Pune. The success of My Stationery led to the attraction of more suppliers, and they started procuring heavy inventory on a quarterly basis.

However, during the COVID-19 pandemic, My Stationery faced several challenges such as customer retention, employee attrition, branch closures, inventory loss, and rent payments. To recover, My Stationery bought new stock, organized a pen festival, and conducted surveys from different schools and colleges to know the market requirements. As a result, My Stationery recovered its losses after three years of COVID-19 and is currently generating profits.

Case Study No. 3

Company Name: S. G. LANKE CONSTRUCTION COMPANY

This firm has been playing a vital role in the home building industry since 1988. In those years, the company has built over a thousand homes and has maintained a strong presence across the major markets of including.

Analysis of the case:

The case discusses the challenges faced by a construction company during the Covid-19 pandemic and the strategies they used to overcome them. The company faced problems such as high fixed costs, expiration of perishable raw materials, and no cash inflow. To overcome these issues, they paid all wages to retain employees, utilized perishable materials during short unlocks, and sold properties at a discount. The pandemic also impacted the construction industry with labor shortages, supply chain issues, and financing pressures. After the pandemic, the company faced problems such as volatility in steel prices, low working capital, and an increase in indirect expenses. They overcame these challenges by implementing an escalation clause and insurance, renegotiating costing, and availing government-subsidized sanitary services. Overall, the company was able to recover and generate profits after the pandemic.

Case Study No. 4

Company Name: FOJMAL JITAJI & CO

The company that we have chosen is Fojmal Jitaji & Co and is in the camp area of Pune. The company has been in business for decades and the owners of the store are Mr. Rakesh Oswal and Mr. Rahul Oswal. They are masters in the field of gemology and geology and the company deals in Gold, Silver and Gemstone Jewellery.

Analysis of the case:

This case study discusses the impact of COVID-19 on a retail jewellery business in India. The company faced challenges such as fixed costs, expiration of raw material, and no cash inflow during the pandemic. To tackle these challenges, they sold properties at a discount, utilized raw materials during short unlocks, and retained experienced staff by paying bonuses.

The company also faced problems such as volatile steel prices, low working capital, and increased indirect expenses post-pandemic. They navigated through inflation using an escalation clause and insurance, re-negotiated project costs, and availed government-subsidized services. During the pandemic, the company used their reserves to provide mortgage and pay bonuses to employees. They also faced restrictions and a pause in the supply chain, which resulted in a shortage of stones. To survive the pandemic, the company acknowledged the importance of an online presence, cost-effective promotion, and staff education. The lesson learned from this case study is to keep up with current trends, adopt new technology, maintain good customer relations, and embrace e-commerce.

11. Observations

Axis Forming Technology Private Limited:

- Focused on automobile sector pre-pandemic without diversification plans
- Faced labour shortages, provided accommodation and ration to employees
- Acquired new customer providing 70% of total orders during the pandemic
- Faced credit period and payment delay issues leading to operational cycle crisis
- Made changes to business strategies, policies, and HR policies after the pandemic including diversifying target segments, reducing credit periods, and limiting dependence on a single customer
- Introduced new employee initiatives

My Stationery:

- Experienced growth pre-pandemic by attracting suppliers, expanding branches, increasing employee count
- Faced employee attrition, branch closures, inventory loss, reduced sales due to pandemic
- Implemented strategies like innovative marketing, organizing pen festivals, surveying market requirements, utilizing saved assets to purchase new stock to overcome challenges

S. G. Lanke Construction Company:

- Faced high fixed costs, expiration of perishable raw material, no cash inflow during pandemic
- Sold properties on discount, utilized inventory during short unlocks, sold rest to peers to overcome problems

- Faced challenges like volatility in steel prices, low working capital, sudden increase in indirect expenses due to mandatory sanitation norms imposed by the government post-COVID
- Utilized escalation clauses, insurance, re-negotiated costing, availed government-subsidized sanitary services to overcome challenges

Fojmal Jitaji & Co:

- Jewellery business faced significant drop in sales, supply chain disruptions, restrictions on import/export of materials during pandemic
- Utilized reserves to provide mortgage services, retain experienced employees, trained employees through online classes, ventured into e-commerce through social media platforms to promote products to survive during crisis.

12. Suggestions

Based on the cases discussed above, here are some suggestions for businesses in the market:

1. Diversify target segments to avoid dependency on a single industry.
2. Adapt to changes quickly and have contingency plans in place.
3. Prioritize employee well-being and provide support during crises.
4. Limit dependence on a single customer and build relationships with multiple customers.
5. Monitor cash flow closely, reduce credit periods, and find ways to reduce costs and improve efficiency.

13. Research Limitations

The major drawback in this study is the small sample size of businesses that were interviewed; as a result, it is impossible to generalise the findings to all businesses. The study may have been conducted in a specific geographic location or cultural setting, which limits its generalizability to other populations.

14. Scope for Further Research

There are various potential areas for further research to build upon the findings of the current study. Firstly, replicating the study with a larger sample size or in different contexts can ensure the research's reliability and robustness. Secondly, while the study showed a correlation between certain factors (such as sleep, exercise, and social support) and mental health outcomes, further research could explore these factors more comprehensively to determine which specific aspects are crucial for promoting mental well-being.]

15. Conclusion

Overall, these case studies demonstrate the importance of being proactive, flexible, and

adaptive to changing market conditions. They also highlight the significance of employee welfare, customer retention, and cost-effective strategies in ensuring the long-term sustainability of businesses. These case studies serve as a valuable reference for small businesses facing similar challenges during the pandemic and can inform research on the impact of the crisis on different industries.

References

1. Pinzaru, Florina & Zbucea, Alexandra & Anghel, Lucian. (2020). The Impact of the COVID-19 Pandemic on Business. A Preliminary Overview.
2. IBM. (2023). COVID-19 and the Future of Business.
3. Appiah, K.O., Addai, B., Ekuban, W. (2022). Management research and the impact of COVID-19 on performance: a bibliometric review and suggestions for future research.
4. OlenaKhlystova, Yelena Kalyuzhnova, Maksim Belitski. (2022) The impact of the COVID-19 pandemic on the creative industries: A literature review and future research agenda.
5. <https://www.sciencedirect.com/science/article/pii/S0148296321007141>

SUSTAINABLE INDIA: ANALYSING THE VALUES REQUIRED FOR SUSTAINABLE GROWTH

Zeeshan Rizvi

Symbiosis College of Arts and Commerce

Abstract

This study investigates the role of responsible and value-based leadership in promoting sustainability in India, with a focus on three social groups: individuals, corporations, and governments. Data was collected through questionnaires distributed to college undergraduates and from secondary sources such as government websites, research papers, journals, and sustainability reports. The study highlights the urgent need to identify the aspects of our lifestyles that need changing and emphasizes the principles required to achieve sustainable growth and development.

Keywords: *Climate change, Sustainability, Carbon emissions, Development.*

Introduction:

The impacts of climate change have become increasingly evident in recent years, and the issue is now considered one of the biggest threats to life. Despite this, some corporations and governments have been slow to take action. For instance, Exxon, a multinational oil and gas company, employed its own group of scientists in 1977 to investigate the dangers of climate change but refused to publicly acknowledge the findings and even promoted climate misinformation. In response, various efforts are being taken to tackle climate change and promote sustainability. This study aims to analyze the major contributors to climate change, understand the values required for sustainable development, and suggest areas for improvement.

Objectives

- Analyze the major contributors to climate change.
- Understand the values required for sustainable development.
- Identify areas for improvement in critical sectors.

