Alternative Energies and Waste Management for Sustainable Development

Aniket Swaraj

Fleur Fernandes

Alternative Energies and Waste Management for Sustainable Development

NEX GEN PUBLICATIONS

India | UAE | Nigeria | Uzbekistan | Montenegro | Iraq | Egypt | Thailand | Uganda | Philippines | Indonesia

www.nexgenpublication.com

Alternative Energies and Waste Management for Sustainable Development

Edited By:

Aniket Swaraj
Head of the Department and Assistant Professor, Bachelor of Management Studies, SIES College of Commerce and Economics (Autonomous), Sion, Mumbai

Fleur Fernandes
Assistant Professor, Bachelor of Management Studies, SIES College of Commerce and Economics (Autonomous), Sion, Mumbai

First Impression: April 2023

Alternative Energies and Waste Management for Sustainable Development

ISBN: 978-81-963599-3-5

Rs. 1000/- ($80)

Published by:
Nex Gen Publications

PREFACE

In today's world, sustainable development has become an important area of focus for individuals, organizations and governments. The need to protect and preserve the environment has become more important than ever, and people are increasingly aware of its impact on the planet. As a result, there has been a growing interest in finding innovative and sustainable solutions that help us live more responsibly.

This book brings together a collection of research papers on various topics related to sustainable development and the environment. The articles explore various aspects of sustainability, like analyzing low-cost agricultural solutions, reducing single-use plastics through sustainable packaging materials, environment-friendly sanitary napkins and paper products. Innovative methods of fuel management and solid waste management are also touched upon in this book. The articles are written by a group of researchers who are passionate about the environment and committed to finding solutions to the most pressing environmental problems of our time. Through their research, they provide a glimpse into the world of sustainable practices and offer suggestions on how we can make a difference.

The topics covered in this book are vast, from renewable energy to waste management and more. Each article offers a unique perspective on sustainability, making this book a valuable resource for anyone interested in learning more about this important topic.

We hope this book will inspire readers to think critically about their environmental impact and encourage them to take action to preserve the planet for future generations.

ACKNOWLEDGEMENT

We are grateful for the opportunity to present this edited collection on Latest Research Trends in Sustainable Business Approaches. First and foremost, we would like to express our sincere gratitude to the Management, Principal and Vice-Principals of SIES College of Commerce and Economics (Autonomous) for granting permission to produce this book and for their support in our endeavour. We would like to express our appreciation to Empyreal Publishing House and Nex Gen Publication House for giving us this publication opportunity.

We want to thank all our colleagues in the Bachelor of Management Studies department at SIES College of Commerce and Economics, Sion (East) for their assistance and co-operation in making this book possible.

We thank all those who contributed their valuable research articles for this book. They have placed their trust and hope in us for coming out with an impactful and insightful publication.

This publication is another endeavour to satisfy the understudy student body's unquenchable interest. The readers of the book are our motivation behind the production and distribution of this book.

Lastly, we are highly grateful to our family members for their ongoing support and encouragement.

Aniket Swaraj
Fleur Fernandes

Table of Contents

ANALYZING HOW LOW-COST FARMING SOLUTIONS HELP SMALL FARMERS INCREASE YIELD AND PREDICTABILITY OF THEIR PRODUCE

Aniket Swaraj, Yashika Chauhan, Karishma Thakker, Pooja Raman, Vrushabh Shah and Pranav Sharma
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Looking at the present scenario, sustainable development is the need of the hour. Sustainable Development means not only meeting the present need but optimally using the resources to take care of future needs as well.

This is a very good initiative taken by Kheyti to provide and equip the farmers all the resources under one roof (Physical, Financial, Human). But these initiatives must reach the farmers for that maximum awareness has to be created and Kheyti has to come down to the level of Indian farmers in order to explain to them the benefits of green kits.

Keywords: MSMEs, Sustainable Development, Innovation, Greenhouse, Kheyti

INTRODUCTION
In accordance with the Micro, Small & Medium Enterprises Development (MSMED) Act of 20 06, the Government of India introduced the term MSME (Micro, Small and Medium Enterprise)

The Ministry of MSME (MoMSME) is responsible for the development and management of MS ME, which consists of organisations that produce, manufacture, process, or preserve goods and commodities.

Startup refers to a business that is just getting started.

Startups are created by one or more business owners who desire to provide a good or service the y feel there is a market for.

These businesses typically have large startup expenses and little income, which is why they seek funding from a number of sources, including venture capitalists.

Sustainable development is a strategy to a nation's economic growth without sacrificing the envi ronment's quality for present and future generations.

The cost of environmental harm is paid in the form of deforestation, air and water pollution, soil erosion, and other environmental deterioration in the name of economic progress. The harm cou ld outweigh the benefits of producing more high-quality goods and services.

Sustainable development is a strategy to a nation's economic growth without sacrificing the environment's quality for present and future generations.

The cost of environmental harm is paid in the form of deforestation, air and water pollution, soil erosion, and other environmental deterioration in the name of economic progress.

Kheyti is igniting the revolution of the smart farmer.

Kheyti, situated in Hyderabad, Telangana, offers Greenhouse-in-a-Box, a low-cost, modular greenhouse kit bundled with financing, inputs, training, consulting (extension), an d marke linkage services, to assist smallholder farmers in India in generating a consistent and rel iable income.

LITERATURE REVIEW

Sr. No.	Name of Journal	Name of Author	Year	Country	Sample Size	Methodology	Key Finding	Source
1	Kheyti: Product and Business Development at an AgTech Social Enterprise	Mohanbir Sawhney, Saumya	2017	India	-	Research Analyses	Should it rely on upfront revenues from sales of the greenhouse, or consider developing an innovative financing or contract farming model?	Emerald Insight
2	Kheyti`s Greenhouse-in-a-Box-Protecting Farmers from the Vagaries of Nature	-	2019	India	34	Quantitative Research		ICMR IBS Centre for Management Research
3	An Analysis of Global Research Trends on Greenhouse Technology: Towards a Sustainable Agriculture	Aznar-Sánchez, José A. Velasco-Muñoz, Juan F. López-Felices, Belén Román-Sánchez, Isabel M.	2020	Spain	-	**Bibliometric Analysis** **Data Processing**	The objective of this study has been to reveal the current status and evolution of the research in greenhouse technology and its areas of application. It has identified the principal driving	MDPI

							agents of the research in this subject, the most prominent lines of research and the technology-intensive areas and gaps in the research.	

OBJECTIVES

1. To understand if Kheyti will help in yield better vegetation.
2. To grow more varieties of plants that might not grow due to unfavourable conditions.
3. To explain the environmental parameters of greenhouse i.e air quality, light, temperature etc.

Null Hypothesis

Low cost kits are of no use for sustainable development for the growth of the farmers. Neither do they yield any positive productivity and results.

Alternative Hypothesis

Low cost kits can be useful for sustainable development for growth of the farmer and improving the yield.

Need for the study

Greenhouse farming is an important aspect of agricultural production. Through recent advancements in greenhouse technology, greenhouse farming has become increasingly productive and is considered to be a promising approach to ensuring that demand for food is satisfied in future.

The greenhouse effect helps to maintain a certain temperature level on Earth's surface, making it habitable for the living beings (humans, animals, plants and other organisms)

It is keeping the country temperature stable which is suitable for living

Green house generally controlled environment plant production which is associated with the off season production of vegetables, fruit etc. It is necessary to study greenhouse because it tell how to grow plant under natural environment

It encourages the people to grow more plants and to reduce the pollution.

Also it is important for the deception of our country. And to stop global warming

Benefits

-Off season production

- Water requirements of crop very limited and easy to control

- year round production

How does greenhouse help sustainability?
Greenhouses help keep surrounding areas undisturbed, preserving the ecosystems and wildlife that live there. Compared to conventional farming, growing in greenhouses is a more sustainable method of food production

LIMITATIONS

Although the current study contributes significantly, there are a few limitations that allow for additional research. There is a chance that a few papers related to the current area of study will be missed because the approach based on a keyword is used to identify papers.

The main limitation for our research was time and sample size. We had only a month to do research on this start-up. Since the Kheyti was founded in 2015 not much analysis has been conducted. We had limited access to data. Our main source of data collection was secondary. We had a time constraint so we could not go to the place itself to visit the farm and examine it in person.

METHODOLOGY

We have conducted a pure research and a qualitative research. We collected data from google scholar by reading few research papers. Our mode of data collection is secondary. We ran a survey to get to know how well people know about greenhouse farming.

CONCLUSION

A crucial component of human life is thermal comfort. More light is needed in workplace buildings than in residential ones. Energy is utilized to maintain the lights and warmth in residential dwellings. Because natural ventilation has the potential to lessen the environmental effect of building operation by requiring less energy for cooling, it is quickly becoming an important component of the design strategy for non-domestic structures. A conventional building with natural ventilation is easily able to offer a high ventilation rate. The mechanical ventilation systems, on the other hand, are highly pricey. Hence, from our research we can say that by adopting the innovative practices of Kheyti like building greenhouse we can hope have a sustainable environment.

REFERENCES

- Sawhney, M. and Saumya (2017), "Kheyti: Product and Business Development at an AgTech Social Enterprise" . https://doi.org/10.1108/case.kellogg.2021.000033
- N. K. K, R. K. G. V. S, P. K. Sekharamantry, M. C. J. Sekhar, V. R. Kumar and A. K. K, "IoT Implementation and Impacts in Agricultural Sector," 2022 International Conference on Applied Artificial Intelligence and Computing (ICAAIC), 2022, pp. 1505-1509, doi: 10.1109/ICAAIC53929.2022.9793076.
- Nuthalapati, C.S.R., Nuthalapati, C. Has Open Innovation Taken Root in India? Evidence from Startups Working in Food Value Chains. Circ.Econ.Sust. 1, 1207–1230 (2021). https://doi.org/10.1007/s43615-021-00074-5
- N. K. K, R. K. G. V. S, P. K. Sekharamantry, M. C. J. Sekhar, V. R. Kumar and A. K. K, "IoT Implementation and Impacts in Agricultural Sector," 2022 International Conference on Applied Artificial Intelligence and Computing (ICAAIC), 2022, pp. 1505-1509, doi: 10.1109/ICAAIC53929.2022.9793076.
- Aznar-Sánchez JA, Velasco-Muñoz JF, López-Felices B, Román-Sánchez IM. An Analysis of Global Research Trends on Greenhouse Technology: Towards a Sustainable Agriculture. International Journal of Environmental Research and Public Health. 2020; 17(2):664. https://doi.org/10.3390 /ijerph17020664

ATHER ENERGY : IT'S IMPACT ON ENVIRONMENT

Aniket Swaraj, Partth Darbar, Muizz Pathan, Mansi Mange, Darsh Ajani and Dhwani Bhanushali
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Global warming is becoming a serious issue which our planet earth is facing . One of the major reasons is increase of burning of fossil fuels . Burning of fossil fuels emits many greenhouse gases which is a really serious problem. Because of this many countries are switching their petrol two- wheelers scooter to electric two-wheeler scooter. In India where alone 18,047,029 units of scooters were sold in FY2021. This means that we Indians mostly use scooters for daily transport as its time saving and fuel efficient . But due to rise in petrol prices and increase in global warming many people are turning towards electric scooter .

Ather energy is an Indian electric vehicle company , which has a headquarter in Bangalore.We are going to study the importance of electric scooter and the growth of Ather energy as a start-up in India and its importance on environment.

Keywords: Ather energy,Electric scooter, Environment, Ather scooter, Start up.

INTRODUCTION
Ather Energy is an Indian electric vehicle company, headquartered in Bangalore. It was founded by Tarun Mehta and Swapnil Jain in 2013. It manufactures two electric scooters - the Ather 450X and the Ather 450 Plus. It has also established electric vehicle charging infrastructure across the country called Ather Grid.

In early 2014, it received ₹4.5 million (US$63,000) from the Technology Development Board under Department of Science and Technology, IIT Madras and Srini V Srinivasan, IIT alumnus and founder of Aerospike. In December 2014, Flipkart founders, Sachin Bansal and Binny Bansal invested $1 million as the seed capital. Sachin Bansal and Binny Bansal expressed a positive sentiment towards the company and showed inclination towards energy-efficient vehicles. In May 2015, it received $12 million from Tiger Global for investments in development, testing, production and the launch of the vehicle.

On 23 February 2016, the company unveiled its smart scooter S340 at a technology conference Surge in Bangalore. Hero MotoCorp invested ₹205 crore (US$29 million) in the Series B round of funding in October 2016 and gained a 32.31% stake in the company. It invested again in 2018 to the tune of ₹130 crores (US$18 million).

In May 2019 Ather Energy raised an investment of $51 million in its latest round of funding, led by Sachin Bansal's investment of $32 million. Ather Energy was one of the earliest start-up investments of Sachin Bansal when he invested $0.5 million in the firm as an Angel investor in 2014. Hero MotoCorp has converted its Convertible Debt of $19 million as a part of this round. In addition to this, InnoVen Capital has extended an $8 million venture debt.

In December 2019, Ather Energy signed a MoU with Government of Tamil Nadu to set up a 400,000 sq ft (37,000 m2) manufacturing plant for electrical vehicles in Hosur. The invested amount will be around ₹635 crores (US$89 million)

The company added two new products to its portfolio, the Ather 450X & the Ather 450 Plus in January 2020. The Ather 450X is a premium electric scooter built from ground up by Ather. A step above the Ather 450 both in features and performance, the Ather 450X has been meticulously designed to redefine the two-wheeler riding experience in India.

Ather Energy raised a fresh round of funds from Hero MotoCorp, in July 2020 as a part of its Series C round. The $11.4 million will be used by the company to aggressively expand its presence and scale to 20 cities by the end of 2021.

Ather has set up its own charging network, dubbed Ather Grid, in Bangalore & Chennai. These DC-fast- charging stations use Ather's proprietary charging method and connector to charge the Ather scooters at a rate of 1 km/min. The charging points are also equipped with a 3-pin socket to supply AC power to other electric vehicles that do not use Ather's connector. Other vehicle can connect to the charging point and start charging using the Ather Grid app for iOS andAndroid.

Ather has plans to set up around 60 points in Bangalore & Chennai, and set up more Ather Grid in other cities as it expands. Ather also sets up a home charging point at customer's homes which will charge the Ather 450 of 80% *including four MTPA capacity which is under commissioning.

ADVANTAGES OF USING ELECTRIC SCOOTERS

A. Cost effective to operate

Electric scooter and petrol scooter costs similar in terms of buying value where as the value of petrol is comparatively higher then electricity which makes EVs a cost effective alternative of petrol vehicles

B. Less cost to maintain

BEVs have less moving parts than those had by conventional combustion engine vehicles. There is less servicing and no expensive systems such as fuel injection and exhaust systems, which are not needed in an EV. PHEVs have petrol engine and need servicing hence costing more than BEVs but they also have an electric propulsion system, which requires less moving parts leading to less depletion of petrol engine parts.

C. Environment Friendly

EVs are less polluting, as they have zero exhaust emissions. If you opt to use renewable energy to charge your EV, you can reduce greenhouse gas emissions even more. Some EVs are made of eco-friendly materials such as the Ford Focus Electric, which is made of recycled and bio based materials and the Nissan Leaf, which is partly made of recycled plastic bottles, old scooter parts and second hand appliances.

D. Health Benefits

As EVs do not produce harmful gases it reduces the air pollution resulting in better air quality .

E. Safer

EVs have a low centre of gravity thereby making them less likely to capsize. They also have low risk of fires and explosions. Their body construction gives them more durability hence making them safer during collisions.

LITERATURE REVIEW

Research has also been conducted, Jin and Slowik (2017) analysed numerous methods of raising consumer awareness for electric vehicles and proposed that more and more awareness programmes for electric vehicle customers are needed to make the idea viable in the market.

Kollosu, Dinesh pitta and Tarun Kumar (2020) analysed the current electric vehicle situation in India and understood about Ather and other players in the market. They also analysed the supporting government policies and regulations and barriers that are hindering the adoption of electric scooters.

OBJECTIVES

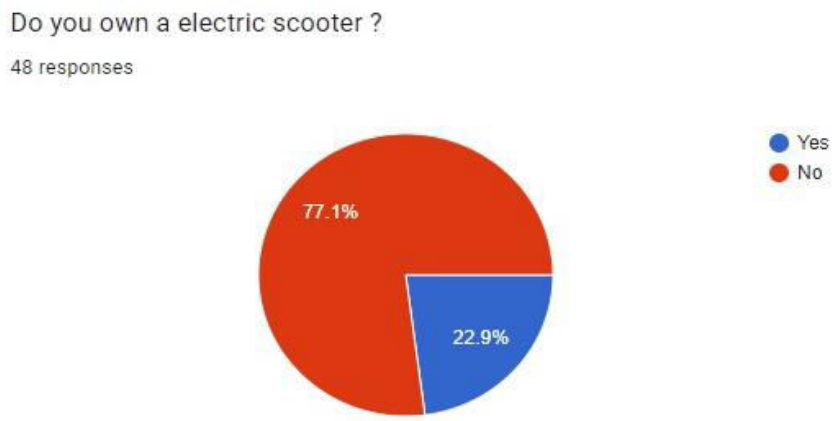
As research is a gateway of opportunities this paper will affect the purchasing decision potential customer. As EV's tends to reduce greenhouse gas emissions and cuts oil expenses this paper will help customer to know it's advantage and motivate them to set their foot towards maintaining a sustainable environment. It will also help in creating awareness about ATHER ENERGY and highlights its benefits along with its objectives.

1. To know about the demands of Ather Energy.
2. To know the brand awareness of Ather energy
3. To know the popularity and brand image of Ather Energy.
4. To know the quality and preference of Ather Energy.
5. To know the existing problems with the product.
6. To know the impact of Ather energy on environment
7. To know whether Ather energy is successful or a failure
8. To present the suggestion, finding to Ather Energy.

Data analysis and interpretation

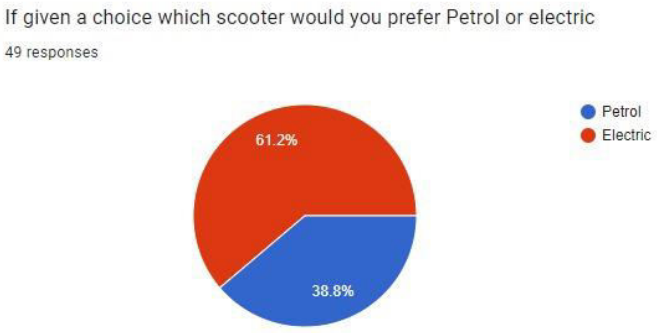
We conducted a survey to check the opinions of the people about the electric scooter and Ather . This survey mostly had people from age 18-32 and both male and female which had 76% male and 24% female riders who ride scooters on daily basis

1. Do you own an electric scooter



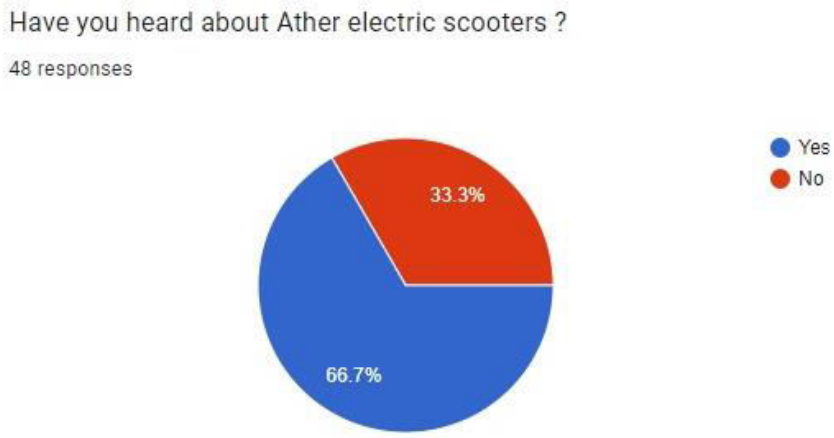
As shown from the survey 80% of the people does not own an electric scooter and 54% of them are willing to buy an electric scooter in future .which shows us that in india electric scooters are very new to people and it might take some years for people to switch to electric .