Research Methodology

This study is based on secondary data collected from government websites, research papers, journals, articles, and sustainability reports. Emphasis was placed on information supported by scientific facts and experiments.

Contributors to Climate Change

The major contributors to climate change are corporations and governments. Capitalism has

spearheaded the damage to the planet, with profit-hungry companies exploiting the earth's natural resources and labour.

According to the Third Biennial Update Report to The United Nations Framework Convention on Climate Change published by the Ministry of Environment, Forest, and Climate Change Government of India, the industrial sector is responsible for a significant portion of greenhouse gas (GHG) emissions, accounting for over a quarter of India's total GHG emissions.

Additionally, more than half of the total electricity produced in India is consumed by the industrial sector, which comprises another 40% of national GHG emissions.

Fossil fuels and industry accounted for 89% of global CO₂ emissions in 2018, according to the Intergovernmental Panel on Climate Change (IPCC), making it the leading cause of global warming. India, as a developing country, still relies heavily on fossil fuels for growth and development, and the energy sector is responsible for the largest share of greenhouse gas emissions in the country, accounting for 75% of total emissions in 2016 (excluding land use, land-use change, and forestry).

Transportation is also emerging as a significant environmental threat as infrastructure and global trade continue to expand worldwide. The transport sector contributed to 13% of India's GHG emissions from the energy sector in 2016, making it the second-highest emission category without LULUC.

While the agricultural sector is necessary to support the country's population of 1.4 billion people, animal husbandry and crop production are major pollutants in this sector. However, current trends indicate that the share of agriculture in the total pie of emissions is decreasing. Overall, the study highlights the need for responsible and value-based leadership in promoting sustainability and taking action to mitigate climate change.

Possible Sustainable Solutions

After investigating the problems affecting the planet in the previous section, this section will provide sustainable suggestions and solutions to those problems.

1. Individuals

It is the responsibility of current generations to be the changemakers and lead the way for future generations. This process begins at the individual level. People need to take the initiative to practice a more sustainable lifestyle. However, it is human nature to resist change, and it can be made harder when one does not know where to start. Therefore, it is necessary to understand in which areas of our lives we can improve.

One area where individuals can have a significant impact on greenhouse gas emissions is

their dietary habits. A research team from the United States [3] found that individuals who consume a plant-based diet consisting of whole grains, nuts, seeds, and legumes have lower GHG emissions compared to those who eat an animal-based diet.

Another essential aspect of reducing carbon footprints is reducing food waste. According to a 2011 analysis by the Food and Agriculture Organization (FAO) [4], about one-third of all food produced for human consumption never reaches consumers. Addressing this issue would significantly contribute to improving food security and reducing carbon emissions associated with food production.

To reduce air pollution, people need to avoid using private transport. It is advisable to use public transport or carpool with others to commute. Walking and cycling are the most sustainable modes of transport which help in improving one's health and savings as well.

Consumer habits are one of the biggest ways an individual can contribute positively to the climate change issue. Striving to reduce waste of utilities like water and electricity, being conscious about plastic use and recycling, and embracing concepts like minimalism are the core values of a responsible consumer.

The issue of overpopulation has socio-economic and climate-related implications. According to a study by researchers at UCLA [6], there was a decrease in the number of births in the United States in the nine months following an extreme heat event.

Similarly, a study conducted in China [7] last year found that climate change, especially particulate pollution, was linked to a 20% increase in the probability of infertility among 18,000 couples. The impact of having fewer kids can reduce a person's carbon footprint by 58 tonnes of CO₂ for each year of a parent's life, according to a study published in Environmental Research Letters [8]. This is the most effective way a person can contribute to helping fight climate change in the upcoming years.

2. Industries and Governments

Industries and governments being the major contributors to climate change, need to take a step back from capitalist greed and take a step forward in fighting climate change. Sustainable actions performed by them can significantly impact the climate change movement. For this reason, industries and governments must be at the forefront of the movement.

Fossil fuels are the biggest contributor to climate change today, thus, permanently switching to renewable resources such as solar, hydroelectric and wind energy will be the most effective measure in fighting climate change. Thus, countries and industries must invest in more renewable sources of energy. While eliminating the coal industry will negatively impact

the workforce in this industry, these workers could be rehired by the rapidly growing renewable energy industry. In addition, due to the inability of everyone to access fossil fuel-based energy worldwide, renewable energy has the potential to provide “universal clean energy” to the roughly “700 million individuals” who will be without power by 2030. The cost of switching to renewable energy may come into question; given the world’s heavy reliance on fossil fuels, however, new research has deemed this to not be the case. A huge asset management firm, Lazard recently conducted a study that found that costs of renewable energy, such as wind and solar, may be cheaper than natural gas plants with the prior costing coming to \$30-60 per megawatt-hour and the latter costing anywhere between \$50-78 per megawatts-hour (Wales). In addition, renewable energy is only getting cheaper as time goes on, based on a report by The International Renewable Energy Agency, as the costs for solar photovoltaic panels have fallen by “almost three-quarters from 2010-2017” (Wales). Due to the past, and expected future, decrease in the costs for renewable resources, the increase in job opportunities in the same sector, as well as the innumerable benefits it poses for the environment, switching from fossil fuels to sustainable energy is one of the best financial, social, and political methods at uniting nations and combating climate change on a global stage.

To fight climate change, it is necessary to penalize the worst offenders of pollution today to sway them from committing harmful acts against the environment. One of the ways this can be accomplished is through a carbon tax, whereby a tax is imposed upon energy-intensive industries to discourage them from exploiting their surroundings and pumping more CO₂ into the atmosphere. Currently, 25 nations across the globe have instituted some form of a carbon tax, with a rough estimate of \$40 per ton of carbon emitted. According to the Tax Policy Center, a think- tank, a \$20/ton carbon tax would account for about “0.8 percent of pretax income for households in the lowest income quintile” [9] as opposed to only “0.5 percent for the highest income quintile” as lower-income households are more dependent on the relatively affordable carbon-based energy whereas richer households can branch out and rely on more renewable sources instead. Governments can negate this negative externality through effective social welfare such that the revenue generated from carbon taxes can be channeled back into the economy, leading to the consumers reaping the benefit. Sweden was one of the first nations to establish a carbon tax in 1991 [10], and since then the average CO₂ emission per capita has dropped from 6.69 tons to merely 4.25 tons in 2017.

Investments made in social welfare are also a key component of sustainable growth.

Companies have started giving importance to CSR activities as it provides social, economic, and political benefits along with helping meet SDG and climate goals. Since climate change is a critical issue, the Indian Government has made CSR activities mandatory.

Under the Indian Companies Act 2013, businesses are required to fulfil specific Corporate Social Responsibility (CSR) obligations as per Section 135 of the Act. These include investing funds in CSR activities. The section applies to all companies registered under the Indian Companies Act, whether public, private, or subsidiaries of foreign companies, which meet certain financial thresholds. To be precise, the company must have a net worth of at least 5 billion Indian rupees (around \$69,887,550), a turnover of 10 billion rupees (around \$139,775,100), or a net profit of 50 million rupees (around \$698,850), or a net profit of 50 million rupees (around \$698,850) or more in the preceding financial year.