2. If given a choice which scooter do you prefer electric or petrol ?



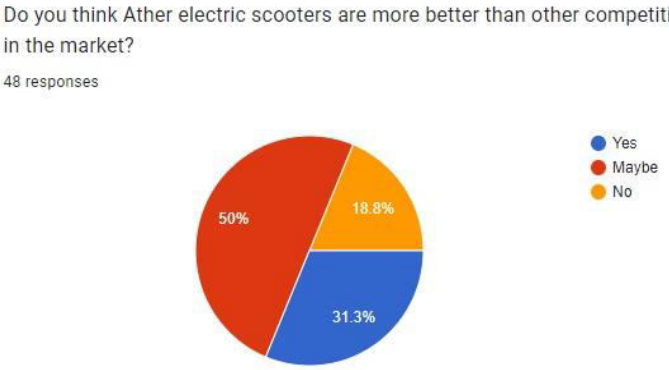
As shown in the chart 58.7% people prefer electric scooter over petrol scooter as they feel electric scooter are more eco-friendly and due to rise in petrol prices not everyone can afford the usage of petrol on daily basis.

3. Have you heard about Ather electric scooters ?



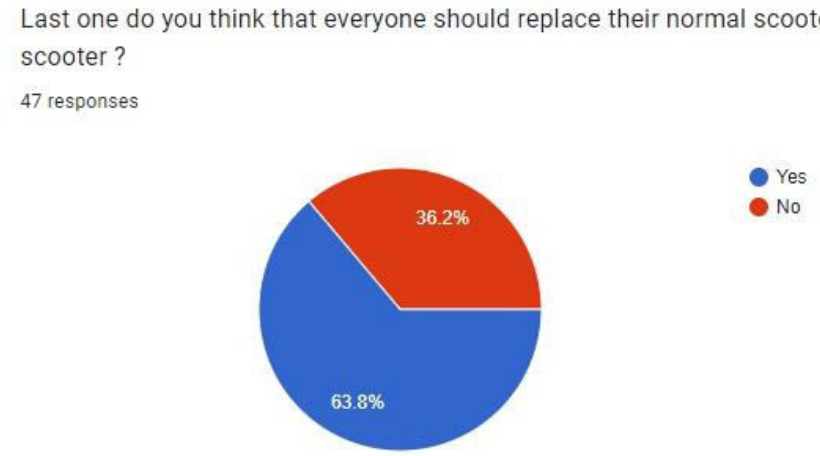
67.4% of people have heard or have awareness of the Ather electric scooter which is really good thing for a company.

4. Do you think Ather electric scooters are more better than other competitions present in the market?



30% of people think that Ather electric scooter are more better than the competitors present in the market and 50% are not sure and 20% prefer other company electric scooter such as bajaj hero etc

5. do you think that everyone should replace their normal scooter to electric scooter ?



64.4% people think that everyone should switch to electric scooters instead of normal scooter because its eco friendly , low cost .

NEED OF STUDY

As the world is facing global warming and one of the major reasons is burning of fossils fuels. As this fossils fuels emits a large number of greenhouse gases it's time to replace them with some eco-friendly energy which can solve the major issue which is causing global warming. In this research we have shown that how electric scooters are better than the old petrol scooters in terms of environment, money etc. Research leads to better understanding of Issues. E- scooters are quite environmentally friendly, since they do not pollute the air during the ride because of their rechargeable battery meaning zero emissions and why people should prefer Ather electric scooter. This paper states the benefits of using ATHER ENERGY as their many potential companies that provides the same services this will ultimately help the readers and affect their purchasing decision.

LIMITATIONS

Even though Ather plans to sell this scooter in more cities than the 450, the startup struggles to be present in smaller towns of the country. The limited availability does become an even bigger issue with established players like Bajaj and TVS stepping into the electric space with the Chetak and the iQube Electric.Talking about Rear disc brake frequently locks up wheel under hard braking.

Braking has been an issue with the Ather scooters. No, they aren't poor brakers. It is just that the brake bite is just too ferocious for the low rolling resistance tyres to handle. This becomes a more pressing matter when you go hard on the rear brake lever, locking up the rear wheel, causing nervy moments. CBS is present but we would have liked Ather to offer ABS to help the scooter remain stable in panic braking situations. The switches do seem a bit out of place on such a futuristic scooter, especially when you compare them to the ones found on the Bajaj Chetak.

SUGGESTIONS AND CONCLUSION

- People who are going to buy a new scooter they should buy an electric one instead of old petrol one as it is better.
- As there is petrol pump everywhere there should be charging station build for electric scooter.
- There should be more awareness about the electric scooters and its important and especially Ather as its good and reliable

REFERENCES

- https://www.atherenergy.com/
- Forumatherenergy.com
- ir.pdpu.ac.in
- http:// 203.201.63.46: 8080 /jspui/ bitstream/ 123456789/5803/1/MR1775%20- %201 CR19 MBA66_ PUNEETH %20 A. pdf

INNOVATIVE PRACTICE INITIATED BY THE START UP- DAES TO PROVIDE BIODEGRADABLE SANITARY NAPKIN

Aniket Swaraj, Gagana Priya Venkatesulu, Kritika Singh, Sonika Senthilvel, Alpha Joy and Srivathsan Narasimhan
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Menstrual hygiene product was introduced by the startup - Daes which is environment friendly and can be used by any age group of women. An online survey was conducted by creating google forms with twelve questions focusing on the usage and awareness of the biodegradable sanitary napkins which was circulated in and around college groups and neighbourhoods.

Ke words: Sanitary napkin, menstrual hygiene, biodegradable napkin, start-up initiative , online survey.

INTRODUCTION
Menstrual cycle is a normal process in women's life.It occurs every month with an average gap of 25-28 days. During menstruation, the body sheds tissue and blood from the uterus through the vagina. Menstrual cycle stays for 7 days maximum per month. An individual woman uses 84 napkins on average per year. We cannot imagine how many napkins are being used by the whole nation in a year. The process of creating a sanitary napkin includes 90% of plastic for conventional disposable. Since plastic is included, it's very difficult to decompose them.

According to a study, the plastic napkins have side effects on the health of the woman causing itching, rashes, and slight inflammation. This ultimately stands as an environmental and health issue. Since it's a necessity product we cannot avoid or reduce using such products.

To come up with the solution, Daes startup has created the biodegradable napkin which turns out to be safe, hygienic and easily disposable with reasonable price compared to other competitors where each individual can afford during their menstruation. Daes sanitary napkins are manufactured by Caregenic Essentials which is Indian based company situated at Jaipur, Rajasthan.

One should adopt using biodegradable napkins so that it's easy to decompose and does not affect the health of the female and our mother earth. Our project was to make our female sisters aware regarding the availability of ecofriendly sanitary napkins

LITERATURE REVIEW

National President of Inner wheel club Dr.Surjit Kaur expressed that Indian women should stop using disposable sanitary pads and shift to reusable or biodegradable pads. It takes 500 - 800 years to disintegrate while it also pollutes air, soil and water and ultimately harms humans. One should adopt biodegradable napkins which are much safer than the plastic ones to the environment and humans.

According to Dr. Singh, New Delhi: "Conventional sanitary pads and tampons available in the market are loaded with plastic. These menstrual products are used for at least 4-6 days per month by most women worldwide. This means a huge amount of plastic waste is generated every month globally. After being disposed of, sanitary products that are usually made out of plastic takes over 500 years to break down," says Dr. Surbhi Singh, Gynecologist and an activist working to spread awareness about the importance of menstrual hygiene in Delhi. She further says that using menstrual products which contain plastic is not only harmful to the environment but is also unhealthy for the user.

It is important to make the right choice of sanitary products and for this, plastic-free biodegradable options can go a long way in keeping oneself and the environment healthy, says This research paper explains the sustainable practices followed to manage and develop eco-friendly sanitary napkins another gynecologist, Deepa Dureja, in a talk with Indo-Asian News Service (IAN along with the products used during menstruation, it is also the habits related to menstrual hygiene among women and young girls that plays a substantial role in having healthy and eco-friendly periods.

OBJECTIVES

1. To provide every woman with affordable biodegradable sanitary napkins
2. To create pads of rich quality with comfort and eco friendly
3. To have high hygienic standard
4. To educate women on the awareness of biodegradable napkins and help them to switch to a better option.
5. To provide a cost-friendly napkin.

Need of the study: This research was required because according to a study, women faced many issues like itching, irritation and skin rashes which lead to hygiene issues such as pelvic infections, allergies, fungal infections, etc. Our research paper can educate and create awareness about the eco friendly napkins which may help the readers to convert their choices for a better lifestyle.This research paper explains the sustainable practices followed to manage and develop eco friendly sanitary napkins.

METHODOLOGY

This research paper explains the sustainable practices followed to manage and develop eco-friendly sanitary napkins.

Primary Data

For this online survey was conducted to know the sanitary napkin usage, problems faced and preference towards new products, during and after the menstrual cycle.

The aim of this work is to identify the various pros and cons that occur due to the available sanitary napkins and other products. A google form was generated with 12 questions focusing on various aspects such as cost afforded by an individual, brand they prefer, checking their awareness regarding the eco-friendly napkins and their willingness to adopt such product. They survey also question on preference and problems of woman during menstrual cycle. The questions were also asked for preferences towards the new product, level of absorbency and herbal finishes on the existing product. A few questions were raised to know the problems such as sensitivity to the product, problem of itching during and after menstrual cycle. The responses received were recorded in the results.

We also interviewed our own family members with respect to what they prefer and the majority had an opinion that if the cost of such biodegradable napkins were reduced they wouldn't mind shifting from plastics and get rid of its harmful effects.

We also contacted our nearest female doctor where we interviewed her on the questions focusing on the major problems faced by the local women and their hygiene issues. She also cooperated and suggested the patients to adopt biodegradable napkins instead of the regular once.

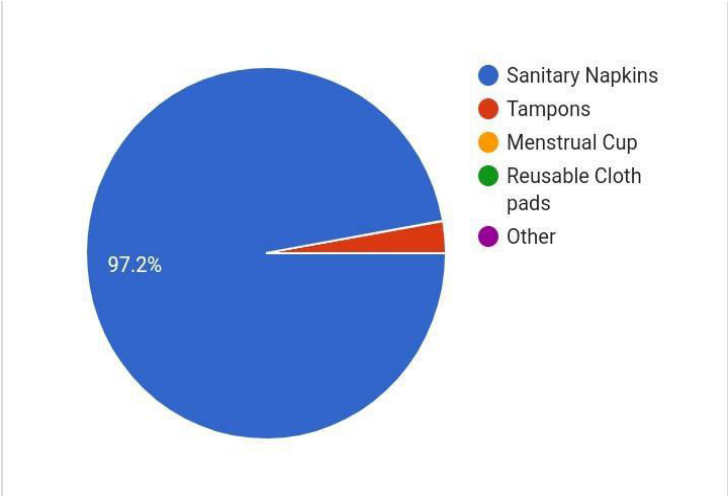
Secondary data:

We collected the reviews regarding the usage of eco-friendly napkins via online websites where the Daes napkins are available.

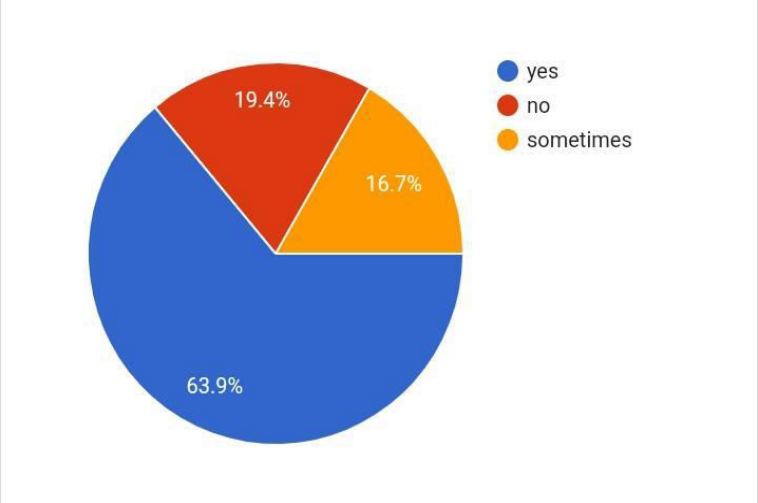
Google scholar helped us to get better insights for the biodegradable napkins.

The manufacturing process of the eco-friendly napkins are stated in the findings of the research paper.

DATA ANALYSIS AND INTERPRETATION



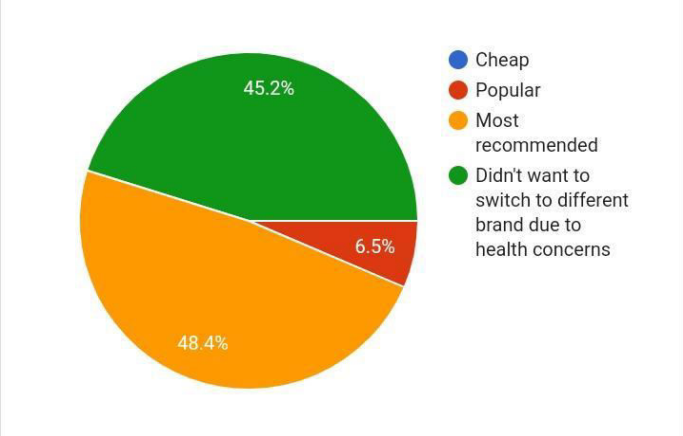
97.2% of responses recorded that they use sanitary napkins over other products.



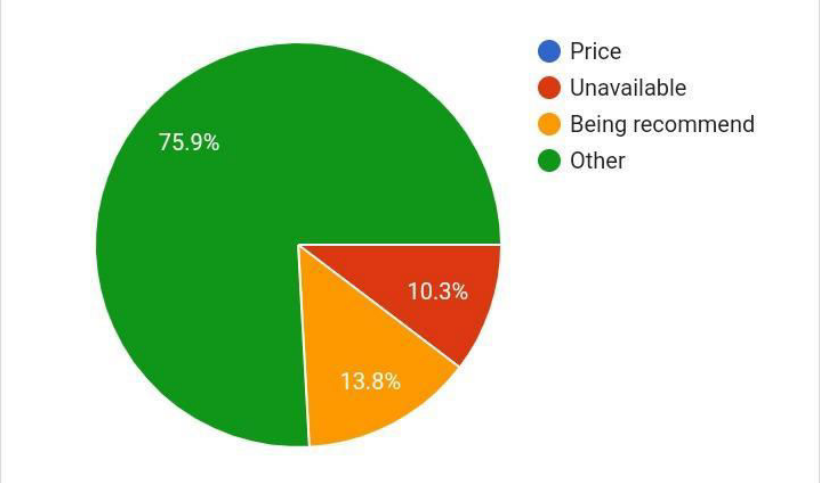
63.9% of responses recorded that they stick to the same brand as they used before.

19.4% of responses have changed their brand

16.7% of responses have sometimes changed and sometimes stuck to the same brand.

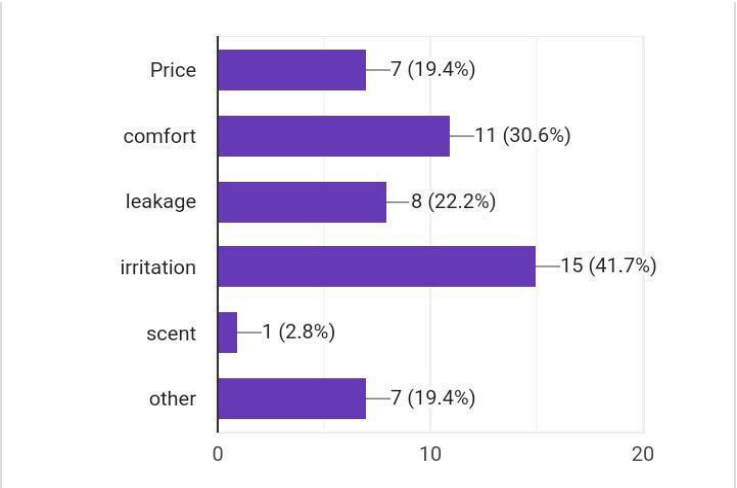


People have stuck to the same brand because it's most recommended(48.4%) and followed by they're concerned about the health(45.2%).

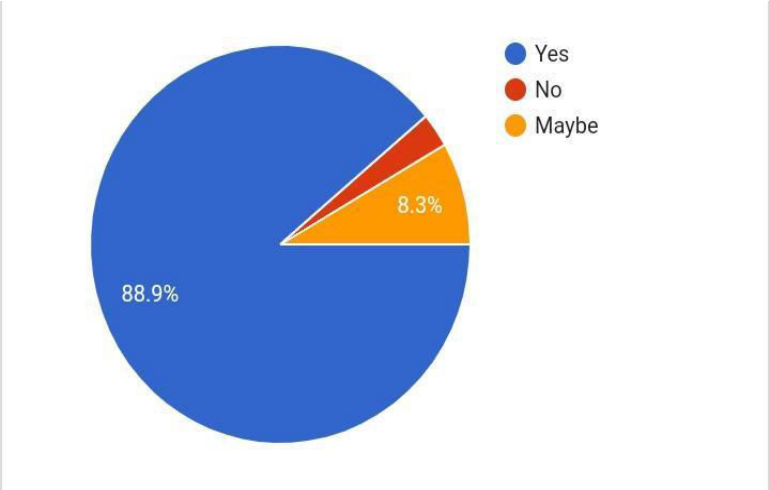


People dropped the brand which they used due to major other reasons which aren't disclosed.

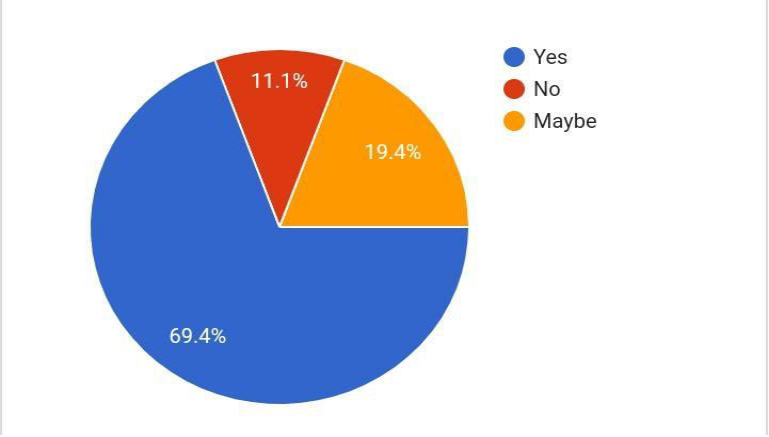
13.8% switched to another brand due to recommendation and 10.3% had to switch to a different brand due to unavailability.