The year 2021 saw a sharp decline of 64% in CSR spending in India during the financial year 2020-21, as compared to the preceding year. The official data^[11] submitted to the union legislative body shows that the CSR spending in the last financial year was Rs. 8,828.11 crore, a significant drop from Rs. 24,688.66 crores in FY 2019-20 and Rs. 20,150.27 crores in FY 2018-19. One of the most well-known companies for its CSR activities is the Tata Group. They make a great effort at focusing on CSR and sustainable development goals and have a dedicated team and board for this purpose. Tata companies are actively engaged in numerous initiatives focused on community development and environmental preservation. In the fiscal year 2019, the group allocated INR 1,095 crores to their CSR activities and managed to make a positive impact on the lives of 11.7 million people.

The Tata group's activities are related to education, livelihoods and skill development, rural development, water and sanitation, healthcare, and strengthening services. These activities serve as an example for other companies in the industry to do better on their part for the environment.

Conclusion

In conclusion, while time is running out, there is still hope for us to make a difference in combating the effects of climate change. However, it is crucial that all three social groups actively participate in this effort. Sustainable development is not only important for our current generation, but also for the well-being of future generations. It is imperative that we take adequate steps now to save our planet and sustain our species. As John F. Kennedy once said, "We have the power to make this the best generation of mankind in the history of the world - or make it the last." Let us choose the former and work together to create a better

future for ourselves and generations to come.

References

1. Neela Banerjee. (2015). Exxon Knew about Climate Change almost 40 years ago.
<https://www.scientificamerican.com/article/exxon-knew-about-climate-change-almost-40-years-ago/>
2. Ministry of Environment, Forest and Climate Change, Government of India. (2020). India Third Biennial Update Report to the United Nations Framework Convention on Climate Change.
3. Rose, D., Heller, M. C., Willits-Smith, A. M., & Meyer, R. J. (2019). Carbon footprint of self-selected US diets: nutritional, demographic, and behavioral correlates. *American Journal of Clinical Nutrition*, 109(3), 526-534. doi: 10.1093/ajcn/nqy327
4. FAO. (2013). Food wastage footprint & Climate Change.
<https://www.fao.org/documents/card/en/c/7338e109-45e8-42da-92f3-ceb8d92002b0/>
5. The Lancet Commission on Pollution and Health. (2022).
[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(22\)00090-0/fulltext#back-bib1](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(22)00090-0/fulltext#back-bib1)
6. Barreca, A., Deschenes, O., & Guldi, M. (2018). Maybe Next Month? Temperature Shocks and Dynamic Adjustments in Birth Rates. *Demography*, 55, 1269–1293. <https://doi.org/10.1007/s13524-018-0690-7>
7. Zhang, H., Chen, Q., Guo, Y., et al. (2020). Association between exposure to airborne particulate matter less than 2.5 μm and human fecundity in China. *Science of the Total Environment*, 706, 135909.
<https://doi.org/10.1016/j.scitotenv.2019.135909>
8. Wynes, S., & Nicholas, K. A. (2017). The climate mitigation gap: education and government recommendations miss the most effective individual actions. *Environmental Research Letters*, 12(7), 074024. <https://doi.org/10.1088/1748-9326/aa7541>
9. Shonkoff, S. B. (2014). *Climate Change Mitigation: Climate, Health, and Equity Implications of the Visible and the Hidden*. University of California, Berkeley: Center for Occupational and Environmental Health.
https://escholarship.org/content/qt8q36b007/qt8q36b007_noSplash_7d57c47b67b5ff261f72197a80048516.pdf
10. Steininger, K. W., & Zettl, R. (2021). Does carbon pricing reduce emissions? A review of ex-post analyses. *Environmental Research Letters*, 16(7), 073008. <https://doi.org/10.1088/1748-9326/abdae9>
11. The CSR Journal. (2021). Top 100 companies in India for CSR and Sustainability in 2021.
<https://thecsrjournal.in/top-100-companies-india-csr-sustainability-2021/>

ECOPRENEURSHIP: AWARENESS AND ADOPTION

Mayuri Ramesh Telang

Symbiosis College of Arts and Commerce

Abstract:

Ecopreneurship deals with carrying out activities that keep the environment clean while simultaneously meeting business objectives. Ecopreneurs are not provided with any government funding or tax benefits by the government. A survey with students was conducted and conclusions were drawn as students are not fully aware of Ecopreneurship, and they want it to be included in their curriculum. If the Government will provide support in the form of incentives, funding and tax benefits more number of Ecopreneurs will be seen in future. Ecopreneurship and creativity go hand in hand technology should be upgraded for more ecological benefits and customer retention. Ecopreneurs attempt to contribute towards sustainability and profitability as well.

Key words– Ecopreneurship, Ecopreneurs, Sustainable Development, System transforming businesses.

Introduction

The word 'entrepreneurship' is derived from the French root meaning 'to undertake'.

Entrepreneurship can be transformed into a moral act that sustains the earth and the people who live on it. GREEN businesses are established businesses that have become increasingly environmentally conscious since their initial founding- and green-businesses are businesses that are created with an ecological outlook from the very beginning. These individuals work toward the social and ethical transformation of their specific industry.

'Ecopreneurs' are constructing green-green businesses, and these entrepreneurs become the catalyst for change from simply improving existing production processes through regular technological improvements to create ecological economic solutions that can serve as paradigms or exemplary solutions for social change.

Systems-transforming businesses are by definition counter-cultural; they view business as an ongoing experiment for which profits, although paramount, are secondary and either advance technological innovation, or take on radical social and environmental missions.

Need of the Study-

This study allows us to get a clear picture of whether Ecopreneurship businesses are a significant step towards sustainable development. It also enables in furthering the understanding how ecopreneurs

contribute to sustainable development. There is a growing need to study businesses that are profitable and sustainable at the same time.

Research Objective

- Demonstrating Ecopreneurship as a means of transforming society
- Understanding Ecopreneurs perspective on a sustainable approach towards business
- To understand the student's awareness level on ecopreneurship

Research Methodology

The methodology adopted is both quantitative and qualitative. A survey of Ecopreneurs and students has been conducted as well case studies as such Pantagonia and Ben and Jerry's has been done.

Literature review

Ecopreneurship, a combination of entrepreneurship and environmental sustainability, has gained significant attention in recent years. This literature review explores the concept of ecopreneurship in the Indian context, focusing on successful ecopreneur businesses and their environmental impact. The review also highlights the need for awareness, government support, and inclusion of ecopreneurship in academic syllabi to promote sustainable development.

Ecopreneur Businesses in India: Several ecopreneur businesses in India have emerged as successful examples of sustainable entrepreneurship. HonECORE, founded by Abhijeet Makhijani, Gaurav Modi, Neeraj Quadras, Praveen Crasta, and Rohit Bhandari, focuses on the development and manufacturing of honeycomb paper that is 100% biodegradable, non-polluting, and eco-friendly (Ecopreneurship: Is it a viable business model, n.d.). Daily Dump, founded by Poonam Bir, manufactures commercial compost pits that help divert 7000kg of organic waste from Bangalore's landfills every day (Ecopreneurship: Is it a viable business model).

Greenway Grameen Infra (GGI) and Greenway Smart Stove, founded by Neha Juneja and Ankit Mathur, respectively, produce low smoke cooking systems that save trees and reduce emissions (Ecopreneurship: Is it a viable business model, n.d.).

Influence of Patagonia and Ben and Jerry's: Patagonia, a renowned company, aims to reduce its environmental footprint throughout its supply chain, promotes reuse and repair of products, and actively works against fast fashion (Ecopreneurship: Is it a viable business model, n.d.).

According to the research conducted by Good On You, Patagonia rejects fast fashion by creating high quality, long-lasting products and offers a repair and reuse option (Ecopreneurship: Is it a viable business model, n.d.).