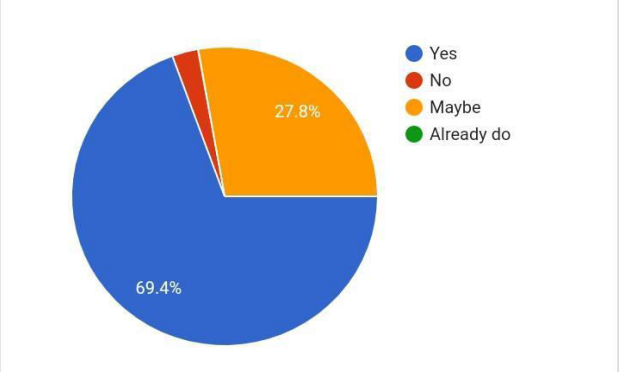
As per the records , most of the people have changed the brands due to irritation caused by the product they use during menstruation.



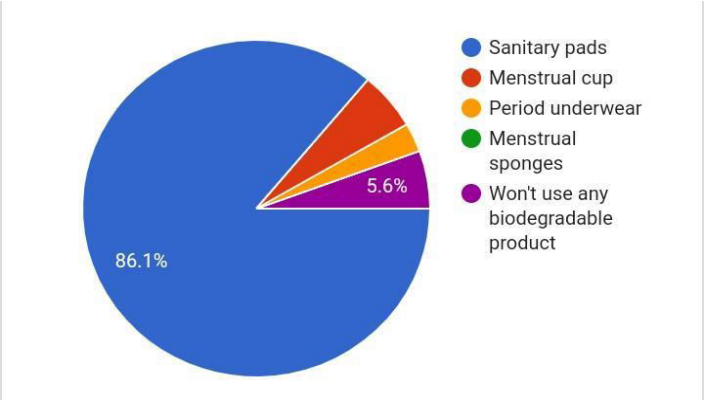
Most of the women are comfortable with the choice of their product yet 8.3% of them are not sure about it



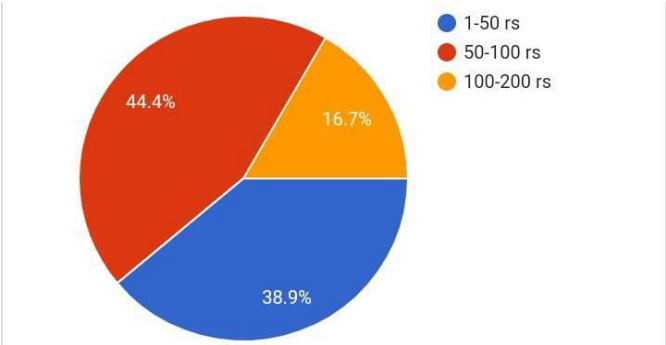
From our Survey derived that awareness among the womens regarding the environmental and health issues that come with disposable period products stands at only 69.4% and that there are 11.1% of women who are still blinded with the lack of knowledge and 19.4% of them aren't aware regarding the same .



As per the records, majority of the women are ready to switch from plastic sanitary napkin to biodegradable ones.



86.1% of women are ready to adopt Biodegradable Sanitary Napkins whereas the others are required to educate the significance of biodegradable napkins and their health.



Survey revealed that on an average women are ready to purchase the napkins if it costs between 1-100rs

Through this paper we have come to a conclusion that somewhat people are aware of biodegradable sanitary napkins and few are unkeen to buy such napkins due to their high cost. We recorded the responses from the google form in order to understand the knowledge women possess with respect to the options for their personal hygiene.

We have to up the advertisements and awareness for such napkins. Sure plastic napkins facilitate the purpose and can be cost friendly but biodegradable napkins facilitate the menstrual purpose in a much more beneficial way and through startups like 'Daes', such napkins are readily available at a significantly lower cost. We have to make such facilities available even to the rural women so they are also free of stereotypes and can face menstruation fearlessly. There are still places in India where the menstruation cycle is considered ominous and women are not given the best facilities. However, if we join hands we can reach the neck of woods and help the needy women in the pursuit. And hence, this research could help in elevating awareness among women that biodegradable napkins are not only for the high-class customers but for every strata of the society without discrimination.

FINDINGS AND CONCLUSION

Daes napkins proves to be Organic, Toxin free, paraben-free, non-carcinogenic, hypoallergenic breathable pads, manufactured with the right standards of hygiene to give you uncompromised care.

The pads are thin and breathable. Designed with a wider back for more absorption, Daes pads will help us to get through our period days leak-proof.

Softer Top-Sheet The plant-based top sheet of the pads makes them naturally soft to give you a rash-free experience. The pads are breathable to ensure that we stay dry and comfortable all day long

As per the data collected, responses prove that individuals would love to try and switch to biodegradable products only if they're at reasonable prices. Daes pads costs 9 rupees per unit irrespective of the number of units they pack. Generally, 7 units are packed in one package, so it costs 63 rupees which is a reasonable one according to the data.

REFERENCES

1. DJ, C. (2020). Intelligent Sanitary Napkin Coin Operated Dispensing System

2. Sharma, P., & Gupta, N. (2020). Menstrual hygiene and infections: Menacing women's health. International Journal of Health & Allied Sciences, 9(2), 99-99.

3. Garg, S., Alvi, R., Gupta, S., & Ahmad, A. (2020). Sociodemographic correlates of access to sanitary pads among college students in Luck now during COVID 19 lockdown. MedRxiv.

6. Dr.Surjit Kaur

7. Dr. Singh https://www.cps.iitb.ac.in/disposable-sanitary-napkins-a-case-of-single-use-plastic/

APPENDICES

Survey questions

https://in.docworkspace.com/d/sIJ2eqJfAAb2ImJ0G

PLASTIC WASTE AND ITS MANAGEMENT STRATEGIES

Aniket Swaraj, Mahek Khatanhar, Prerna Patankar, Saumya Mogaveer, Gopika Nath and Kelwyn D'souza
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Plastic has been a key component of our ability to fulfill our physical needs for more than a century. It has been used in our lives very frequently because of its durability, flexibility and versatility; people are becoming more and more dependent on its use on daily basis. But because of their resilience, plastics linger in the environment for a very long time—possibly forever—creating a pollution and waste issue that cannot be resolved.

Banyan Nation is a plastic recycling and waste management based startup, their contribution to generate premium-quality recycled polyolefin plastics in a nation where plastic recycling is still mostly restricted to a fragmented informal industry and tons of waste ends up in landfills.

Keywords- Plastic, pollution, environment, waste management, recycle, Banyan Nation

INTRODUCTION
The impact of plastics in nature and other, more local environmental issues are receiving a lot of media attention. Environmental issues and associated social issues are more visible in society as a result of rising environmental consciousness and the urgent need to combat climate change.

Plastic is a major part of global solid waste. It is cheap to make but it is very strong and versatile product which makes it difficult to break down the molecules by natural process. Plastic plays an important role in each and every company because it is used for packaging of the products at a large quantity. Some industries let the plastic waste enter the ocean and some burn them due to which the chemicals emitted pollutes the air. To manage this solid waste plastic is recycled using different technologies, methods etc.

Plastic is a common packaging material that is used all over the world. Seven different types of plastic are typically employed in the packaging of a wide range of products: PET, HDPE, PVC, LDPE, PP, and PS.

Our oceans and marine life, as well as our food chain and general public health, are all being impacted by plastic waste. The good news is that efforts around the world to cut down on or eliminate the usage of single-use plastic have been gathering steam.

Polymers are lengthy, organic molecules that are abundant in plastic. Although oil and other petrochemicals are the primary ingredients in most elastic materials, almost any organic polymer is capable of producing elastic materials. The way that each form of plastic is created varies, and each type of plastic is best suited for a particular kind of activity. Some plastics are made to carry drinking water and are clear, whereas others are made to carry hazardous substances and chemicals and are opaque.

Plastics are materials that are robust, simple to work with, and don't react with many chemicals. This is why a variety of compounds can be transported using plastic. For eg- Alcohol, Gasoline, and some acids can be contained safely in plastic containers. While this is n=beneficial to those who produce plastic and use it for commercial purposes, it also means that plastic does not break down quickly. Plastics may linger in landfills for centuries before microscopic organism and chemicals are able to degrade them.

According to an April 2022 report in The Economic Times, plastic waste generated in India amounts to 3.5 million tons.

Banyan Nation was founded in 2103 by Mani Vajipey and Raj Madangopal, it is one of India's first highly integrated plastic recycling enterprises. In a country where recycling efforts are restricted to a fragmented informal sector, it usually results in mismanagement of precious materials and massive marine and terrestrial pollution.

Banyan Nation creates premium-quality recycled polyolefin polymers (PE and PP) for common and high-quality applications using its own technology platform, which also allows it to incorporate thousands of migrant workers into its supply chain. They claims to be the only company that recycles polyolefin materials certified for use in everyday human contact packaging applications such as shampoo, lotion and detergent bottles.

The startup helps to recycle and reuse the plastic to the most possible as they can clean and re-engineer the plastic waste. The startup enabling 1,200 tonnes per annum (TPA) of plastic waste to reuse in the manufacturing process. The startup has developed thermal technology to get rid out of plastic contaminants like metals, labels, auto paints, inks, dirt, oils, adhesives, etc.

Banyan Nation facility encourages businesses to incorporate recycled plastics into their standard products and packaging. There the plastic is cleaned, recycled, and returned to the manufacturing industry .The business has worked with Tata Motors, Intel India, KKR India Financial Services, and L'Oréal India.

Its facility in Hyderabad proves that high-quality recycling is possible, at scale, and in an environmentally and socially responsible way. Its installed capacity is less than 1 percent of the forecast demand for recycled plastics in 2025. “We are scaling up our plastics washing technology to develop premium-quality recycled plastics in injection, blow and extrusion grade materials for applications across diverse industries,” says co-founder Mani Vajipey.

Scientific rigor in segregation, washing and extrusion allows Banyan to identify resins with a high degree of accuracy, prevent cross-contamination, eliminate product and packaging contaminants and produce a consistently high quality product.

By 2024, the business hopes to have 50,000 tonnes of installed capacity. The founders are certain that working together with other startups, established businesses, government officials, and consumers can cause a systemic and seismic shift in how Indians regard plastics and how the rest of the world sees India—as a leader in sustainability.

Recycling is one of the most useful and important action that helps reducing impact that plastic has made and will help in the future too. Recycling provides opportunities to reduce oil usage, carbon dioxide emissions and the quantities of waste requiring disposal.

LITERATURE REVIEW

Serial No	Name of journal	Name of author	Country	Year	Sample size	Methodology	Key finding	Source
1}	Plastics Recycling with Tracer-Based-Sorting: Challenges of a Potential Radical Technology	Johannes Gasde, Jörg Woidask, Jochen Moesslein and Claus Lang-Koetz	Switzerland	2020	-		Based on practical know-how and recent scientific findings, technical recommendations were made to adapt the existing technology concept for better integration into existing recycling processes	MDPI
2}	Business Agility: Industries Adapting To Plastic Phase Out	Aditya Nijap, Chetana Sawant, Chiranjivi Thuse, Omkar Bhadane, Riya Chalke, Sabahat Sayedbukhari, Sagar Tirkhunde, Shubham Patil	India	2019	-	Plastic Ban has caused some companies to come up with innovative ways to deal with its effects. These companies have made successful efforts and changes in their operations.	Analyzed the ways countries and businesses are showing agility by reducing the plastic use wherever possible and most of the times completely substituting plastics with a greener alternative.	Chetana's Rampra sad Khande lwal Institute of Manage ment & Researc h
3}	Green Marketing: A Better Business Model for the Future	Gayathri S,Syama S S	India	2020	-	The study is descriptive and is undertaken by the use of secondary data collected from various sources.	The corporate and customers are into minimizing the adverse impact that the lifestyle can have on the environment. Thus, the concept is evolving and gaining much importance in this era.	Mukt Shabd Journal
4}	Initiating and	Rita	Europe	2021	-	We adopt an	Initiating an	the CIB

	designing an emerging multi-platform ecosystem for the circular economy in the built environment: An empirical case study	Lavikka, Gulnaz Aksenova, Annabella Haavisto				inductive qualitative case study research (Yin, 2009) to articulate and analyse the challenges of the early developmental stages and models of value creation and capture in a multiplatform ecosystem.	emerging platform; designing the emerging multi-platform ecosystem; and overcoming challenges in designing a platform ecosystem for the circular economy in the built environment.	W78 2021 Conference
5}	Agenda 2030: A Challenge for Chemical Science and Industry	R. Aga Van Zeebroeck	Spain	2018	-		Gives an idea of tremendous field that stretches before us. Advancing to global sustainability will depend on the progress of science and cross border collaboration between institutions, academia and industry	Industria Química
6}	Plastic pollution solutions: emerging technologies to prevent and collect marine plastic pollution	Emma Schmaltza, Emily C. Melvina, Zoie Dianaa, Ella F. Gunadyb ,Daniel Rittschofa, Jason A. Somarelli, John Virdind , Meagan M.	USA	2020	-	conducted a systematic search of internet resources, scholarly literature, and patents to identify technologies that either reduce the amount of plastic pollution entering the ocean and rivers or extract existing plastic pollution from waterways.	The search of scholarly literature revealed no additional technologies , although it did result in one additional reference. The patent search resulted in one additional technology. Expert consultations resulted in 12 additional technologies	Environment International 144

7}	Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution	Stephanie B. Borrelle, Jeremy Ringma, Kara Lavender Law , Cole C. Monnahan, Laurent Lebreton, Alexis McGivern, Erin Murphy, Jenna			-	We conducted a descriptive study which undertaken using secondary data collected from internet sources and primary data collected through case studies and surveys	Substantial reduction in plastic waste generation can be made in the coming decades with immediate , concentrated and vigorous actions but even in the best case scenario huge quantities of plastic will still accumulate in the environment	science mag

OBJECTIVES

1. To understand about the different kinds of plastic and how they are harmful to the environment.
2. To understand how business are implementing strategies to eliminate or recycle plastic.
3. To understand what products can be made from recycled plastic.

NEED OF STUDY

In this research paper, we looked into the recycling of plastic. People need to be educated about the value of recycling and reusing plastic, which is why this topic needs to be studied. It is significant because it has a substantial detrimental impact on the environment and indirectly on humans. By publicizing this paper, we are allowing people all over the world access to the knowledge and understanding we acquired through our research about the importance of recycling through such company ie-Banyan nation. This paper will also assist readers in comprehending how recycled plastic can be used to create new products using a variety of techniques and technologies.

RESEARCH METHODOLOGY

This research article discusses about the various ways in which plastic can be recycled, the growth of the plastic pollution, how much people are educated about the harmful effects of plastic and how we should start taking measures for proper waste management.

Primary has been collected based on taking public survey, as to know how well people are educated about the company and about plastic waste management.

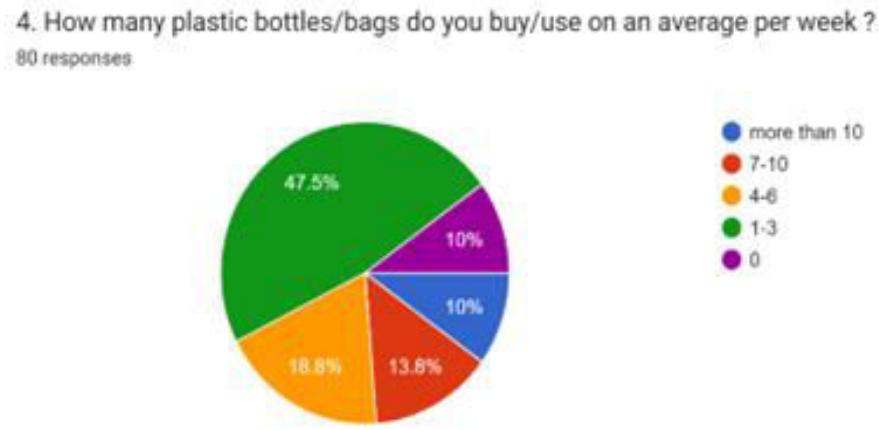
Secondary data has been collected on the basis of research work and a study of past research papers has been done.

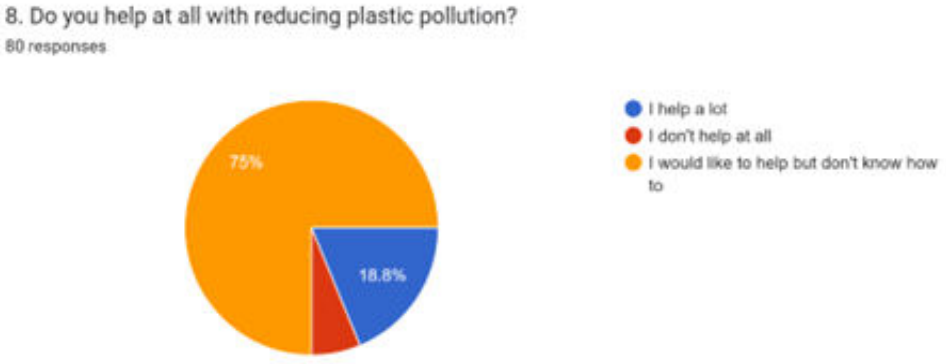
DATA ANALYSIS AND FINDINGS

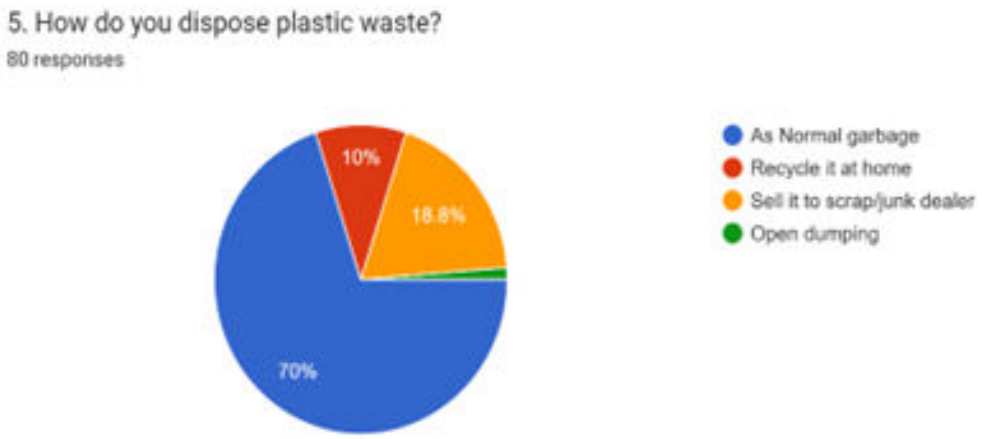
Data was collected thorough google surveys and around 80 responses were collected. From the survey the following data was found-

1. Around 90% of the people know the adverse affects of plastic on the environment and themselves.

2. 70% of the people dispose plastic as normal garbage
3. Majority of the people were not aware about Plastic waste managemant and companies implementing this strategy.
4. Most people want to recycle plastic but are not aware how to dispose in the right manner.







CONCLUSION

Plastic is difficult to get rid of because it is resistant to degradation. Through this research, we are spreading the word about the importance of using less plastic because it is hazardous to the environment.

They should use alternatives, such as cloth bags, paper cups, etc., rather than plastic. People need to gather the plastic they use on a daily basis and deliver it to businesses or organizations that recycle and reuse it. Many such companies like Banyan nation, Unirec, Thaely, Alcis sports, Bottle & Co Econiture new products are being made through recycled plastic.