Ben and Jerry's, known for its commitment to social and environmental causes, focuses on antiracial practices, supplier diversity, fair treatment of farmers and workers, regenerative agriculture, and reducing its environmental impact through various initiatives (Ecopreneurship: Is it a viable business model, n.d.). The company is committed to becoming a truly antiracial company by eliminating racial disparities within the company and creating Black wealth through their business relationships (Ecopreneurship: Is it a viable business model, n.d.).

Additionally, Ben and Jerry's works with organizations like Fairtrade International and implements best practices in regenerative agriculture (Ecopreneurship: Is it a viable business model)

Research Gap

The research gap identified is to study the efforts of ecopreneurs ventures in order to understand how they are transforming the society.

Data Analysis and Interpretation

Case 1: Patagonia

The company is known for its system-transforming transparency. Patagonia announced that it no longer wanted to call itself a "sustainable brand" during last year Cop26 as it recognised that despite its best efforts, it is still part of the problem. The brand now aims to reduce its footprint further throughout its supply chain so as to reduce emissions. Creating high quality, long lasting products, and offers a repair and reuse option is Patagonia's way of rejecting fast fashion.

- Patagonia has also conducted research with industry bodies on the impact of micro plastics.
- Patagonia has even gone as far as to discourage customers from purchasing too many of its products.
- Patagonia is rated 'good' for the environment and it lives up to the standard it sets itself by pushing for sustainability across the board. The company prevents deforestation, pays a living wage across its entire supply chain, and reduces the amount of materials that are animal-derived.

Case 2: Ben and Jerry's

Since 1988, sourced brownies from grey stone bakery they are committed to becoming a completely antiracial company by eliminating racial disparities by disproportionately creating. Ben and Jerry's views their commitment to a year over year increase in the number of and total

procurement spending with black owned and black led businesses as an international investment that will help boost wealth in these communities. Ben and Jerry's work with organisations like Fair-trade International and Milk with Dignity where farmers make up half the general assembly. The farm worker-led human rights labour standard. Ben and Jerry's is always seeking partners and suppliers who share the same values, including many corporations. Focus on increasing the positive impacts and reducing the negative ones addressing climate footprints by changing cow's food type to reduce emissions. It has increased the use of peloting and adoption of entric feed additive solutions, Working with farmers to implement best practices in regenerative agriculture. Focusing on home-grown feed. Circular and deforestation-free feed, Increasing the grass in cows' diets, Scoop shops and supply chains are encouraged to create a more sustainable packaging process by using less petroleum-based plastic packaging throughout the supply chain.

Case 3: Bio Reform Pvt. Ltd.

Founder & CEO – Mohammed Azhar Mohiuddin

This company has seen amazing month on month growth since launch in both B2B and B2C market segments. Their focus is to make 100% eco-friendly alternatives to plastic in the packaging, medical and consumer sector by 2030. The mission of the company is to fight pollution caused by plastic, one of the world's biggest issues, by raising awareness and offering products that are 100% biodegradable. This will combat plastic pollution to protect the environment and offer consumers a more economical alternative to conventional plastics. It aims to change the entire packaging industry towards green packaging by 2030. They aim to promote awareness and availability of biodegradable items and offer new such products to the market by becoming the leading manufacturing company for biodegradable products. Bio Reforms (Ecopreneurship) generates profits while focusing on sustainable development. Ecopreneurs do not receive financial assistance or tax benefits from the government.

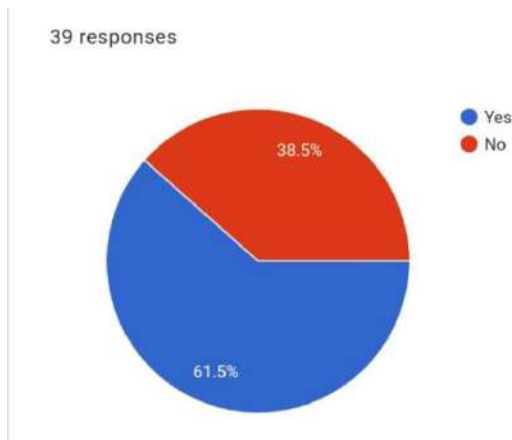
Bio reform's goal is to minimise plastic pollution and the risks connected with it by delivering new eco-friendly goods to customers and raising awareness about plastic pollution and eco-friendly alternatives. Bio Reform's goal over the next ten years is to entirely turn every type of plastic into 100% eco-friendly products.

Primary data analysis: Conducted survey with Students age group (19yrs- 21 yrs)

Sample- 39

Fig: 1 Awareness about Ecopreneuership

Are you aware of Ecopreneurship?



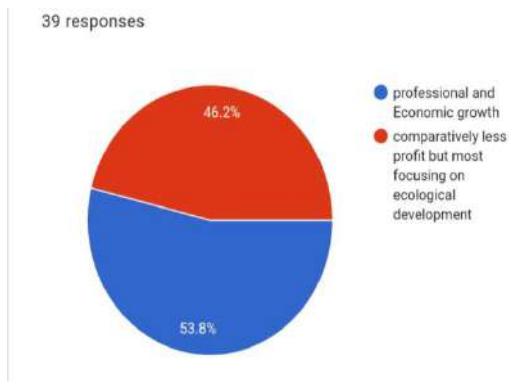
Source: Primary data

The fig: 1 helps us to understand the student's awareness on ecopreneurship. 38.5 % are not aware whereas, 61.5 % are aware.

Do you think there are successful Ecopreneurs in India?

It can be observed that 31.8 % do not think they are successful whereas, 61.2% think they are successful.

Fig: 2 what is your objective of being an ecopreneur?

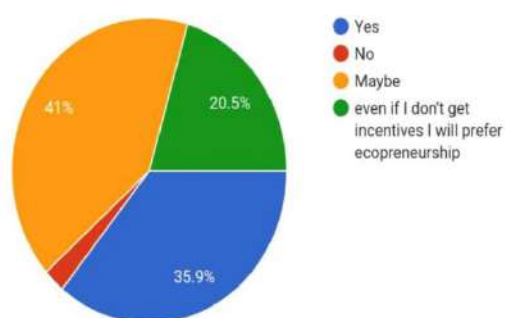


Source: Primary data

For 53.8 percent respondents professional and economic growth is the objective. 46.2 percent responded that profit along with ecological development was the objective.

Fig: 3 Suppose you are provided with economic and social incentives (finance is not a problem now) will you choose Ecopreneurship over entrepreneurship?

39 responses



Source: Primary data

When asked if students were provided with financial help and support would they prefer opting for ecopreneurship the response received was, 20.5% would go for it even if they were not provided with any help or incentive. These 20.5% are the ones who are motivated to take up ecopreneurship and higher education institutes must invest in their ideas. Whereas, 41% could not precisely make up their mind and opted for may be and 35.9 % have said they would opt for it in case they were provided with some incentive.

5. Should Ecopreneurship be part of academic syllabus

On asking students would they like to learn ecopreneurship as part of their syllabi, the responses received are 92.3% say yes and only 7.7 % say no. This indicates a very strong likeability of students to study ecopreneurship.

6. Do you believe sustainable development is a must for the world?

When asked on whether students believe on sustainable development. 97.4% say indicating that large number of students are aware of the sustainable development and feel that it must provide for the world.

Fig 4: What is better: Entrepreneurship or Ecopreneurship

39 responses

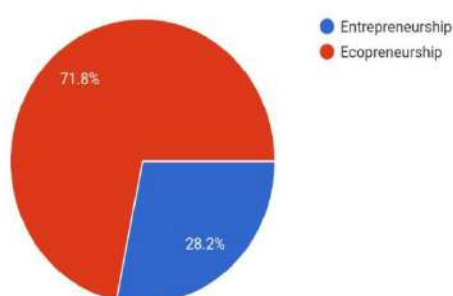


Fig 4 indicates that 28.2% students feel entrepreneurship is better whereas, 71.8% of the student respondent feel ecopreneurship is better.

Conclusion

- Ecopreneurship is a successful business, as well as a sustainable one, according to surveys of Ecopreneurs.
- There is a lack of awareness and inclusion in academic studies, as well as a lack of government support.
- Students are not fully aware of ecopreneurship, and they want it to be included in their syllabus. By providing incentives, funding, and tax benefits, the government will be able to encourage more ecopreneurs in the future.
- Promoting sustainable development by promoting ecopreneurship can have a significant impact on our society.
- The ecopreneurship business model transforms systems (both business sectors and society) to create a sustainable future that saves our planet.

References

1. Chopra, K. (2014, January). Green logic Robert Isaak. Asia-Pacific Journal of Management Research and Innovation, 2(3), 1-3. <https://doi.org/10.1177/2319714514521546>
2. Abdelkaf, N., & Hansen, E. G. (2018). Ethical and sustainable entrepreneurship in the fashion industry: A review on current research. International Journal of Entrepreneurial Venturing, 10(3), 261-282. <https://doi.org/10.1504/ijev.2018.094669>
3. Good On You. (n.d.). How ethical is Patagonia? Good On You, from <https://goodonyou.eco/how-ethical-is-patagonia/>
4. Patagonia. (n.d.). Home. Patagonia. from <https://www.patagonia.com/home/>
5. Ben & Jerry's. (n.d.). Ben & Jerry's. from <https://www.benjerry.com/>
6. Bhaskar, D. (n.d.). Nilayaan Earth. Retrieved from <https://nilayaanearth.com/>
7. Bio Reforms. (n.d.). Retrieved from <https://www.bioreforms.com/>
8. Ecopreneurs' creation of user business models for green tech. (2019, October 30). Retrieved from <https://www.greenbiz.com/article/ecopreneurs-creation-user-business-models-green-tech>
9. Ecopreneurship: is it a viable business model. (n.d.). Retrieved from <https://yourstory.com/socialstory/2020/05/ecopreneurship-business-model-environment-india>
10. Sharma, A. (2020, October 16). 12 Indian eco-entrepreneurs who are fighting the good fight with eco-friendly products. Retrieved from <https://yourstory.com/socialstory/2020/10/indian-eco-entrepreneurs-fighting-eco-friendly-products>
11. Sustainable Development Goals. (n.d.). Retrieved from <https://sdgs.un.org/goals>
12. Ecopreneurship: Is it a viable business model?

Consumer Adoption of Green Products: Bridging the Intention-Action Gap

-Mrinal Bhakuni,

Symbiosis College of Arts and Commerce, Pune

-Marilyn Gomes,

The Maharaja Sayajirao University of Baroda

Abstract:

Creating an environment-friendly economy is a cohesive approach, i.e., collective contribution of consumers, producers, and investors is required to build a green or environment-friendly economy. However, to push this cyclical approach, an increase in consumer demand for green products termed as "Green Consumerism" is essential. The following study investigates that most people intend to purchase environment-friendly products but are not taking any action towards it, due to various factors. We have identified the most crucial factors causing this "intention-action gap" and concluded that bridging this gap also requires a cohesive approach of consumers, producers, and the Government.

Keywords: *Intention Action, Consumer adoption, Green Consumerism*

Introduction

Today, the world is facing numerous environmental challenges, rising sea levels, increasing global temperature, and deforestation to name just a few. All of these factors are raising awareness among us as consumers and the importance of making sustainable choices. Over time, sustainability has evolved into a mindset that has driven the consumption landscape to change. The available environmental data clearly points to an urgent need for collective action of producers, consumers, and investors to minimize the harm that we have inflicted on our planet. Therefore, consumers are making conscious consumption choices by an ever-growing selection of 'green products'. Green Consumerism refers to the practice of making environment-friendly purchase decisions. However, there does not exist enough demand for green or environment-friendly products, to fuel green consumerism. After reading and analyzing various research papers it is observed that people are willing to buy green or environment-friendly products but refrain from doing so. This "Intention-Action Gap" is a major hindrance to Green Consumerism and a sustainable economy. Furthermore, in this paper, 6 major factors causing the intention-action gap: price, green advertising, green washing, knowledge of certifications, lack of product range, and trust in available options

are identified. This paper aims at delving into each of these factors and suggesting measures to overcome them which will ultimately bridge the ‘Intention-Action Gap.’

Literature Review

The extant literature review is undertaken to find out what research has been done so far on green consumerism. Studies that examined green products and green consumption from the perspective of consumers and not businesses are reviewed. Two important keywords, "green consumerism" and “green purchasing gap” for research are used .

The impact of green consumption and consumer awareness of environment-friendly products are the main topics of earlier studies in the field.

Some other major findings of prior research papers are:

Author, Year of publication and Journal	Main findings	Our Opinion
Aindrila Biswas, Mousumi Roy <u>Journal of Cleaner Production</u> Volume 95, 15 May 2015.	The study revealed that the primary factors affecting consumers' behavioral intention to consistently purchase eco-friendly products and willingness to pay a higher price for them are their perceptions of price and knowledge.	The perception of price and knowledge among consumers is the key factor that influences green consumerism.
Do Paço et al. (2019) Journal of Cleaner Production	The study findings indicate that general prosocial attitudes directly affect green consumption values, and green values have a positive impact on green purchasing behavior and openness to green advertising. However, green advertising has only a minor effect on green buying behavior.	However, green marketing has little effect on consumers' green purchasing decisions.

<p>Chekima et al. (2016)</p> <p>Journal of Cleaner Production</p>	<p>"Green purchasing behaviour is greatly influenced by knowledge of eco-labels and certifications.</p> <p>The study found that general prosocial attitudes directly influence green consumption values, leading to positive effects on green buying behavior and receptivity to green advertising. However, the study also found that green advertising has only a weak influence on green buying behaviors. The study further suggests that premium price does not play a major role as a barrier to green purchasing.</p>	<p>Knowledge of green-product certifications impact green consumerism.</p> <p>Premium price has no major effect on green product consumption</p>
<p>Ritter et al. (2015)</p> <p>Journal of Cleaner Production</p>	<p>Green consumption was closely associated to the factors of information and knowledge, environmental attitude, social context, and environmental consciousness. However, the quality and price of green products has shown a weaker relationship with consumption.</p>	<p>Price of green products has shown a weaker relationship with consumption.</p>
<p>judge et al. (2019)</p> <p>Journal of Cleaner Production</p>	<p>the two strongest predictors of willingness to pay for a sustainability certification were familiarity with current sustainability certifications and subjective norms.</p>	<p>Knowledge of certifications positively impact green consumerism.</p>

Gender-Related Beliefs, Norms, and the Link with Green Consumption Volume 12 - 2021	This article compared and explored how and why men and women behave differently when it comes to green consumerism. Women tend to consume less carbon, have more positive intentions towards green consumption, and buy green products more frequently.	Women purchase environment friendly products more than men.
Going green is for girls — but branding can make men eco-friendly Published: August 25, 2016 / Author: Shannon Roddel	This study gives proof that consumers who purchase sustainably are perceived by others as being more feminine and believe this about themselves. The author and his co-authors attempted to alter men's attitudes and behaviour in a series of seven studies by changing minor information about the products. They discovered that if men's masculinity receives a branding boost, they are more likely to buy environmental items.	Masculine branding and marketing techniques can significantly improve green product consumption by men.