REFERENCES

- https://www.banyannation.com/#product
- https://www.forbesindia.com/article/2022-climate-special/banyan-nation-recycling-at-scale/76657/1
- https://www.craftdrivenresearch.com/banyan-nation-helping-mission-make-india/
- https://www.sciencedirect.com/science/article/pii/S0160412020320225\
- https://link.springer.com/article/10.1007/s00128-020-02820-1
- https://www.science.org/doi/abs/10.1126/science.aba3656
- https://ourworldindata.org/plastic-pollution?utm_source=newsletter
- https://scholar.google.com/scholar?hl=en&as_sdt=0,5&q=plastic+pollution+research+papers
  https://www.science.org/doi/abs/10.1126/science.abg5433

SUSTAINABLE DEVELOPMENT OF REPROCESSING TO NATURE BY KRILL DESIGN

Aniket Swaraj, Abichandru Sathyan, Venkateshwaran Subhashchandran, Prabhakaran Murugan, Geetika Sugumaran, Dey Sagarika Sandeep Oundrila, Pandaram Priya and Dhakshina Moorthy
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Nowadays we are destroying the nature and polluting it. We are using a lot of nature affecting products unknowingly. In our day to day life we create a lot waste. In that most of the waste are not properly disposed. Even we as an individuals doesn't dispose our waste properly. Government is commonly dumping everything in the dump yard and not properly disposing it. This lack of proper disposal of waste are now creating a lot of pollution and in the return it is affecting us itself. So we are conducting this research to make people aware about proper disposal and recycle of waste by exampling a company which has started it and doing it exceptional well "Krill Design"

Keywords: Sustainability, from waste to product, back to nature

INTRODUCTION
Nowadays we are using a lot of products in our day to day life and we don't know how many of that we are disposing properly. There is a two separate waste "Dry Waste" and "Wet Waste" but we never properly dispose our waste in manner. We just dump it and that lots and lots of dumped waste is gathered together in the dump yard and even its not disposed properly its just burnt or just left dumped if causes air pollution, etc.

So the company which we choose is Krill design. It is an Italian based company. Which uses waste things and creates new designer products for eg . One of its products is a designer lamp from waste orange peels. It's a startup for reprocessing the waste and creates new products which helps in reducing the waste and controls pollution

STATEMENT OF PROBLEM
Current world is facing a lots and lots of pollution. We are leading ourselves towards our own destruction. In that pollution this waste management is also a major start of pollutions

- **Not Proper Waste Management**

The managing of waste is not properly done. Disposal of waste should be made more efficient. A thing should be utilized to its core. The products should be recycled and used

- **Pollution Caused Through the Waste**

When the waste is not disposed properly it creates a pollution like when they burn the waste to dispose it creates a lot of air pollution dump it in a huge scale creates soil pollution in the surrounding areas

LITERATURE REVIEW
Adrian Wilkinson, Malcolm hill and Paul gallon have researched about the sustainability and the way to implement it through a management process in their research paper name "The Sustainable Debate" they have derived the ways to make the sustainability more impactful and to make more managerial ways for it. The research discovered the pros cons of this topic

OBJECTIVE OF STUDY
The following are the objectives for this research paper study

1. To make people aware about the waste management
2. To make people aware of the company take this good attempts
3. To investigate the effects of nonproper waste disposal
4. To educate about the importants of reuse
5. To guide the proper ways of waste disposal
6. To make new ideas out waste

RESEARCH METHODOLOGY

In this study, a combination of both Primary and Secondary data has been used. Primary data used in the form of questionnaire method which has been created using google forms and distributed among internet and social media users. Secondary data it has been used in support the study. Pdf of different research paper is used. Online information about the company and topic sustainability used. The study is the company Krill Design which creates sustainable products from waste. The products are designer items. It leads to speak about the necessity of recycling and waste management.

DATA ANALYSIS AND INTERPRETATION

QUESTION	OPTION	COUNT
Do you know about Krill Design startup	Yes	11
	No	24
	May be	3
Have you heard about converting an orange peel into a lamp	Yes	10
	No	22
	May be	6
Do you ever reused a waste product	Yes	22
	No	9
	May be	7
Will you prefer a recycled or reprocessed product	Yes	25
	No	3
	May be	10
Do you dispose your waste properly	Yes	26
	No	0
	May be	12

INTERPRETATION

The above data shows us that the people more interested in eco-friendly products they are also consent about nature. They to willing to preserve it, just the problem is we need to show them a way. We need address the companies like this and to show case to people to make world eco-friendly. Is turning back to natural products is possible? Yes it is, some years ago we didn't had plastic in use we had cloth bag now we use plastic its became a trend and we all got adapted to the trend. So its now time to make a new trend back nature. People are ready for it we just need many more companies to come forward with such sustainable ideas

RECOMMENDATION OF STUDY

- We should know the importance of nature
- We should think the consequence before affecting nature
- Many sustainable and eco-friendly startups should be started
- We should get back to natural products
- Making people aware of new startups
- Sustainability in any start up is very important

CONCLUSION

Nowadays producing a sustainable product is no longer seen as an problem, but it is now seen as an opportunity. Many startups like Krill Design started to make sustainable products from waste materials that are available from manmade and natural resources. These wastes have harmful impact on our environment. Following are the problems faced by these waste materials:

1. Clogging of drain.
2. Soil Destruction.
3. Ecological Imbalance.
4. Air pollution.
5. Decreases soil fertility.

Here are some of the best ways to get rid of these problems by using less Non – Biodegradable materials and reuse the existing wastes. Many firms and people have stopped using these wastes in order to reduce it.

Government should also promote these start-ups and support them monetarily and non-monetarily so that many start-ups will show up and we can move to a sustainable world.

REFERENCES

- https://www.krilldesign.net/
- The sustainability debate | Emerald Insight
- Sustainability: Development in Practice: Vol 17, No 4-5 (tandfonline.com)
- The Concept of Environmental Sustainability on JSTOR

PIPE MANUFACTURING COMPANIES ATTTAINING SUSTAINBILITY

Divya Thakur and Siddhanth Shetty
Sies College of Commerce and Economics (Autonomous)

ABSTRACT
To understand the sustainable development of msme companies like manufacturing,electrical and so on through questionnaire (google forms) and surveys especially pipe manufacturing companies after 2017 the growth of manufacturing companies increased tremendously and also to understand how these startup industries sustain for a long term period. To understand the sustainable development of MSME companies like manufacturing, electrical and so on with the help of questionnaire (google forms) and surveys especially from pipe manufacturing companies increased tremendously and also to understand how these startup industries sustain for a long term period and what are the factors that helped to sustain this startup.

Keywords: MSME startups, Pipe Manufacturing Industry, Sustainable development.

INTRODUCTION
Water is the source of life, whether being used for agriculture to grow crops or for human consumption. Earlier companies used to manufacture pvc pipes as technology was not improved as a result it created limitation like handling high temperatures but now in modern era manufacturing of upvc pipes are preferred more and made easier for company to sustain their business for a longer period of time as these types of pipes are useful for smooth water heating and are used for any type of plumbing work

OBJECTIVES
1. To understand the current situation of pipe manufacturing industries in India

2. To understand the Sustainable development of this industry

LITERATURE REVIEW
The study was undertaken by the professor in the year 2016 in this Research findings he showed that quality is the most important criterion followed by delivery, cost and vendor relationship management. The research outcomes indicated that the AHP technique makes it simpler to assign weights for the different criteria for evaluating the vendor.

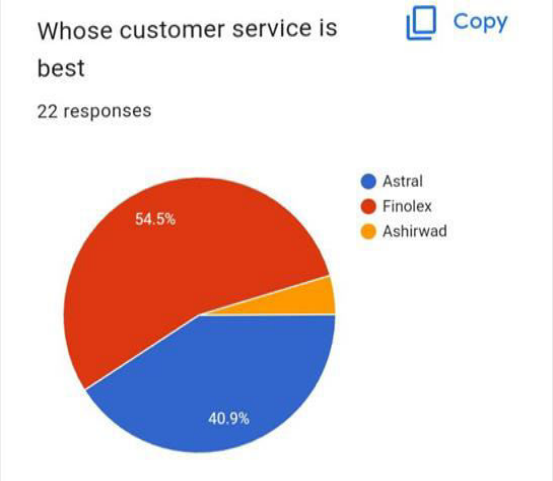
RESEARCH METHODOLOGY
Universe of the study is from SIES college of commerce and economics. Both primary and secondary data was used for collecting information.

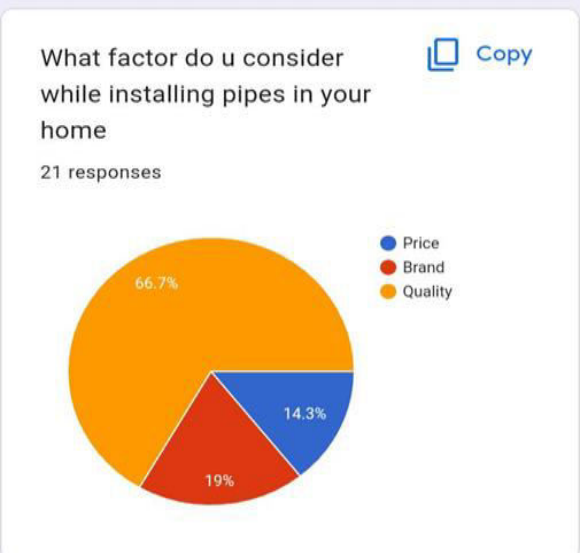
PRIMARY SOURCES
The main sources of collection of data are primary sources. Data is collected with the help of a survey built with Google form which was send to SIES College Commerce and Economics. The survey consisted of statements designed to determine the respondents email id, name age. The questions were answered by choosing predetermined responses. The questions were related to their views towards pipe manufacturing companies.

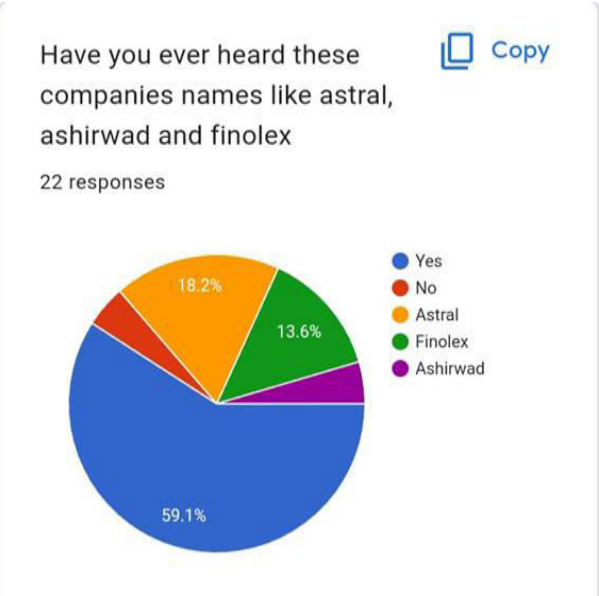
These questions were answered by choosing the yes or no response. Data analysis of the survey questions will reveal the percentages of the respondents that participated.

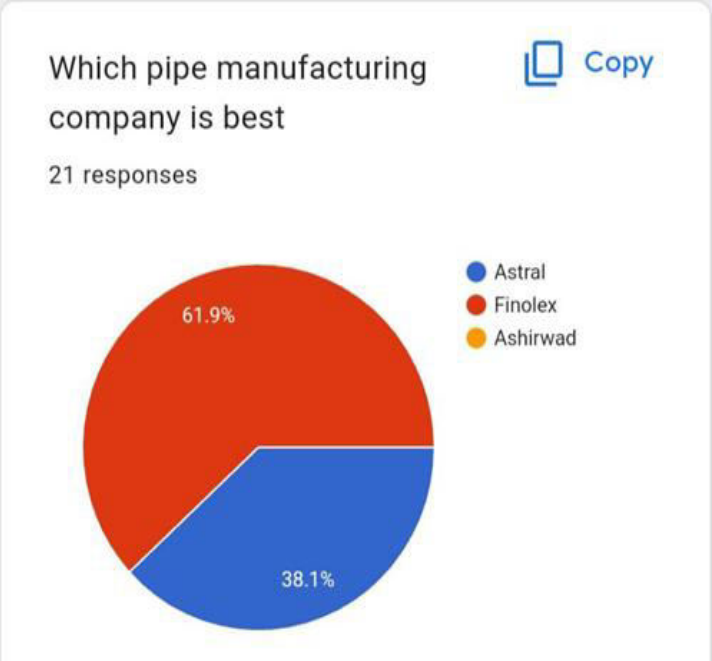
SECONDARY SOURCES
The other data for researches have been collected from secondary sources such as related websites, articles etc.

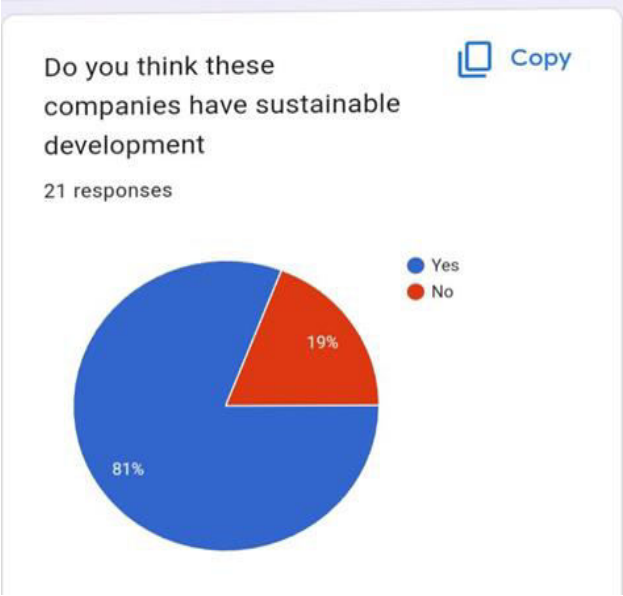
DATA ANALYSIS AND FINDINGS


Whose customer service is best
Copy
22 responses
Astral
Finolex
Ashirwad
54.5%
40.9%


What factor do u consider while installing pipes in your home
Copy
21 responses
Price
Brand
Quality
66.7%
14.3%
19%


Have you ever heard these companies names like astral, ashirwad and finolex
Copy
22 responses
Yes
No
Astral
Finolex
Ashirwad
18.2%
13.6%
59.1%





From the above charts it is understood that 81% of people think that the pipe manufacturing companies has a good scope of sustainable development and also and if the companies focus on good quality pipes then there is an increase in sale of products and also increase goodwill of the company

RECOMMENDATION

1.The company should focus more to bride the gap between IT and operational technology to streamline operations and optimize costs

2.The MSME pipe manufacturing companies should also adapt new transformative technologies

3.The companies should also focus on building better employment opportunities

4.Also the employees should be trained with new technologies to have better manufacturing process

CONCLUSION

As per the research it can be concluded that pipe manufacturing companies contribute to growth or to the G.D.P of India and also from data findings it is clear that the pipe manufacturing companies gaining a sustainable development. The industry should also focus more on producing quality products and set the price of their products which are affordable to their customers. Also they adapt to new technologies and should more R&D so they can manufacture products as per the customer needs and preferences.

REFERENCES

- https://www.nchasia.com/en-in/nch-insights/industry-news/common-problems-with-industrial-pipes-and-recommended-solutions
- https://arxiv.org/abs/1806.03252
- https://kritiindustries.com/benefits-of-using-upvc-pipes-for-your-home-or-office/
- https://www.flowguard.com/en-in/blog/plastic-pipe-industry/

ENVIRONMENTAL IMPACT OF PLASTIC AND PAPER BAGS

Divya Thakur and Sheela Yadav
Sies College of Commerce and Economics (Autonomous)

ABSTRACT
Plastic bags can cause a variety of environmental problems. The raw materials to produce plastic bags are mainly crude oil and natural gas, and the extraction process of those raw materials can cause the emission of a considerable amount of air pollutants to the atmosphere. At the same time, there is a alternative of plastic bags which is paper bags. After analysis of the environmental impacts and the practicability of plastic bags and paper bags , we proposed several benefits of paper bags which can help the environment.

Keywords: Plastic bags; Paper bags; Reduce; Reuse; Recycle.

INTRODUCTION
Plastic bags have been introduced in 1970's and gained an increasing popularity amongst consumers and retailers. They are available in huge numbers and varieties across the world. It is estimated that around 500 billion plastic bags are used every year worldwide. This widespread utilization is attributed to their cheapness and convenience to use. The vast majority of these bags are discarded as wastes usually after a single use. It is also believed that after their entry into environment, plastic bags can persist up to 1000 years to degrade and hence pose a disposal challenge without being decomposed by sun light or microorganisms. Accumulation of plastic bag wastes causes environmental pollution that can be manifested in number of ways. One of the problems is deterioration of natural beauty of an environment. Another common problem associated with these plastic bag wastes is death of domestic and wild animals. Blockage of sewerage systems is becoming a common problem in cities and instruments such as levies and taxes to restrict the use and production of plastic bags. Though, they are not as such effective, voluntary initiatives have also been attempted in some countries to reduce plastic bag use.

Paper bags are gaining importance as these bags are 100% reusable, recyclable and biodegradable and at the same time environmental friendly and pose less threat to wildlife. It requires less energy for paper bags to be recycled than plastic bags. Paper bags have come a long way since their beginnings in the mid – eighteenth century when some paper bag manufacturers started developing paper bags that are more hardy and long lasting. The paper bags are generally box-shaped in design that allows them to stand upright and hold more goods.

There are many businesses in India that manufactures paper bags. Urja Packaging Pvt. Ltd. Is one of those startups.

URJA PACKAGING PVT. LTD.
Urja Packaging is India's largest manufacturer of paper bags. The company claims to replace ten plastic bags per second of everyday with recycled and also agro-based paper bags.

Established in 2012, they provide clients with environment – friendly paper bags in a bid to protect the earth from the harmful effects of using plastic bags. They aim to abide by the core values of Quality, Eco-friendliness and Hard work while providing quality products to clients at affordable prices. Their business model is B2B, B2C, B2B2C, and B2G.

By 2019, Urja Packaging was making a turnover of Rs. 3.5 crores. Despite the pandemic, they registered 10X growth and clocked a revenue of Rs.23.5 crores in FY22.

LITERATURE REVIEW

The studies and research papers of various researchers have been studied. The review helped in understanding the detailed review and perception of various other researchers and helps in identifying the gap and issues faced.

1.Rhian Tough (2007) used a mixed comparative approach to investigate the environmental impacts of plastic shopping bags and consumption patterns, in relation to international practice.

The mixed comparative alternative used in this research was a combination of the philosophies underlying cost benefit analysis, sustainable development, case studies and policy analysis. Economic instruments while achieving modest to high reductions in plastic shopping bag use, were moderately costly, and also face acceptance and implementation constraints. However, due to strong public pressure for government intervention, and potential implications for future climate change and sustainability initiatives, it was suggested that economic instruments and regulatory options were the most likely choices for government policies to address plastic shopping bags.

2.Santanu Mandal (2011) in his study "Porter's Five Forces of Analysis of the Indian Plastic Industry" he has analyzed the plastic industry of India in terms of Michael E. Porter of Harvard Business School in 1979. Porter's five forces are

i. Bargaining power of suppliers
ii. Bargaining power of buyers
iii. Internal Rivalry
iv. Entry
v. Threat of Substitutes

So far as the Porter's five forces analysis of this industry is concerned, bargaining powers of suppliers is low while that of buyers is high. Entry is difficult and it entails the incumbent to have significant capital to invest if it wants to enter this industry. On the internal rivalry context, the rivalry is high, and firms often engage in price wars. It is easy for small firms to change prices and increase market share, but the large ones find difficult to switch quickly. On the whole plastics are essential for today's standard of living and they help in improving the quality of life. It is expected that plastics will continue to grow dynamically.