Author, Year of publication and Journal	Main findings	Our Opinion
Fishbein, M., Ajzen, I., 1975. Beliefs, attitude, intention and behaviour: An Introduction to Theory and Research. Addison-Wesley, Reading, MA.	The author of this paper conducted a case study on H&M to examine how the company describes sustainability and environmental issues and whether it engages in greenwashing using the various greenwashing "sins" identified in the literature.	Green Washing of products (labelling unsustainable products as green/eco-friendly) is performed by brands such as H & M.
The Green Feminine Stereotype and the Eco-Gender Gap: How Gender Impacts Sustainable Consumption in the Triangle, NC Area Sara Luber North Carolina State University 2021-2022	This paper clarifies how persistent stereotypes about female-dominated households, the relationship between femininity and sustainability, and other unfavourable connections between feminism and the environment contribute to the gender gap. Efforts must be taken to create and market sustainable products in a more gender-neutral way, with legislative incentives to reduce plastic usage, in order to address the gender gap and its impact on sustainability.	Eco-Gender Gap, i.e. considering women as more eco-friendly and relating femininity with sustainability adversely impact purchase of eco-friendly products by men.

Research Gap

Most of the prior research measured consumers' purchase intention and not actual purchase behavior. Consumers are willing to purchase green products but do not end up doing so due to various unstudied reasons.

Research Objective

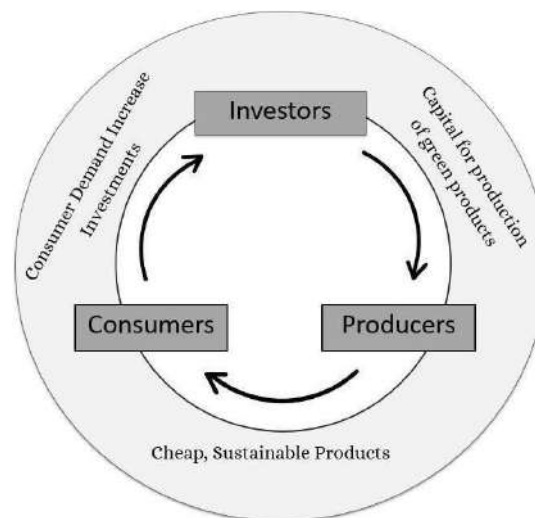
The Intention-Action Gap, which has hampered the uptake of green products, is the focus of this study, which also makes recommendations for bridging the gap.

Research Methodology

We have done qualitative and secondary research by analyzing contrasting research papers, interviews, documentaries, videos, talks, and other sources of data and information from valid sources. We have also conducted a survey of households to understand green consumerism awareness and purchase behavior of households. We have analyzed case studies and case scenarios during our research thus portraying practical impacts.

Data Analysis and Interpretation

It is inferred that creating a sustainable future and doing business responsibly calls on the cooperation of investors, producers, and consumers.



After looking at the connections between these three components and the 'Green Incentive Cycle' has been developed. (Source: Authors)

Working of the **Green Incentive Cycle**:

1. Investors such as VCs, angel investors, shareholders, the Government, etc. provide green finance to the companies.
2. Businesses use these funds to do green-technology* research and use green-manufacturing* to produce green or environment-friendly products on a large scale.
3. Using economies of scale, mass-production of cheap sustainable green products is

possible.

4. Price-sensitive consumers are incentivized to purchase cheaper green products.
5. As consumer demand for cheap green products increases (Law of Demand), investors are incentivized to increase green capital investments.

Thus, the “Green Incentive Cycle” continues.

However, for the start and continuation of this cycle, demand for green products by consumers is essential. To drive the shift towards sustainable practices, it is crucial to encourage green consumerism. Green consumerism refers to the tendency of consumers to purchase products that are manufactured in a manner that safeguards the natural environment (Cambridge Dictionary).

To learn about the effective practice of green consumerism, a survey was conducted in Pune city and the following conclusion was derived.

Particular	Number
Total Household	50
Willing to use green products	40
Willing to pay a premium for green products	35
Using Green products	12

Survey results of 50 urban households in India

It is therefore observed from the primary data collected that the intention-action gap exists in the household. Although consumers intend to buy environmentally friendly products and are willing to pay more for them, they are unable to recognize them. This results in an "Intention-Action Gap", Intention-Action Gap is the difference between what people say they would like to do or plan to do and what they do is known as the "Intention-Action Gap" in behavioral economics. (*behavioralscientist.org*).

After reading various research papers in the field, we realized that 6 major factors are causing the intention action gap, namely eco-gender gap, price, green advertising and green washing, knowledge of certifications, lack of product range, and trust in available options.

1. Eco-Gender Gap

The eco-gender gap refers to the difference in ethical and eco-friendly decisions made by men and women, with women being more likely to engage in environmentally-friendly behaviours. However, advertisers may inadvertently reinforce gender stereotypes by marketing most eco-friendly products to women, which runs the risk of communicating the

message that sustainability is solely women's responsibility.

This is possibly due to the reason that a majority of adults consider a green lifestyle as feminine or effeminate. (Study published by journal Sex Roles).

To prove the above statement, we chose 10 brands from the fashion and apparel sector across the USA to demonstrate that women make up the majority of sustainable consumers. One of the main justifications for this choice was that the fashion and apparel sector is not age- or gender-specific, and the statistics as based on brands from the USA because it is the most developed economy and it's easier to find environment-friendly businesses over there.

Name of the company	Female Audience	Country	Industry
Allbirds	50.24%	USA	Fashion and Apparel
Boody	71.95%	USA	Fashion and Apparel
Toms	66.80%	USA	Fashion and Apparel
United by Blue	63.65%	USA	Fashion and Apparel
Organic Basics	62.23%	USA	Fashion and Apparel
Threads 4 Thought	57.32%	USA	Fashion and Apparel
For Days	71.70%	USA	Fashion and Apparel
Groceries Apparel	59.31%	USA	Fashion and Apparel
Made Trade	68.30%	USA	Fashion and Apparel
Cobalt Street	61.28%	USA	Fashion and Apparel

Source: Self-computation using data from Company's official website and Similar Web

It is observed that the majority of buyers of the above-mentioned companies are women and thus an eco-gender gap exists.

However, to bridge this, Eco-friendly products can be marketed as masculine, or specific branding strategies portraying men as fathered or protectors of nature can be used to target men and promote eco-friendly products among them.

E.g., yoga studios became popular with men when they were known as Broga, explicitly designed for males.

2.Price

A price is the sum of money that one party pays or receives in exchange for goods or services.

The majority of customers in 2022 are willing to pay a premium for high-quality green items that increase long-term advantages, thus price is not a big barrier to purchasing green products. The above statement is proved using the case study of the Philips “Earthlight” CFLBulb.

Philips “Earthlight” CFLBulb:

Philips CFL "Earthlight" Bulb The Phillips' Earth light was a CFL(Compact Fluorescent Light) that used less energy. Earthlight, which debuted in 1994, embodied all that the ecological movement stands for. However, The bulb was incompatible with virtually every standard lamp at the time because it was packaged unclearly and had an odd shape. The "trulygreen" consumers were unconcerned by this because of all the energy-saving advantages. When contrasted to the adaptable 75- cent incandescent bulbs they were already using, mainstream consumers did not see how Earthlight justified either its \$15 price or the purchase of new suitable lamps.