OBJECTIVES

1. To differentiate between impact of plastics bags and paper bags on the environment.

2. To create awareness among the people regarding environmental friendly paper bags industries.

3. To arrive at some solutions to make paper bags more popular.

RESEARCH METHODOLOGY

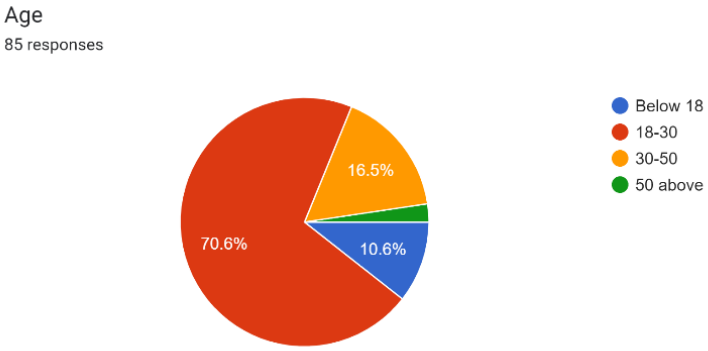
Research methodology is the method through which data is collected. There are two types primary and secondary through which the data is collected for this research.

Primary Data: The primary data required for the study was collected from 85 active respondents from different age groups. The data was collected by a survey through Google forms.

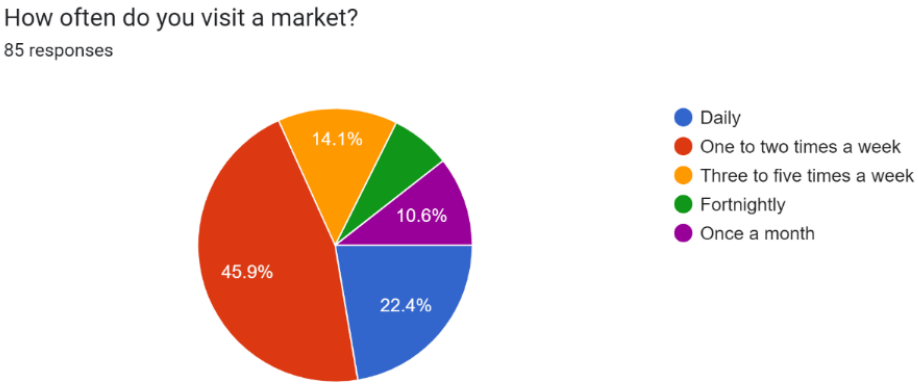
Secondary Data: The secondary data required for the study was collected through internet search engine and other research papers.

DATA ANALYSIS AND FINDINGS

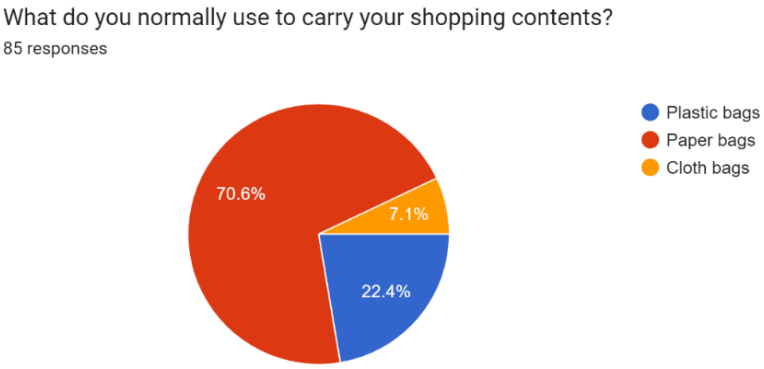
A survey using questionnaire was conducted for the research. According to the objectives of the study the data was analyzed.



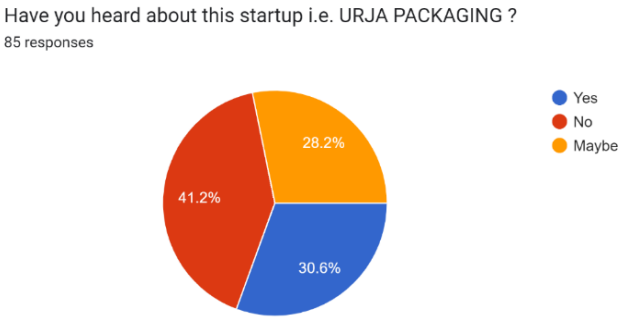
In chart 1: It shows that out of 85 respondents, 70.6% are in the age group of 18-30 whereas 16.5% are in the age group of 30-50. Below 18 age group the respondents are 10.6%.



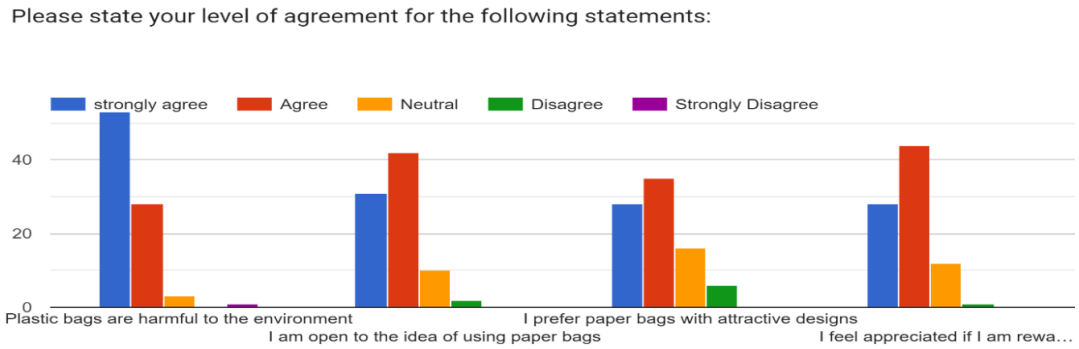
In chart 2: the data shows that 45.9% are the persons who visit market three to five times a week. On daily basis 22.4% visits the market whereas 14.1% are those individuals who visits the market on three to five times in a week. Only 10.6% visits the market once in a market, others visit the market on fortnightly.



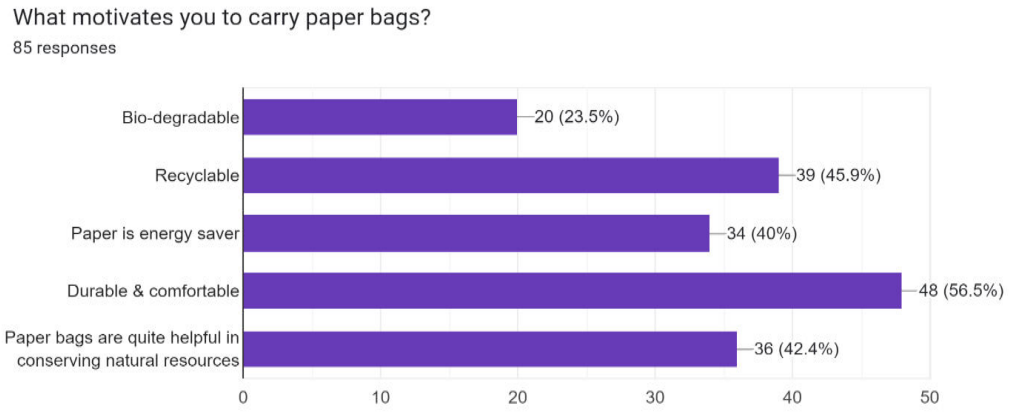
In chart 3: According to the data, 70.6% people generally use paper bags for shopping whereas 22.4% use plastic bags. 7.1% are those people who use cloth bags for shopping.



In chart 4: Data shows that 41.2% respondents know the Urja Packaging and 30.6% doesn't know it. 28.2% respondents may be knowing the company.



In chart 5: According to the data, people strongly agreeing that plastic bags are harmful to the environment and their responses shows that they agree to an open to the idea of using paper bags, they accept if bags are in attractive designs and also if they rewarded with some loyalty points or free gifts by not using plastic bags.



In chart 6: As per the data, the respondents are highly motivated to carry paper bags is 56.5% due to its durability and comfortability, then recycle of used paper bags. 42.4% respondents are motivated because paper bags are quite helpful in conserving the natural resources such as water.

RECOMMENDATIONS

- People should use paper bags as they are recyclable and decomposable fast as compared to plastic bags.
- If plastic bags are not replaced, plastics can be effectively controlled when the plastic restriction order is implemented. Everyone should also regard plastic bags as not a disposable product and use them multiple times, which is feasible in the long run. Technically we should also develop new technologies, such as biodegradable plastic bags.
- Government as well as non-governmental organizations should arrange national and international conferences to highlight more on negative impacts of plastic bags and can also announce through television, radio on the short term and the long-term harmful effects of plastic bags.
- Promoting more environment friendly paper bags and making available into markets.

CONCLUSION

Through this research it is concluded that most of the respondents are aware of paper bags. Paper bags are Eco- friendly bags which can be used in our day-to-day life. The Indian Government should increase the rate of the use of the paper bags. As plastic bags are easily available in the market, paper bags should be available in the market at low cost and as they are durable and recycled easily as compared to plastic bags. So, people won't be hesitating to carry paper bags.

REFERENCES

1. Subramaniam Senthilkannan Muthu, Yi Li, An Exploratory Comparative Study on Eco-Impact of Paper and Plastic Bags,
2. Riyad Moharam, Maher Ali Al Maqtari (2014) The Impact of Plastic Bags on the Environment: A field Survey of the City of Sana'a And The Surrounding Areas, Yemen
3. https://yourstory.com/smbstory/adeera-packaging-noida-paper-bags-business-entrepreneur-success-story
4. https://yourstory.com/companies/urja-packaging
5. https://maesindopaperpackaging.com/5-reasons-to-use-paper-bags-over-plastic-bags/
6. https://www.ijert.org/study-of-shopping-plastic-and-paper-bags-effect-on-environment-a-review

REDUCING SINGLE USE PLASTICS BY SUSTAINABLE PACKAGING MATERIALS

Divya Thakur and Arunthathiyar Dinesh Velmurugan
Sies College of Commerce and Economics(Autonomous)

ABSTRACT

In today's modern world with growing technology it has many positive and negative impacts. With increase in technology and online shopping the packaging of every product is must. The packaging of most of the products are made of plastic, which does not get decomposed and it stays for long on the land which creates pollution and contribute to the environmental issues and affecting the environmental balance. Therefore to reduce such imbalance and there are some companies that are contributing to the environment in a positive way by manufacturing the products that are plant based and which are totally biodegradable and does not leave any residue after their use and also the products serve the same purpose as the plastic packaging serves. The companies producing such sustainable products are growing and has a good impression on the audience and are being welcomed by government. The materials used by these companies for production of such products include bamboo, sugarcane, seaweed, reused cardboard. This research is done to know what are the perception of people on ecofriendly material on sustainable packaging. The research can provide a better understanding of why consumers prefer sustainable packaging over plastic packaging and their satisfaction level and how much they are aware of the companies that uses sustainable packaging and they have bought any sustainable packaging products and how it can contribute to a better environmental balance and help in reducing plastic. Most of the people are impressed and attracted towards the concept of sustainable packaging and using materials which are eco-friendly and has a good impact on the environment.

Keywords: Sustainable, Environmental, Bio-degradable, Eco-friendly, Online shopping

INTRODUCTION

In today's fast moving world with increase in technology and other advancements there are both positive and negative aspects which directly or indirectly affects the people and the environment and disturbs the ecological balance. So as to overcome this and reduce this imbalance many countries and their government are trying to curb the usage of plastic products which in turn has lead to emergence of new startups and innovations in production of packaging materials that doesn't cause any damage to the environment and also perform the job what the plastic packaging does. The policies laid down by government have paved the way for the rise of new companies which uses sustainability as their motive and trying making products with the materials that are recyclable and harmless to the environment and thereby making profits with new innovations. Nowadays each and every business is trying to make its presence in going green and having a slight advantage over other competitors and attract customers and increasing profits. Slightly the world is moving towards using sustainable products and finding alternatives for plastic products.

It took time to understand that sustainability is the key to better future which can reduce costs of living and to lead a healthy life. Seeing this revolution some companies have solely started working towards making products which are easily biodegradable and eco-friendly in nature which in turn makes a good name and reputation for the company moving forwards and by gaining more profits.

BAMBREW plant fiber technology private limited started in 2019 in India that strives to provide the best alternative to single use plastic which is sustainable and does not harm the environment. It has successfully managed to replace the majority of products in E-Commerce

packaging, Food packaging, FMCG packaging, retail packaging, Manufacturing. The company involves a lot of women and rural workers to develop their products which in turn huge employment opportunities and empowers women to become self-dependent. The company serves to the major players in the market which include both domestic and foreign clients, the company has over 170 clients. The company also serves to the small and medium buyers. The company provides good competition to other companies and also creates demand among the customers for ecofriendly products. Amidst the plastic ban company saw increase in demand for their products which are ecofriendly, biodegradable. The company tries to reduce the use plastic products.

LITERATURE REVIEW

(M.R.Nurul Fazita, 2016) mentioned that the potential of bamboo fiber, fabric poly (lactic) acid composites for packaging applications. The physical properties heat deflection temperature, impact resistance, recyclability and biodegradability

(H.P.S. Abdul Khalil, 2012) mentioned that raw materials like bamboo fiber which is stronger as well as can be utilized in generating high end quality sustainable products

(Anna Ekman Nilsson, Kristina Bergman, Eduarda M. Cabral, 2022) mentions seaweed has the potential to be a sustainable raw material in biorefinery. Cellulosic residues produced after the extraction were used for the production of films used as a packaging material

OBJECTIVES

1. To study the future of companies producing sustainable packaging materials and Bambrew company
2. To know whether people will adapt to eco-friendly packaging materials.

RESEACH METHODOLOGY

Sources of Data: The data for the research is collected from both primary and secondary sources.

1. **Primary Data:** The primary data has been collected by questionnaire form. The questionnaire was prepared beforehand based on the study. All the questions were prepared by Google form and responses were collected through it.
2. **Secondary Data:** The secondary data has been used for the research paper. The secondary data was collected from various websites, articles and journals. This accolades to the research study.
3. **Sampling Method:** Simple random sampling method has been used to collect the data for the research study. The majority of respondents age group was 18-25.
4. **Tools for Analysis of Data**: The tools used for the research study are mostly using pie charts and graphs indicating with the percentage form.

DATA ANALYSIS AND FINDINGS

Role of sustainability in growth of a company

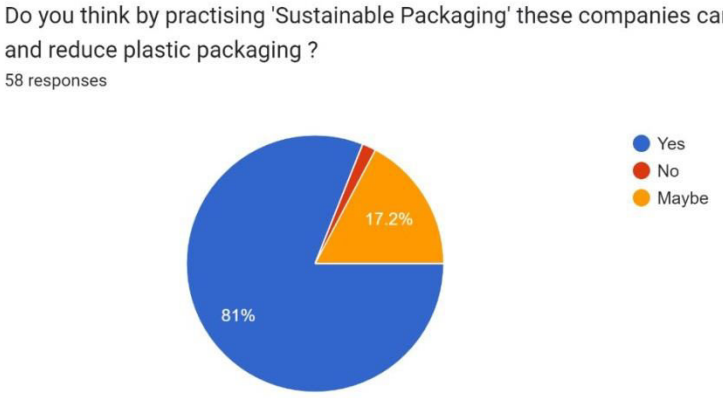
BAMBREW plant fiber technology private limited entered the markets in the year 2019 with a mission to make their brand in the packaging space and disrupt the terms like manufacturer or vendor. The company's aim is to create a brand that people should resonate with anything and everything sustainable. The company provides employment opportunities for the women in rural areas and make women self-dependent and lead a better life. The cost of plastic packaging material is cheap because of high usage of the products. As the sustainable market is relatively new the businesses are trying to fit into the market. But with the government support and their

policies there is a chance that the cost of sustainable products will come down and be made easily available for all as same as plastic packaging. The company saw increase in their product demand due to ban on plastic products. This will be beneficial for both the human beings health and for the smooth balance of the environment, the industry is contributing to a better environment, aquatic life, soil health and improving the quality of human life. The company produces eco-friendly packaging products that are made out of bamboo, sugarcane, seaweed. The company sources its raw materials from different parts of India. The company caters to 170 clients across different sectors such as FMCG, Retail and Logistical sectors. eir few major clients are Amazon, NYkaa,1MG, Puma. This type of sustainable market enforces other traditional companies to take up sustainability to survive in the future market.

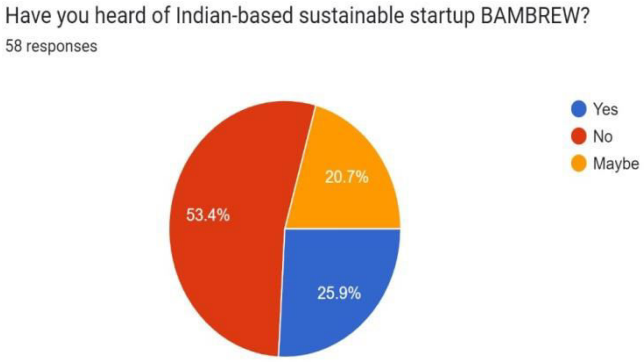
All of us know that single use plastic are harmful for the environment, but to keep our earth clean we should adapt and try to use products which are sustainable in nature.

The present study is derived by taking survey via google form from the consumer, youth and general audiences where 91% of respondents age ranging from 18-25age.The questions were asked on sustainable packaging. 86.4% of respondents have heard about the term 'sustainable packaging' and 10.2% of respondents may have heard this before

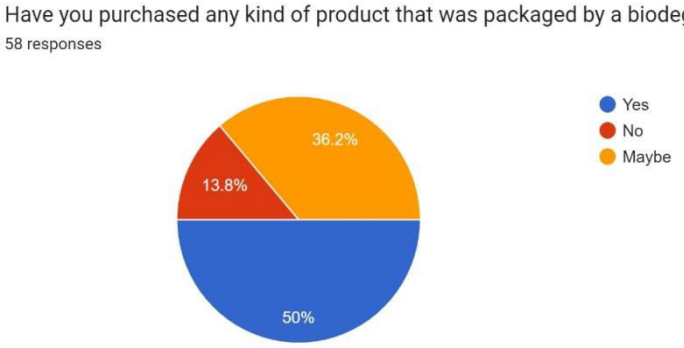
Here are Few of The Questions That Were Asked



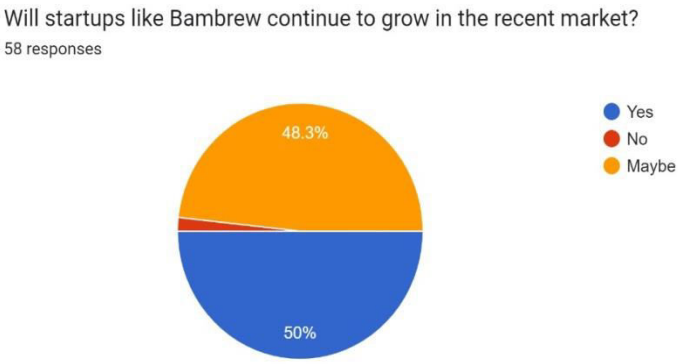
In this given pie chart sustainable packaging 81% of respondents feel it will increase the goodwill and 17.2% of respondents feel it will not increase the goodwill .