With a focus on its five-year lifetime, Phillips revived Earthlight as "Marathon" in 2000. The design of the Marathon included an attractive new appearance and the adaptability of incandescent lamps. Sales increased by 12% as a result of this, the promise of cost savings of 20%, and the legitimacy offered by the Energy Star seal on the package. However, rather than simply selling their items as green, vendors must emphasize the advantages of their eco-friendly goods.

From the aforementioned example, it can be inferred that, even while cost is not a significant barrier, it is crucial for merchants to emphasize the advantages of their green products rather than simply selling them as such. Additionally, while price-sensitive customers with low levels of greenness can benefit from discounts, and customers with high levels of greenness can benefit from gifts because they don't affect how they perceive the quality of the product. (Because consumer behavior may vary based on demographics).

3.Green Advertising & GreenWashing

The purpose of green advertising is to highlight your brand in relation to the environment or specific environmental concerns.

Green advertising has proved to be effective when companies highlight the environmental as well as long-term economic benefit so fusing green products over non-green ones. Highlighting only environmental benefits is proved to be less effective. (as we can see in the above case study of Phillips’s “Earthlight” CFLbulb.) A consumer should also be careful while purchasing green products as all-natural products are not environment-friendly, the resources it takes to produce them can be devastating to the environment.

For e.g.:palm oil is safe, natural, and potentially sustainable; but, since it is cultivated on plantations where the rainforest has been cleared, it can't be considered sustainable. Furthermore, many products are “greenwashed”.

Greenwashing refers to the false advertising of products as green, people tend to buy these products because of the green tag, but, the environmental effect of buying this product is negative. Greenwashing also causes a lack of trust among consumers and difficulty in the identification of green products.

We have used the example of H&M to discuss the consequences of "greenwashing" and how it affects the intention-action gap. Fast-fashion apparel for men,women,youth,and children is the main emphasis of the international clothing firm H&M (Hennes &Mauritz), which has its headquarters in Sweden.

The example that follows demonstrates how H&M exploited greenwashing to market

Their products as environmentally friendly and profit greatly from the green product label.

The H & M case:

Year: 2021, **Who called it out:** Changing Markets Foundation

Type of greenwashing: insincere sustainable fashion claims,**Location :** EU

The veracity of sustainability claims made by major high-street fashion brands was investigated by the Changing Markets Foundation, and it was found that 60% of claims were misleading. H&M was found to be the worst offender, with an alarming 96% of its claims being unsubstantiated. Textile dyeing is the second-largest water polluter globally, and the water required to produce one cotton shirt is equivalent to “enough for one person to drink for two and a half years”.

Fake Circular Economy:

According to H&M it's Conscious Choice line of clothing "contains at least 50% more sustainable materials, such as organic cotton or recycled polyester, but may include a lot more than that," and is made "with a little more concern for the earth.

"While the Conscious Choice range offered by the company may seem like a step towards sustainability, it is important to note that the majority of the items in this range are made entirely of polyester. This is concerning as polyester does not biodegrade and can spread harmful microfibers throughout the environment."

The H&M brand claims to use recycled polyester from PET bottles; however, according to Commodore, this does not imply "closing the loop" because while PET bottles can be recycled many times, creating textiles out of them hastens the process of heading to the



landfill.

Only 1% of the materials used to produce garments are recycled at the moment to make new apparel. According to Quartz's estimation, H&M manufactures 3 billion clothes annually and is the second-largest fashion brand in the world by sales volume after Zara. In addition, H&M's request that consumers send their old garments back to the store for recycling ultimately encourages them to buy more new clothes, going against the first and most crucial rule of the real circular economy: prolonging the life span of things to consume less of them. The above example demonstrates how H&M greenwashed its products by labelling them as environmentally friendly in order to boost its reputation, build goodwill, and draw in more customers. It is generally believed that the sourcing and manufacturing of green products are expensive, this helped them raise the price of the environmentally friendly product.

4. Knowledge of certifications

Product certification serves as proof that a certain product fulfills all criteria or requirements specified in a contract or by a private, public, or international entity.

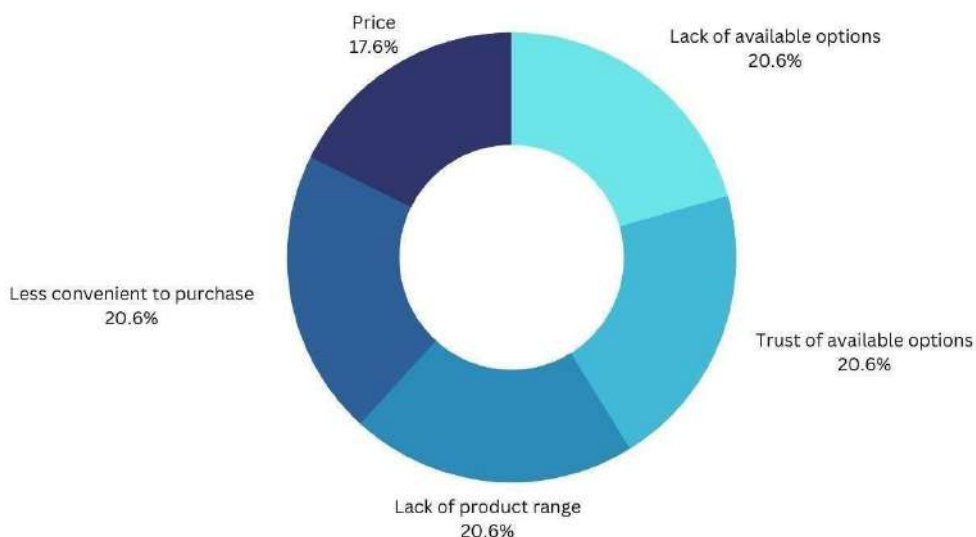
Understanding what certifications entail is essential if you intend to identify businesses that actually practice green initiatives. The accreditation provides the company with a justification for why its product could cost more than those of its competitors.

<p>To prove that people who have the right knowledge of green certifications choose green products over non-green one and are also ready to pay more for green products and vice-versa, we did a survey of 50 people in Pune, of the average age group of 25yrs. We provided detailed information regarding “caged-eggs” and “free-range eggs” and let them decide if they would pay a premium for “Free-range eggs”. Egg Type</p>	<p>Caged-Eggs</p>	<p>Free -range eggs</p>
<p>Label</p>		

Description	Eggs produced from caged hens are obtained by keeping the hens in cages inside climate-controlled sheds, where they are unable to engage in natural behaviours such as dust bathing, walking, and foraging. These hens cannot nest or roost, and they show little or no signs of comfort, such as flapping their wings, stretching, shaking, or wagging their tails. Moreover, keeping hens in cages puts them at risk of being trapped between wires or sustaining foot injuries due to overgrown claws.	Free-range eggs are eggs produced from birds that are permitted outdoors. Free-range hens produce healthier eggs than the rest.
Number of people who chose	15	35
Egg Type	Caged-Eggs	Free -range eggs
Price per Egg	5-8 INR	16-20 NR

5. Lack of product range and Trust in available options

A collection of goods supplied by the same manufacturer to sell at several market segments is referred to as a product line or product range.



According to a survey by Bain & Co. 16,000 consumers in 11 countries throughout Asia-Pacific are eager to purchase responsibly, but there is an apparent “intention- action” particularly in high-growth markets.

Self-computation using data from Bain & Co.

To prove the above survey done by Bain & Co. example of Fast Fashion is used.

Fast fashion can be defined as cheap, trendy clothing that samples ideas from the catwalk or celebrity culture and turns them into garments in high street stores at breakneck speed to meet consumer demand. Product of a sustainable and non-sustainable brand is compared.

Comparison of a product (white shirt) of a sustainable and a non-sustainable brand:

Brand	No Nasties	H & M
Type	Sustainable Fashion	Fast Fashion
A white Shirt	2 items	45 items
Price Range	Rs. 2600	Rs. 800-3000
Size Available	XL-XXL	XXS-XXL
Material	100% Organic cotton, coconut shells (for buttons)	Cotton, Polyester, Elastane or Lycra, Chiffon, Lace, Linen, Velvet, Satin
Founded In	2011	1947
Origin	India	Sweden
Selling Medium	Online and Offline stores	Online and Offline stores
No. of stores (In India)	1 store in Goa	52 stores over 27 cities
No. of visits last month	34,400	75.4 Million

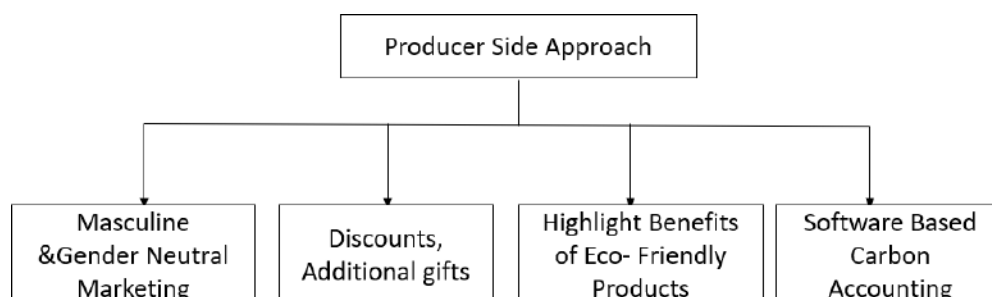
Source: Self Computation using data from the official websites and similar web

H&M is the most popular fashion brand among youngsters in India, that sells fast fashion items. On the other hand, No Nasties is a comparatively new sustainable brand based in India. In the above comparison, we can see people have more trust in H&M since it is well established and has built goodwill, also it has more options and sizes available and has a wider product range of 26 different products than No Nasties which offers 8 different products. (Data from the official website of H&M and No Nasties) Moreover, H&M has more in-person stores and is convenient to buy from.

Conclusion

The most important conclusion drawn from this study is that bridging this gap also requires the collective contribution of consumers, producers, and the government.

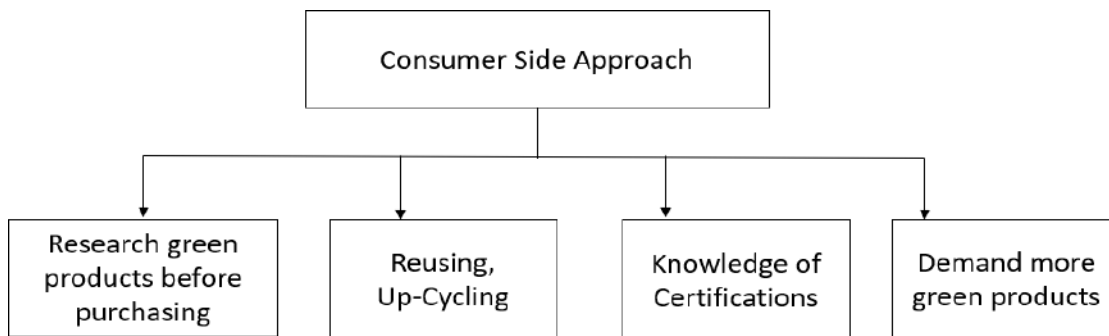
a. Producer Side Approach:



Here, most of the changes can be made by the marketing department. Producers need to alter their marketing techniques.

1. Masculine and gender-neutral marketing of green products.
2. Giving away discounts and additional gifts with eco-friendly products.
3. Marketing department should highlight the benefits of eco-friendly products, and not just market them as green.
4. Companies may unintentionally engage in greenwashing despite good intentions and incorrect calculations. To avoid the unreliable nature of internal or consultant-based manual measurements, as well as the time required, businesses should consider utilizing software-based carbon accounting.

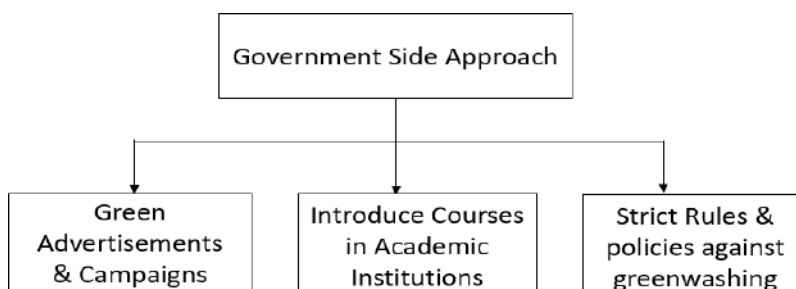
b. Consumer Side Approach:



Consumers can do their part in making environmentally friendly choices.

1. Consumers should research the green products they plan to purchase. That way, one can go for that item and not fall for green washed products.
2. Reducing the amount of purchase and reusing and up cycling what you have is the best way to ensure that you are being sustainable. Consumers can increase their knowledge of certifications and verify the mon the Internet.
3. Regardless of the lack of variety, consumers should demand green products more, as that will increase the supply of green products and companies will eventually increase the product range of green products as well.

c. Government Side Approach:



1. Government should run ads or campaigns to increase awareness of products that seem green but are not green such as “Natural is not environment friendly”.
2. It should introduce environmental awareness courses in academic institutions to impart knowledge of green certifications and identification of green products.
3. Government should have strict rules against green washing (false green marketing) of products.

References

1. Spary, S. (2018, July 27). Women Care More About The Planet Than Men, And Gender Stereotyping In Advertising Might Be To Blame. HuffPost UK. Retrieved January 22, 2022, from https://www.huffingtonpost.co.uk/entry/women-care-more-about-the-planetthan-men- and-gender-stereotyping-in- advertising-might-be-toblame_uk_5b59ad3de4b0de86f493ea64
2. Robinson, L. (2012, December 3). Men vs. Women in Sustainability Shopping. TriplePundit. Retrieved January 23, 2022, from <https://www.triplepundit.com/story/2012/men-vs-women-sustainability-shopping/60196>
3. Table Debates. (2016, September 16). Is Eco-Friendly Unmanly? The Green-Feminine StereotypeandItsEffectonSustainableConsumption.TABLEDebates.RetrievedJanuary23,2022, from <https://www.tabledebates.org/research-library/eco-friendlyunmanly-green-feminine-stereotype-and-its-effect-sustainable>
4. Biswas, A.; Roy, M. Leveraging factors for sustained green consumption behavior based on consumption value perceptions: Testing the structural model. *J. Clean. Prod.* 2015, 95, 332– 340.
5. Are woman more sustainable than men? The Eco Gender Gap and more, from
6. Mobrezi, H.; Khoshtinat, B. Investigating the factors affecting female consumers 'willingness toward green purchase based on the model of planned behavior. *Procedia Econ. Financ.* 2016,

**Innovation in the Mind, Compassion in the Heart
and Passion in the Belly can Help Create Great
Enterprises”**

- Dr. S.B.Mujumdar, Founder President ,Symbiosis

**PUBLISHED BY
PRINCIPAL**

SYMBIOSIS COLLEGE OF ARTS & COMMERCE

Senapati Bapat Road, Pune- 411004