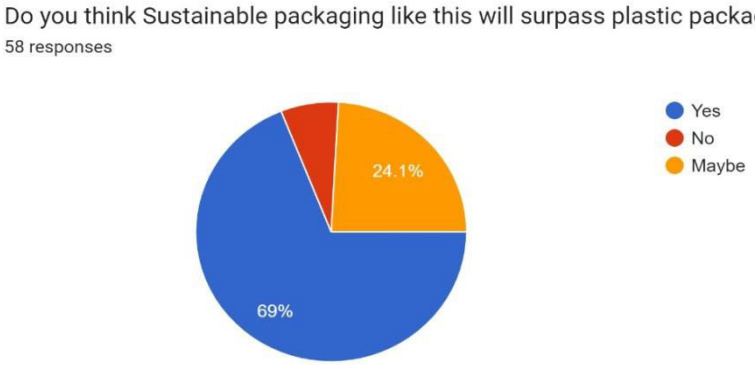
53.4%have not heard of India-based sustainable startup BAMBREW and only 25.9% have heard of India-based sustainable startup and 20.7% lies between those two categories



Here the 50% of respondents have purchased the product that was packaged by biodegradable material, 13.8% of people have not purchased and 36.2% of people lie in between them



50% of people agreed that Bambrew continue to grow in the recent market and 02.7% of people disagreed with opinion and 48.3%lies in between them



69% of people are strongly agreed with sustainable packing and 6.9% not agreed with opinion and 24.1% of people are lies in between them

CONCLUSION AND RECOMMENDATIONS

This entire study shows that the sustainability as a concept will be the future goal all companies as it is the essential part of concern considering the environmental issues caused by plastics. The traditional companies have to incorporate the concept of sustainability so as to compete in the market. It will also help the local farmers and small vendors. The sustainable market has created an excitement among individuals to use eco-friendly products and also venture into producing more such sustainable products. The only issue this sector can work is to create awareness more awareness and campaigns regarding the beneficiaries of using such products and the well-being of the human beings and environment and lead a healthier life.

REFERENCES

- https://thecsrjournal.in/bambrew-founder-vaibhav-anant-explains-the-need-forplastic-free-packaging/
- https://www.bambrew.in/
- https://yourstory.com/2022/07/bambrew-greentech-startup-making-sustainablepackaging-amazon
- https://www.printweek.in/features/bambrew%E2%80%99s-quest-to-findsingleuse-plastic-alternative-55992

A STUDY ON SOLAR ENERGY, ITS CONSUMPTION AND START UPS

Divya Thakur and Siddhi Bhosale
Sies College of Commerece and Economics (Autonomous)

ABSTRACT
In today's world where India is facing electricity problems it is necessary for us to understand that using renewable source of energy for daily needs is the best option. As we are aware about scarcity of coal and it's unaffordability to generate large scale electricity, the only best option left is SOLAR ENERGY CONSERVATION. Many people are switching to solar energy products. Recently, many Indian start-ups have emerged. Government of India has taken essential measures with different schemes. One of such start-up is Uron Energy.

Keywords: Solar Energy, Solar Start-Up, Indian Government Solar Programme, Uron Energy

INTRODUCTION
India is suffering from a severe energy shortage, which is impeding its ability to grow its economy and industry. Importing highly volatile fossil fuels is a necessity for the construction of new power plants. Therefore, it is crucial to address the energy crisis by making wise use of the plentiful renewable energy resources, such as such as Geothermal Energy, Solar Energy, and Biomass Energy. In addition to increasing energy. India will benefit from the abundance of renewable resources in reducing climate change. India depends heavily on fossil fuels. Fuels for its power requirements. The majority of the power is produced using coal and mineral oil. Plants that produce a significant amount of greenhouse gas emissions. Solar thermal collectors and solar photovoltaic (PV) panels are two ways to harvest solar energy. In addition to being pollution free, PV panels also offer flexibility in power generation from micro to mega watts, in-situ production, and portability, which makes it independent from grid-based fossil fuel supplies, which is important for reserves that are located in remote areas. Increasing the efficiency of turning solar energy into electrical energy is the key to lowering the effective cost per unit of solar energy, and doing so is heavily reliant on the materials used in PV cells. Solar cell materials have thus been the focus of research and development. Installed solar generating capacity has rapidly increased in recent years, along with improvements in cost, performance, and technology. However, in order to increase solar power at a reduced cost, government support and encouragement in the form of initiatives and programmes are required.

LITERATURE REVIEW
The two types of energy that the sun can produce are heat and light. Every day, we employ solar energy in a variety of ways. We use solar heat to dry our clothes when we hang them outside to dry in the sun. Sunlight is necessary for plants to produce their own food. Plants provide food for both animals and people. In reality, fossil fuels are simply stored solar energy from millions of years ago. Here is the detailed literature review, The majority of people are familiar with non-renewable energy sources. Increasingly more people are utilising solar energy thanks to its financial advantages. Even on cloudy days and at night, with the help of a battery backup, solar energy can deliver electricity 24 hours a day. This is also used with a continuous power supply inter-grid system. Compared to other energy sources like fossil fuels and petroleum deposits, it offers more advantages. It is an alternative that shows promise and consistency in supplying the high demand for energy. The future of solar energy and solar cell research is promising(Mohd Rizwan Sirajuddin Shaikh, Santosh B. Waghmare , Suvarna Shankar Labade, Pooja Vittal Fuke, Anil Tekale in 2017).

Problems explained in the research SOLAR ENERGY AND ITS FUTURE ROLE IN INDIAN ECONOMY (Swami Prakash Srivastava & Surat Prakash Srivastava,2013) are Land Scarcity,

slow progress, latent support, finance, availability of resources and localization are some majo reasons for unfit progress of solar energy plants and panels utilization by costumers and manufacturers.

According to the research(Avinash Kshitij, Bikramjit Sinha, Kirti Joshi, Kasturi Mandal and Vipan Kumara, 2011)This is evident that the trend of research publications in CdTe and GaAs is more or less similar to the trend of publications in total solar energy. India, despite holding the prestigious fifth spot on both fronts (in CdTe research, India is in second place), is still unable to compete with the US.

India started a solar energy programme back in 1975 in order to lessen its reliance on fossil fuel imports and to give its citizens access to a reliable, clean source of energy. The government also introduced various subsidies and programmes to encourage the development and utilization of solar energy in light of the fact that the nation receives roughly 5000 trillion kWh/year equivalent energy from solar radiation (Jebaraj & Iniyan, 2006).

OBJECTIVES

1. Understand about solar energy and its consumption
2. To comprehend the government's so far achievements in solar energy conservation
3. To gain knowledge about Indian solar energy start-up company “Uron Energy”
4. Inform people about the need for and benefits of solar energy conservation.

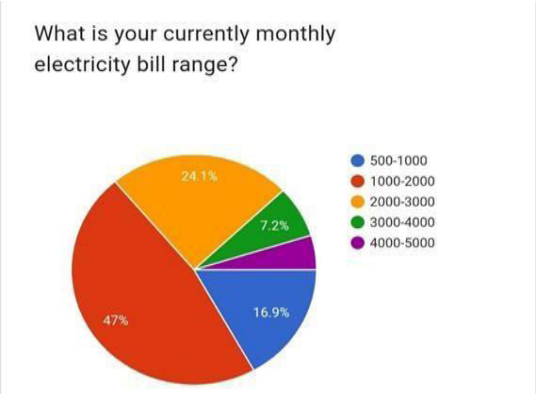
RESEARCH METHODOLOGY

The Research is descriptive and quantitative in nature. The data was obtained from different age groups. Secondary data is obtained from published website for detail study. Descriptive study can provide a picture or description as clearly as possible. Paper explains the importance, utilization and application of Solar Energy. The primary data was collected with the help of a questionnaire. Survey was conducted through Google forms.

DATA ANALYSIS AND FINDINGS

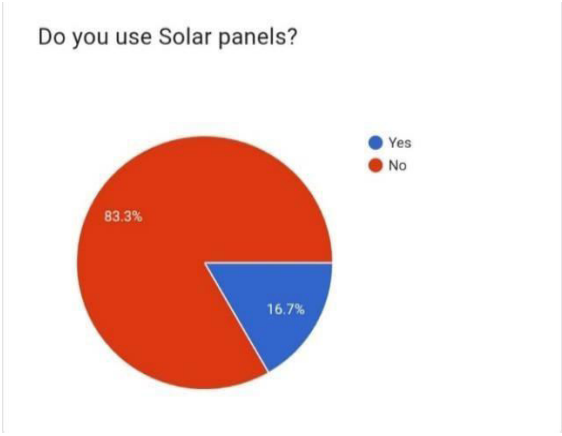
Primary Findings

A survey was conducted to record 83 responses through Google form including 10 Questions. Here are few questions which give us relevant



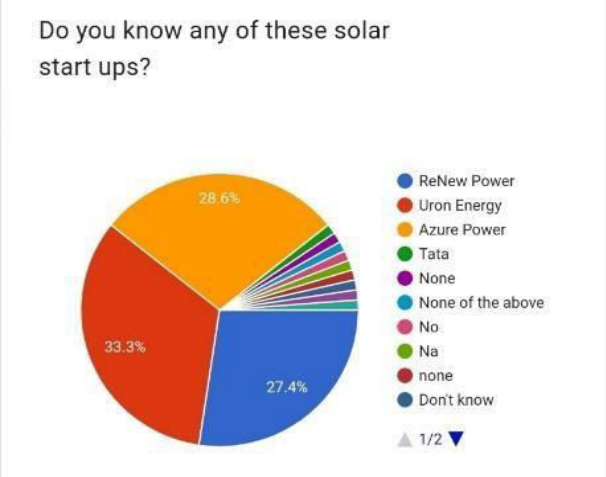
The pie chart clearly shows that majority of respondents pay between ₹1000-₹2000 per month while quarterly percent pays up to ₹3000.

- **Usage of solar panels**

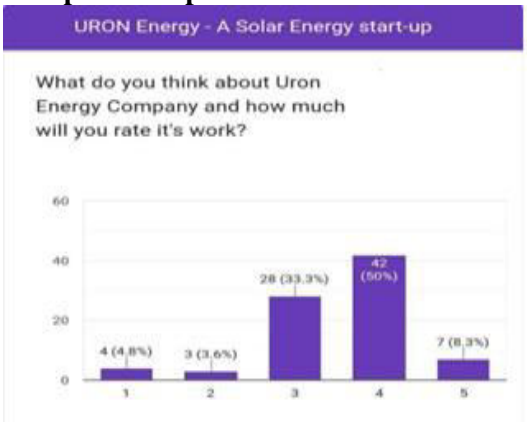


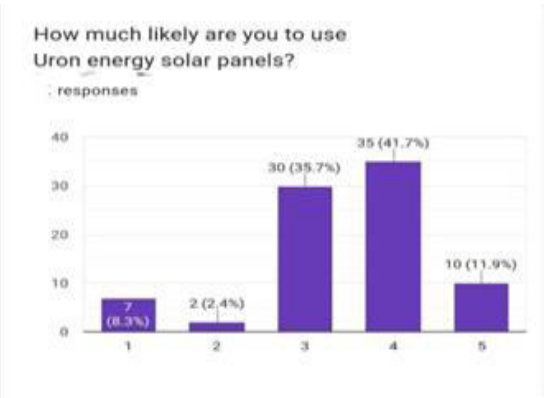
More than 80% respondents use electricity over solar panels despite paying high electricity bills

- **Solar start-ups**



- **Respondents preferences about URON ENERG**





SECONDARY DATA FINDINGS

Below are top **India Government Solar Programme** initiatives taken by the government in the solar sector to push more and more individuals and companies globally to go solar and 100% renewable:

- Jawaharlal Nehru National Solar Mission
- Rooftop Theme
- Solar Park Scheme
- Vgf(Viability Gap Funding) Scheme
- Government Yojagna Solar Energy Subsidy Scheme
- Uday Scheme

Recently, India stands 4th in solar PV deployment across the globe as on end of 2021. Solar power installed capacity has reached around 61.97 GW as on 30th November, 2022. Presently, solar tariff in India is very competitive and has achieved grid parity. Many start-ups have emerged in India in recent times but the one which stands out of the crowd is URON Energy.

Uron provides end-to-end solar solutions to its clients, right from concept till commissioning. These clients include – private corporations, government, and residential.

Uron Energy is an Indian Solar Project Management start-ups that aims to be the flag bearer of the Indian solar energy landscape. Fulfilling the energy needs of 80+ India's top business houses, the start-ups provides technologically updated and quality solar solutions. Uron Energy has already made its way into the Canadian market and is looking into consulting and EPC opportunities in the C&I sector for solar rooftops and storage. On the product front, they have created innovative solutions that combine robotics, electric vehicles, and storage to add value for their clients. Technology is the company's primary focus, and Uron Energy makes a lot of efforts to add value for its clients. With its distinctive value proposition, URON energy stands out in the crowded market segment of EPC players. It detests referring to itself as an EPC player because our main goal isn't just to build a plant but to develop a project that not only produces the highest generating plants but also leaves a lasting impression. The plot, in Uron's opinion, gets lost somewhere between the price per kWp of the project and the Wp capacities of the modules. Uron believes that customers are always interested in adapting to new technologies and want to always have the best. With the best possible engineering optimizations specific to the site, area of installation & environment can yield the best of the best results.

RECOMMENDATION

BMC must install solar panels, it would be better if it did so strategically. Additionally, more service centers and products should focus on solar power.

2. Uron energy needs more marketing. To reach out to customers, company has to position itself much better.
3. Government and solar Start-up companies should clarify the myths about solar panel usability from audience mind

CONCLUSION

The audience is aware of solar energy conservation, but it is understandable that they have reservations about its implementation given the research and understanding of the data and findings. People are reluctant to invest in solar power because it is expensive, according to earlier research papers, but the growth graph still indicates an upward trend. According to the primary data, we have understood that the electric electricity charges for every home at the

monthly rate are very high, which is why people are having financial difficulties. However, if we invest in solar energy panels, it is only a one-time investment, and the break-even point will take about a year. After that, we can use solar energy panels for eight to nine years without any additional costs. Government initiatives like the Jawaharlal Nehru National Solar Machine and Rooftop Mission have aided the nation's advancement in the conservation of solar energy. Additionally, it has been noted that rural areas conserve solar energy on a much larger scale than urban areas do. The mission is now succeeding, but we can still see that as compared to urban area rural area wings the race due to the area issue which occurs in urban areas as urban areas have less Limited space and no room to install solar panels but the only place where they can do so is on rooftops.

In conclusion, the study has found that government needs to take more initiative and raise awareness of the importance of solar energy so that people can also conserve and use fossil fuels like coal in a better way. We also need to understand that solar is the primary source of energy and we need to use it as efficiently as possible.

REFERENCES

JOURNALS

- International Journal for Research in Applied Science & Engineering Technology

  (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887 Volume 5 Issue IX, September 2017

- India’s Solar Energy Research: Mapping & Comparison with US and China (Article January 2011)

- Solar Energy Engineering Processes and Systems (Second Edition) Soteris A. Kalogirou

WEBLIOGRAPHY

- https://amplussolar.com/blogs/the-top-government-programes-in-the-solar-sector

- https://en.m.wikipedia.org/wiki/Solar_energy

- https://mnre.gov.in/

- https://www.uronenergy.com/#:~:text=URON%20is%20a%20CleanTech%20Engineering,the%20art%20energy%20efficient%20facilities

- https://youtu.be/PU4Psjkc50g

- https://youtu.be/EJHS3FOfb0M

GREEN BEHAVIOUR- 3R'S (REDUCE, REUSE AND RECYCLE) OF ENVIRONMENTAL SUSTAINIBILITY

Rinkesh Chheda and Srishti Nair
Sies College oF Commerce and Economics (Autonomous)

ABSTRACT
Green behaviour is not only the responsibility of environment field study but also needs involvement of other field study to keep the sustainability. This research topic is chosen for the premise that in the present era due to excessive pollution and changing climate have gained attention of researcher as still there remains a considerable challenge regarding environmental sustainability among the entrepreneurs. Application of sustainability will help to get awareness and maintain sustainability while dealing in industrial works or household works. There is need to carefully understand the application of 3Rs which is Reduce, reuse and recycle in respect of industrial sector as well as the household sector. It is easier to reduce than reuse and recycle. The most difficult is to recycle as the material availability, and various other factors after recycling. The materials that can be easily be reduced at the office are paper and easy to reduce at home are plastic. Green behaviour could understand as three behaviour such as reuse, reduce and recycling (3R). Sustainability of the 3R need support from economically surroundings include from home and workplace. This study focuses on improving green practices, making consumers aware of the green alternatives available in the market, and also understanding the customer's knowledge of sustainability in India. It also concentrates on the fact that when a business decides to go green it becomes and environmentally feasible.

Keyword: green behaviour, reduce, reuse, recycle, sustainability.

INTRODUCTION
The goal of 3R to prevent waste and conserve natural resources. Implementing such green practices as a 3R at a facility or corporate wide level is an excellent start at profitable corporate responsibility. Now let's talk about what do we mean by reduce, reuse and recycle. Reduce: is to use fewer resources in the first place. It takes resources to manufacture, transport, and dispose of products, so reduction minimizes the use of new resources. Reuse: Use materials more than once in their original form instead of throwing them away after each use. Reuse keeps new resources from being used for a while longer, and old resources from entering the waste stream.

Recycle: Converting waste materials into new products, changing them from their original form by physical and chemical processes. Although recycling uses energy, it helps to prevent new resources from being used and old materials from entering the waste stream. Recycle is converting the waste materials into new products, changing them from their original form by physical or chemical processes. Although recycling uses energy it helps to prevent new resources from being used and all materials from entering the waste stream. These 3Rs of sustainability are traditionally discussed in relation to consumer products, for example, reducing the amount of packaging, reusable water bottles and aluminium cans, etcetera. They can also be applied to the context of habitat enhancement and environmental education. In this series of 3Rs, I will discuss how each of these forms in the waste reduction hierarchy is applicable to habitat. Education products will also find out how to go one step further in the sustainability cycle with our habitat and education projects.

LITERATURE REVIEW

Despite substantial social development and the economic prosperity resulting from technological development, our planet's environment is contaminated and damaged. Furthermore, the environment is progressively deteriorating as individual spending power increases. In this context, the quiet rise of green consumption offers an effective solution. According to Machova's study, information about endangered animal species and warnings about deforestation have strongly influenced consumers to change their purchasing habits. Currently, if the production process does not have a negative impact on the environment, many consumers prioritize green products when making decisions, even if the costs are higher. Additionally, many corporations show a preference for the marketing of green products and the promotion of green consumption. Research on green consumption has increased significantly in recent years. As countries continue to issue environmental policies, our awareness of environmental issues has become more profound. Therefore, research on green consumption has been further promoted. Prior to 2016, few relevant studies were indexed in the Web of Science database, whereas in 2016, there were over two hundred papers published. Since then, the number of papers published each year has increased significantly, sometimes doubling, with over Sustainability 2022 14, 8324.

https://doi.org/10.3390/su14148324 https://www.mdpi.com/journal/sustainability

Sustainability 2022, 14, 8324 2 of 13

Seven hundred papers published in 2021. The number of highly cited papers has also exceeded sixty. This trend shows that green consumption has become a hot research topic. However, although there is a great deal of current research on green consumption, the research hotspots are constantly changing, thus many scholars find it difficult to stay aware of the current research topics and tendencies related to the topic through preliminary literature search, we find that there is a lack of bibliometric analysis in the field of green consumption. Bibliometric analysis can help researches obtain a quick, accurate, and comprehensive understanding of research hotspots, author information, and other necessary information related to a particular field. In the present study, we aim to conduct a systematic review of research on green consumption through a factor analysis and bibliometric method, and to map out the networks of partners so scholars are able to achieve better collaboration. In addition, by conducting a principal component analysis (PCA) and using multi-dimentional scaling (MDS), we summarize current research priorities and provide some directions worthy of further research in the area of green consumption. Keywords are a distillation of the core ideas of a text. Keywords that appear more frequently can reflect the focus of a field of study. For example, Woocheol and Feroz used a keyword analysis to identify topics and central themes in the field of employee engagement; Chiang Chang-Tang also used a keyword analysis to determine current research priorities in the hotel and tourism industry and suggested some future research directions for the industry. Others, such as Weismayer Keramatfar Qikaiand Sangsung and Sunghae have also clearly illustrated the importance of keyword analyses of hot topics and research trends in different fields. Here, we also use a keyword analysis to identify cutting-edge hotspots and further research in the area of green consumption. Unlike the existing literature, in this study, we innovatively used a PCA to reduce the dimensionality of keywords and tested with MDS, which has been shown to be significantly effective in reducing the dimensionality of textual information.

OBJECTIVE

Establishing a society with a minimal environmental load by minimizing waste generation and encouraging cyclic use and proper waste treatment and disposal of the materials. The basic concept of 3R is to establish a sound material cycle society and at the same time to aim and to

preserve resources and take a control on the hazardous substances. The 3R concerned is closely associated with entire communities. It will affect various social aspects such as the direction of industry, pattern of consumption, use of resources and energy, and our relationship with the environment. It will also require the establishment of much more effective quality policy systems. We should also respect the need for this concept to become deeply rooted in our society and should promote technology, social systems and Policy Research to back up and establish better 3R principle and waste management systems. The aim of 3R international is to provide unserved as a perfect platform for active academic activities and promote a 3R society. A wide range of academic fields including physics, chemistry, engineering, medicine, policy, science, economy and loan need to serve as key strengths that support 3R development. It is essential that you strengthen mutual ties and have interdisciplinary discussions across these areas. The study will prove to be significant because environmental issues remain at the top in recent times. With rapid industrialization in present era, there is increased chemical and toxic emissions. The existence of life depends upon the environment. Air, water, food, etc are obtained from the environment. Human beings use natural resources for the development of the standard of life. In such a case, entrepreneurs have more environmental duties to perform. Therefore, the entrepreneur has obligations. towards protecting the environment. All the processes of survival, reproduction, growth, and development of a living organism is revolved around the environment. This study will highlight the application of 3R's (Reuse, Reduce and Recycle) of manufacturing industries of Assam from a green entrepreneurial point of view.

HYPOTHESIS

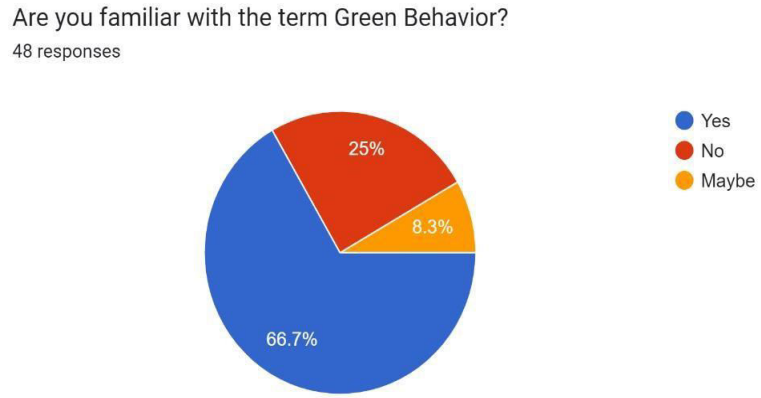
The first objective of the study will be met through a research query. To arrive at the objective secondary data is being collected. Being qualitative in nature any type of test of significance will not be used. The following is the research query framed for the objective: Ho: There is no application of three 'R' approach in manufacturing industries. H1: There is an application of three 'R' approach in manufacturing industries

RESEARCH METHODOLOGY

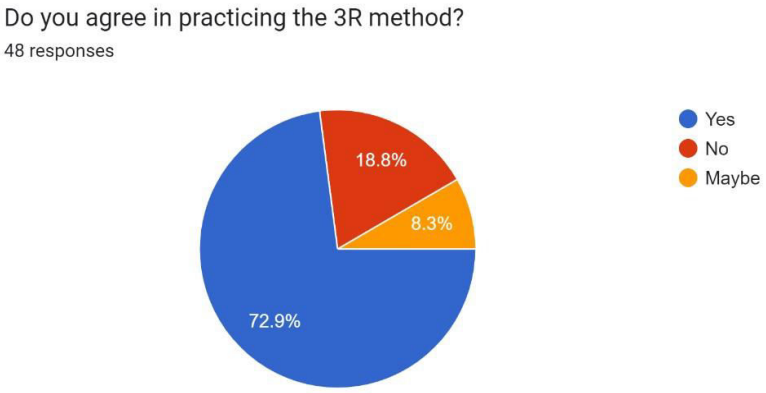
To find relevant papers in the literature, we searched the Web of Science following a three step systematic literature review process First, we set individual keywords to select papers from journals, including "green consumption", "sustainable consumption", "green product consumption", and "green purchase". Then, for a more complete search, we combined the keywords, including "green behaviour" and "consumption", "sustainable behaviour" and "consumption", and "green production" and "consumption". We took into consideration the relevance and mass of each study retrieved, as well as the validity and typicality of keywords. To eliminate interruption or interference, we verified the genre of the texts and excluded book evaluations and opinion letters. Finally, 2194 papers were retained. These articles were published from January 2016 to February 2022. This time frame was chosen because few relevant studies were indexed in the Web of Science database prior to 2016. Additionally, we focused our search on journal articles because the academic community considers journal literature to represent the most up-to-date source of knowledge in a given field. Traditional manual text classification can encounter significant difficulties in scenarios where there is a large amount of text. Manual text classification requires a great deal of manpower in the form of field experts and knowledge engineers, and such reliance on humans makes it hard to guarantee the accuracy and identity of rules, whereas automatic text classification can address these issues. In statistics, in order to solve problems objectively, various influential factors have to be comprehensively considered and fully analyzed. These factors form high-dimensional vector which reflect specific information for studying data to different degrees. When there is a certain level of correlation between two space vectors, it can be assumed that the two vectors are classified with overlapping information. A principal component analysis (PCA) is a

mathematical method for converting high-dimensional vectors with correlation into a group of linear, uncorrelated, low-dimensional vectors using orthogonal transformation Zhang, Li, and Zong proved that principal component analysis could significantly reduce the dimensionality of text data.

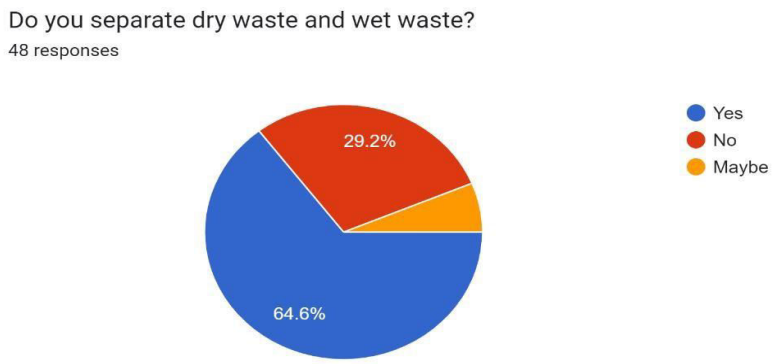
DATA ANALYSIS AND FINDINGS



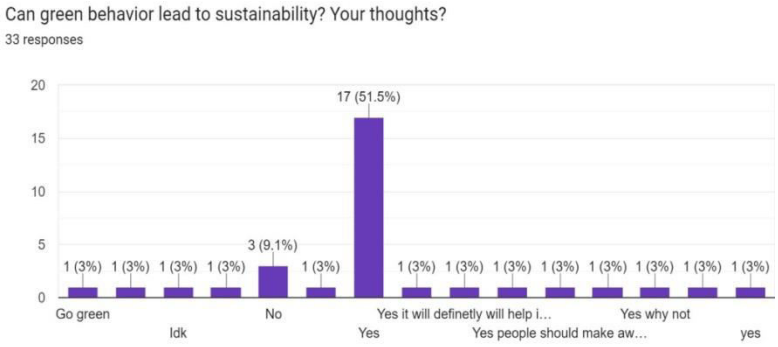
According to this pie chart, 66.7% of 48 respondents are familiar with the term Green behaviour whereas 25% are still not familiar with the term. Hence, there is a need of spreading awareness about the topic.



According to the above pie chart, we can conclude that among 48 respondents agree with practicing reduce , reuse and recycle which is a positive response in comparison with people knowing about the green behaviour.



The above pie chart tells us that among the 48 respondents 64.6% follows the concept of separating dry and wet waste which is very necessary in today's world. Also is a very positive response.



Here we can see that majority people have responded with a yes which states that Green Behaviour is a major step towards sustainability. Hence, Green behaviour should be implemented everywhere such as industrial sectors, hospitals, household etc.

RECOMMENDATIONS

Based on the results of data analysis performed in this study it can be concluded as follows:

1.Doing green behaviour easier to do at home than in the office on the grounds at the impact can be felt immediately. While the reason for green behaviour easier to do in the office because of the rules set by the management behaviours that form the basis for all parts of the company work / office.

2.Reduce is the most frequently performed behaviours compared reuse and recycling both at work and at home.

3.The material is most easily done at home is to reduce the use of plastic materials while easy to reduce paper in the office is. The material is most often done recycle fabric.

STATEMENT OF PROBLEM

Environment change has become a huge issue for every human being. It has become a matter of concern for existence of life on Earth and it is a peak time to take preventive steps against degradation of environment. Industrial sector being a major promoter of pollution, should think about the environmental issues and act accordingly. So, the study will be concerned in studying

the application of 3 Rs in manufacturing industrial sector so as to know the manufacturing industries are taking steps for a sustainable environment and suggest measures to do so

CONCLUSION

Population growth, migration from rural to urban areas, consumption patterns and others are placing substantial pressure on our ability to preserve a clean environment. These phenomena lead to substantial consumption of resources and the generation of both liquid and solid waste. Proper management of solid waste is one of the most important challenges faced by a number of municipalities around the world. The concept of the solid waste management hierarchy also known as the 3Rs offers viable solutions to the sustainable management of the wastes and at the same time meet goals towards achieving zero waste discharges. Reduction or sometimes known as waste minimization is an elusive strategy to meet but one that, if properly implemented can offer, in particular, economic and environmental. Of course, waste reduction offers social benefits such as contributing to a high quality of life, but, unfortunately the level of waste reduction and its impact often is difficult to measure.

Reduction is more easily determined in "closed systems" such as industries and factories. Reuse also contributes to sustainable development and helps meets the goals towards zero discharge. Examples of waste reuse that can be relatively easily established and evaluated include: furniture and electric and electronic appliances. Reuse (through repair) can be easily measured and evaluated. The benefits from reusing some waste materials cover all three pillars of sustainability. Recycling is one of the most common strategies used all over the world. Recycling can be attained using relatively simple approaches to complex and costly installations. In either case, recycling contributes to sustainable waste management and, as it has been demonstrated in some urban areas around the world, it can divert on the order of 70% (by weight) of municipal solid waste from land disposal. The key issue in the application of the 3Rs is its design by experienced and knowledgeable professionals who can evaluate and integrated possible alternatives so that they are sustainable and approach zero waste discharges. The use of the 3Rs concept must be complemented by comprehensive information, education and communication programs which should be carried out frequently and for a number of years. During the last few years, the trend in the EU with respect to the management of organic residues has been to decrease the amount disposed in landfills and to rely on relatively complex treatment alternatives based on the principle of sustainability. Considering the three pillars of sustainability (social, economic, and environment), some authors conclude that the trend has been brought about by environmental aspects, and to a certain degree ignoring the two other pillars.

REFERENCES

- Https://Www.Researchgate.Net/Publication/281446184_Green_Behaviour_Reuse_Reduce_recycling_-3r_at_home_and_at_Workplace
- https://www.3rincs.org/about-3rincs/whats-3rincs/about-us/objectives/ https://www.wildlifehc.org/an-introduction-to-the-three-rs-of-sustainability/ file:///C:/Users/Nikita/Downloads/JPSP-2022-361.pdf
- file:///C:/Users/Nikita/Downloads/IJAIR%20Volume%209,%20Issue%201%20(XI)%20January%20-%20March%202022.pdf%20(1).pdf
- file:///C:/Users/Nikita/Downloads/Text%20for%20Keynote%20Address%20for%203rd%20Regional%203R%20Forum_Luiz%20Diaz.pdf
- file:///C:/Users/Nikita/Downlozads/Text%20for%20Keynote%20Address%20for%203rd%20
- Regional%203R%20Forum_Luiz%20Diaz%20(1).pdf

RESEARCH ON SOLID WASTE MANAGEMENT AND RECYCLING PRACTICES

Rinkesh Chheda and Abhilash M. N
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
In this research paper, we focus on management of solid waste over the years and all the practices concerned with recycling that have been observed throughout.

Waste management is extremely important as it saves the environment from the toxic effects of inorganic as well as biodegradable element present in waste. Mismanagement of waste can cause water contamination, soil erosion and air contamination and various other irreversible issues. Waste can be recycled if collected and managed efficiently. As we all know management of waste has been a major problem in recent past. There have been a constant reminder to us, usually on daily basis that waste should be segregated. This segregation acts as the very first step in management of waste. Management of waste has drawn huge attention of people since the covid-19 pandemic. The entire covid-19 scenario involved a lot of solid waste (medical waste) from masks to vaccines and everything else which was to be segregated and managed efficiently. Solid waste management is now a need more than an option.

Keywords: Solid waste management, recycling, and environmental issues.

INTRODUCTION
The idea of solid waste management is not really pretty much ancient but in India it was first introduced in 2016, which replaced the rules from previously made execution orders. The most prominent aim of solid waste management is to keep urban cities clean. Rapid urbanization has contributed massively in increase of widely used material plastic. Having a proper waste management system can reward in reuse of various types of materials this can help economic grow or stay stable, can act as a magic for unemployment issues and pave way for better opportunities. Recycling is one of the best ways to be kind towards the environment, India recycles almost 50% of its solid waste. Recycling has its own pros and cons but acts quite effectively. Most of the solid waste includes hard plastic which holds more value than any other solid waste, herein comes the act of bias which lessen the pure and transparent process of recycling. Here we study how waste management improves opportunities for jobs beginning from 1 single person to largest large group everyone can make good out of waste management. It all starts at home by reducing the use of plastic to segregation of waste.

Waste Ventures India has been in inception since 2012 where they started their journey by partnering with Telangana and Andhra Pradesh governments. It was by 2015 they realized the scope and potential of their operations and decided to partner with private sectors as opposed to the municipalities. They work on managing solid wastes from all levels – right from the point, it is generated till it reaches the landfills, except their objective being diverting all the wastes from the landfills. Committed to engaging existing networks of waste pickers and scrap dealers (who form the backbone of the country's high waste recycling rates) through inclusive technology and ethical business practices, WVI is redefining long-standing preconceptions around waste to unlock its environmental and social impact potential. .Waste venture in India have made maximum efforts with this concerns. From starting with corporates to diverting waste from landfills. With 15000 employees using sustainable options of using single-use plastic.

LITERATURE REVIEW
Lilliana Abarca Guerrero, William Hogland (April 2019), Solid waste management is a challenge for the cities' authorities in developing countries mainly due to the increasing

generation of waste, the burden posed on the municipal budget as a result of the high costs associated to its management.

OBJECTIVES

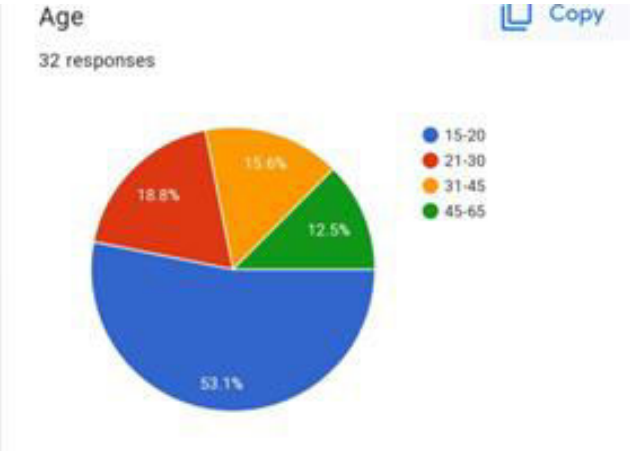
1. Reduce the volume of the solid waste stream through waste reduction and recycling methods.
2. Understand the importance of solid waste management.

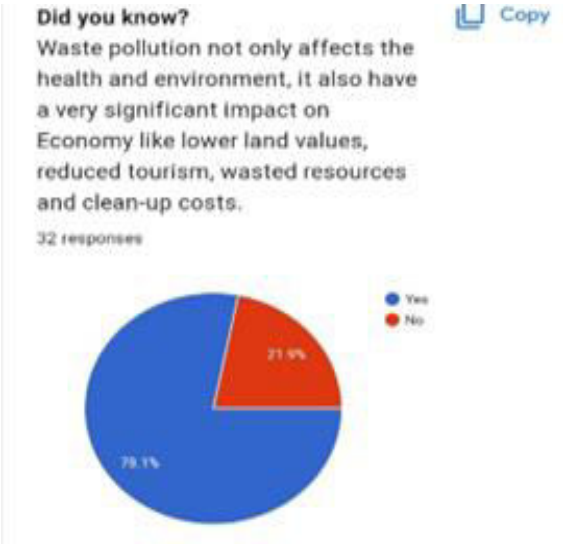
RESEARCH METHODOLOGY

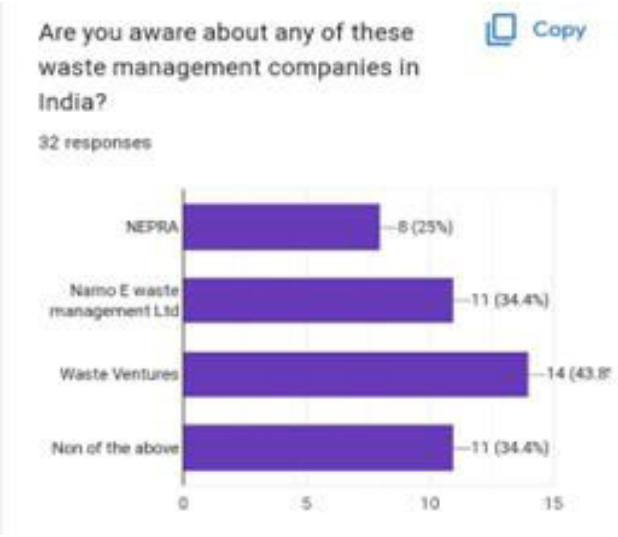
This research has been conducted through an online survey that is through Google forms.

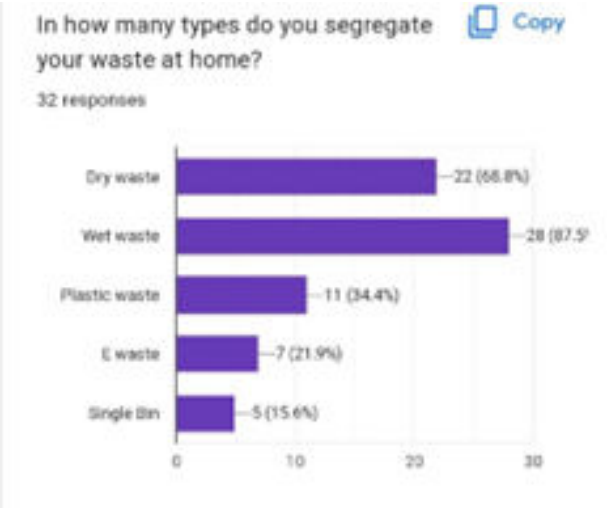
Questionnaire has been circulated amongst students, working professionals and elderly people to know their views and perception towards the societal and environmental responsibility and awareness about waste management and their effects.

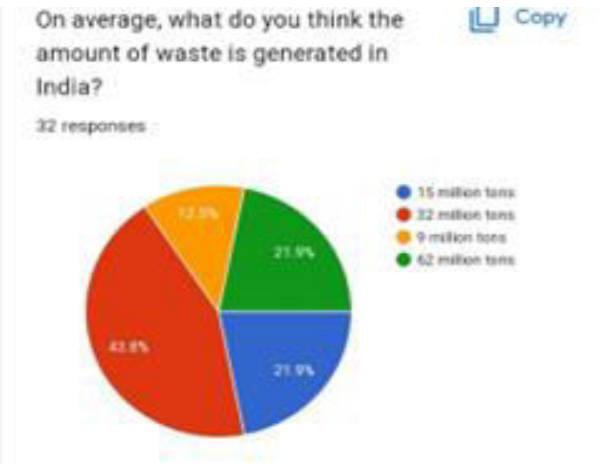
DATA INTERPRETATION











From the given responses it is understood that maximum people segregate there waste in mainly 2 types wet and dry. People between age group of 15-20 have actively responded and have shown there own bit of knowledge in this survey. Not a lot of people are aware about companies that works as a solid waste manager in India, the scenario has to change and more people have to give importance to such initiatives. Maximum no. Of people are aware and are

acting responsibly with the context of waste pollution creating havoc not only with concerns to health but with concerns to other factors as well like economic development etc.

RECOMMENDATIONS

1. Open waste storage sites and other unhygienic street bins should be banned completely.
2. The placement of waste repositories should be accurate.
3. Door to door collection of waste and segregation of waste must be made mandatory that will allow minimum waste on streets.
4. Land filling must be done properly after considering all the aspects of present and future of the city and its environmental health.
5. Alternate and better ways for proper waste disposal method must be adopted and practiced regularly based on the needs and situation of the particular area.
6. Government should increase the number of composting and energy generation plants.

CONCLUSION

It is crystal clear that improper and inefficient waste management practices have a significant impact on the natural environment and sustainable development in the study area. Thus, awareness about solid waste management impact on sound environmental development and sustainable development in seemingly low.

Therefore, it is important that the solid waste management should be developed from the very primary level. Waste storage and primary disposal are the dominant means of managing waste. Thus, it has caused significant challenges in the study area. Therefore, waste separation from the household level, proper storage, more efficient waste collection systems, and sustainable recovery and disposal practices are identified as needed processes.

Considering the nature and components of waste generated by households and business places, the waste reduction, reuse, recycling and composting processes would be more suitable in managing the challenge. These management options should be integrated in a sustainable framework. Adequate consideration should be given to monitoring processes. Public education and properly planned waste management programs also need to be introduced into the current waste management system. Especially awareness programmes must be conducted in order to improve the knowledge about the importance of solid waste management or sound environmental development in the area.

REFERENCES

- https://repurpose.global/blog/post/plastic-reality-project-blog
- https://wasteventures.com/about-us/
- https://www.who.int/tools/compendium-on-health-and-environment/solid-waste#:~:text=Vulnerable%20groups%20such%20as%20children,such%20as%20malaria%20and%20dengue.
- http://edugreen.teri.res.in/explore/solwaste/types.htm

INNOVATIVE FUEL MANAGEMENT SOLUTIONS BY VARIOUS STARTUPS FOR ENVIRONMENTAL AND BUSINESS SUSTAINABILITY

Fleur Fernandes and Jairam Iyer
Sies College of Commerce and Economics. (Autonomous)

ABSTRACT

Energy is sustainable if it "meets the needs of the present without compromising the ability of future generations to meet their own needs". Most definitions of sustainable energy include considerations of environmental aspects such as greenhouse gas emissions and social and economic aspects such as energy poverty.

The purpose of Repos is to solve the problem of increasing carbon emissions through an effective and systematic distribution of energy, one energy form at a time, starting with the doorstep delivery of diesel on mobile petrol pumps.

Currently, the company facilitates doorstep delivery of diesel using innovative Repos Mobile Petrol Pumps to make the procurement process easy and convenient for businesses that use diesel in bulk. Consumers can order diesel through the easy-to-use Repos application.

Tankup is another startup which maps the entire delivery system and delivers fuel directly inside the tank of the asset.

Debuted in 2016, the company combines on-demand fuel delivery, IoT/sensor technology, and analytics to enable efficient fuel management.

Keywords: Sustainable Energy, Greenhouse Gas, Carbon Emissions, Doorstep Delivery

INTRODUCTION

Fuel has always been an important component in our day to day activities. Be it transportation, production, cooking etc., and the availability of fuel for our future generations depends on how we use it today, which is exactly where sustainability comes into play.

ENACT Systems offers the #1 Cloud Software for Distributed Solar and Energy Storage Projects, now used in 25+ countries. The transition to a clean energy economy is underway: 3 million US homes already have solar energy, with 500,000 more projected to “go solar” this year. Consumer demand for clean energy is gaining momentum and will continue to grow. Yet the solar buying journey and ownership experience are filled with uncertainty and unmet needs. We level the playing field for homeowners and end-customers — helping them understand their solar and storage system performance and achieve their savings goals. We also empower providers - both installers and OEMs - a digital platform to engage more effectively with their customers.

Repos Energy is a fuel e-commerce startup based out of Pune, India. Established in 2017, Repos Energy works towards redefining the energy distribution system of India by bringing all fuels on a mobile distribution network. Currently, the company facilitates doorstep delivery of diesel using innovative Repos Mobile Petrol Pumps to make the procurement process easy and convenient for businesses that use diesel in bulk. Consumers can order diesel through the easy-to-use Repos application. Repos Energy is dedicated towards bringing a carbon-light future for India and is persistent in its research efforts towards incorporating clean fuels on its mobile network.

We all know that the world needs to move towards a Carbon Neutral Future immediately! But have you ever wondered how we will achieve this goal?

Repos energy believes that one of the fastest ways to get there is by transforming the energy distribution system by bridging the gap between the supply and demand for energy.

Their mission is to bring all the fuels, be they liquid, gas, or electric, under one roof, and make them available with just a click on the phone. They deliver these fuels safely using technologically-advanced Special Purpose Vehicles.

STATEMENT OF PROBLEM

Climate change is rapidly becoming known as a tangible issue that must be addressed to avoid major environmental consequences in the future. Recent change in public opinion has been caused by the physical signs of climate change–melting glaciers, rising sea levels, more severe storm and drought events, and hotter average global temperatures annually. Transportation is a major contributor of carbon dioxide (CO2) and other greenhouse gas emissions from human activity, accounting for approximately 14 percent of total anthropogenic emissions globally

How we use fuel today directly impacts the amounts of carbon dioxide in the environment and if we continue being so ignorant, climate change would become an unavoidable issue in no time.

Ever more people produce ever more climate emissions. Our planet is on the verge of a climate crisis due to our endless production of greenhouse gases including carbon dioxide and methane. We are headed for a 3-4 °C warmer world by the end of the century if nations' current climate ambitions are delivered on. We are already seeing species decline due to global temperature increase. Every half a degree of warming has a huge knock-on effect on ecosystems, with mobile species running out of areas to migrate to and temperature-sensitive organisms like corals undergoing massive die-offs. When keystone species like reef-building corals disappear, the rich and complex ecosystems they support collapse as well.

coal is considered the worst emitter of carbon dioxide. In the US, CO2 emissions from the electric power sector calculated in 2015 indicate that 71 percent were attributable to coal . While for example natural gas produced around 28 percent of carbon dioxide emissions.

Indeed, natural gas emits a lot less carbon dioxide, specifically 50 to 60 percent less compared to coal, and it also emits 15 to 20 percent fewer heat-trapping gases compared to gasoline when used to power a vehicle.

However, that does not mean that natural gas can help mitigate climate change, as drilling and extracting natural gas from wells results in the leakage of methane, which is a much more potent greenhouse gas – it is 34 times stronger than CO2 in terms of its potential for trapping heat.

LITERATURE REVIEW

1) S Chu, A Majumdar – 2012

provides a snapshot of the current energy landscape and discusses several research and development opportunities and pathways that could lead to a prosperous, sustainable and secure energy future for the world.

2) S Chu, Y Cui, N Liu – 2017

Research in materials science is contributing to progress towards a sustainable future based on clean energy generation, transmission and distribution, the storage of electrical and chemical energy, energy efficiency, and better energy management systems.

3) MZ Jacobson, MA Delucchi - 2009

4) J Goldemberg - 2007

Most of the "new renewable energy sources" are still undergoing large-scale commercial development, but some technologies are already well established.

OBJECTIVES

- To study how environment change can be tackled by innovative usage of fuel
- To study peoples perception of climate change
- To study methods of cutting dependence on substances that emit carbon, for business and environment sustainability
- To educate people on renewable sources of energy
- To study how these businesses contributes to innovative usage of fuel
- To study how startups contribute to sustainable business

RESEARCH METHODOLOGY

The research methodology used was qualitative research methodology as the aim and scope of this research is mainly theoretical and explanatory.

A survey was conducted and a few multiple choice questions regarding sustainable energy and the startup repos energy was asked. The questions asked were mostly open ended.

The study tool used was questionnaire and it was in lehmans language and easy to understand.

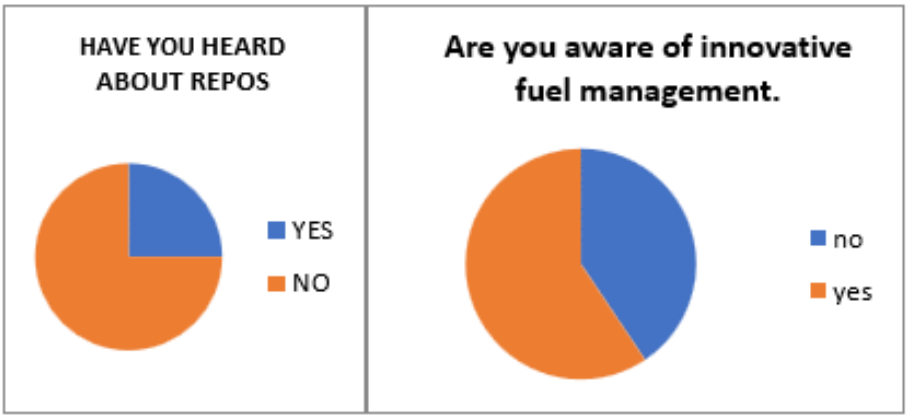
The online survey was successful as I received 32 responses. Therefore the sample size of the research is 32.

DATA ANALYSIS AND FINDINGS

An online google form was created and circulated and a survey was conducted to find whether people are aware about repos and innovative fuel usage, and its impact on the environment.

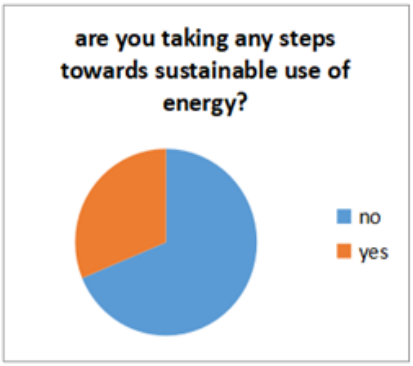
There were 7 questions, mostly in the format of multiple choice questions.

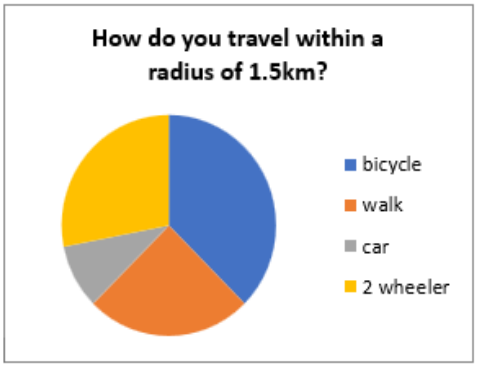
According to the graph, 75% aren't aware about repos and only 25% are aware.



And as you can see, in the 2nd pie chart, 59.4% are aware about innovative fuel management and 40.% aren't aware.

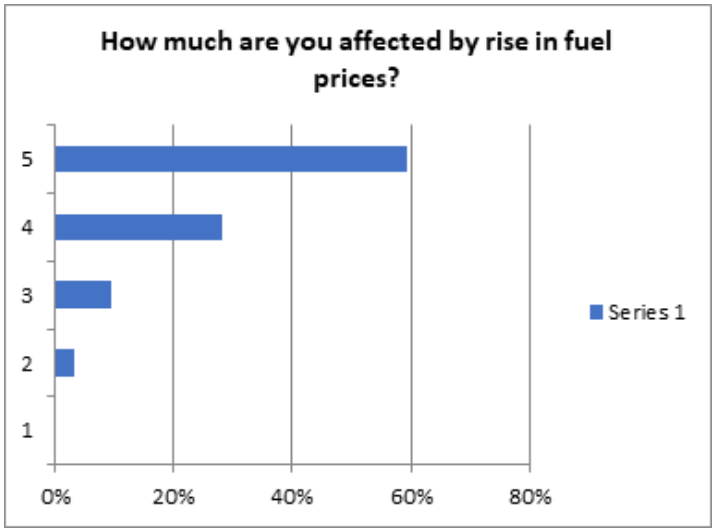
This means that theres still plenty amount of people who have no idea what innovative fuel management means.





The 3rd pie chart tells us that a majority of people aren't taking any steps towards sustainable usage of energy.

As you can see in the 4th pie chart, 37.5% travel by bicycle within a radius of 1.5km 28.1% use two-wheeler, 9.4% use car, and 25% walk the distance.

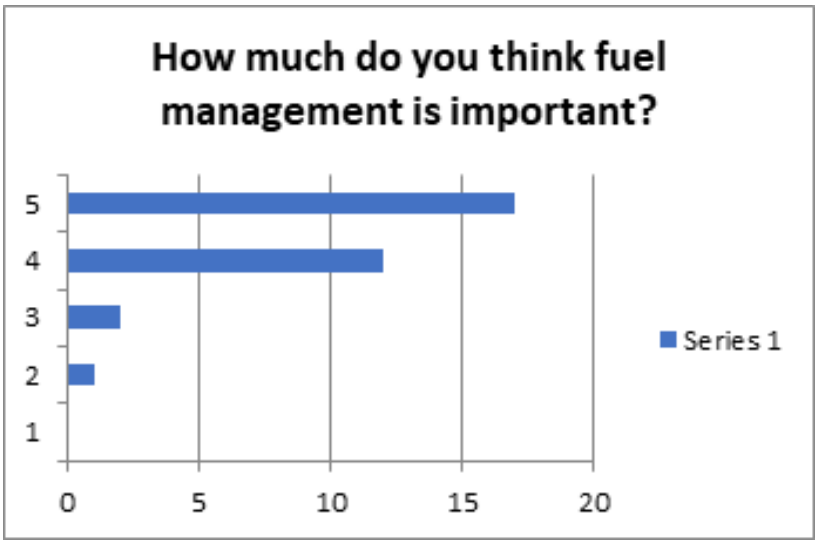


In the above graph, the question was 'how much are you affected by rising fuel costs and responses were collected as:

1 – least affected

5 – most affected.

And as you can notice, 59% are most affected, 28% are affected, 9% are concerned but not as much, and 3% are not really concerned about rising fuel prices.



In the above graph, we can see that 53.1% feel that fuel management is very important, 37,5% feel that fuel management is important, 6.3% feel that fuel management is important but not as much, and 3.1% feel fuel management isn't really important.

RECOMMENDATIONS

Energy is sustainable if it "meets the needs of the present without compromising the ability of future generations to meet their own needs". Most definitions of sustainable energy include considerations of environmental aspects such as greenhouse gas emissions and social and economic aspects such as energy poverty. Renewable energy sources such as wind, hydroelectric power, solar, and geothermal energy are generally far more sustainable than fossil fuel sources. However, some renewable energy projects, such as the clearing of forests to produce biofuels, can cause severe environmental damage. The role of non-renewable energy sources in sustainable energy has been controversial. Nuclear power is a low-carbon source whose historic mortality rates are comparable to wind and solar, but its sustainability has been debated because of concerns about radioactive waste, nuclear proliferation, and accidents. Switching from coal to natural gas has environmental benefits, including a lower climate impact, but may lead to a delay in switching to more sustainable options. Carbon capture and storage can be built into power plants to remove their carbon dioxide (CO2) emissions, but is expensive and has seldom been implemented.

CONCLUSION

In proposed climate change mitigation pathways that are compatible with limiting global warming to 2 °C (3.6 °F), the world rapidly phases out coal-fired power plants, produces more electricity from clean sources such as wind and solar, and shifts towards using electricity instead of fuels in sectors such as transport and heating buildings. For some energy-intensive technologies and processes that are difficult to electrify, many pathways describe a growing role for hydrogen fuel produced from low-emission energy sources. To accommodate larger shares of variable renewable energy, electrical grids require flexibility through infrastructure such as energy storage. To make deep reductions in emissions, infrastructure and technologies that use energy, such as buildings and transport systems, would need to be changed to use clean forms of energy and also to conserve energy. Some critical technologies for eliminating energy-related greenhouse gas emissions are not yet mature.

REFERENCES

- Opportunities and challenges for a sustainable energy future
- S Chu, A Majumdar - nature, 2012
- The path towards sustainable energy
- S Chu, Y Cui, N Liu - Nature materials, 2017
- H Ritchie, M Roser, P Rosado - Our world in data, 2020
- A Hussain, SM Arif, M Aslam 'emerging renewable and sustainable energy technologies'
- J Musiolik, J Markard - Energy Policy, 2011 – Elsevier
- https://angel.co/startups/l/india/clean-energy

SUSTAINABLE PRODUCTION AND CONSUMPTION OF PAPER AND PAPER PRODUCTS WITH SPECIAL REFERENCE TO BLUECAT PAPER

Vinayak Krishnan and Vivek Moota
SIES College of Commerce and Economics (Autonomous)

ABSTRACT

Paper is a versatile material with many uses. The Indian paper industries have a huge turnover due to increased demand. The annual output of paper in India is more than 10 million tonnes. Paper is one of the best alternatives that can replace plastic bags, straws, and cups among other disposable items. With the implementation of plastic ban, the demand for disposable paper boxes, paper cups, straws, paper bags, paper cans, and other related paper-based products for food packaging has increased. Bluecat Paper (An Indian Start-up Company), uses residual waste (that is very high in cellulose) to produce paper. Bluecat Paper does not waste water. Papermaking needs water and litres of it. Bluecat Paper factory has an Effluent Treatment Plant (ETP) on the premises, which recycles water that can be utilized again in production. Bluecat Paper efficiently recycle the water, and it is easy to do so when you add no chemicals. The paper is acid-free. The quality of "tree-free paper" is far superior to the ones made from wood pulp.

Keywords: paper consumption, paper products, paper production, Indian paper industry, Bluecat paper

INTRODUCTION

Paper has many uses in our daily lives. Paper was developed in China some 2100 years ago, and since then its production and demand has increased. Paper is a versatile material with many uses.

Around 15% of the world population stays in India but consumes only 5% of the total paper produced in the world. The industry is recognized as a core sector in the country and has a major role to play in its development. Today there are more than 600 paper mills in India. The first paper mill in the India was established in West Bengal. Although India manufacture most of varieties of paper and paperboards but some specialty papers are imported from other countries. The annual output of paper in India is more than 10 million tonnes. The paper manufacturing companies in India have a huge turnover due to high demand. It accounts for nearly 1.6% of the world's paper and paperboard production. It has an estimated turnover of more than USD 5.95 billion. In India, 40% paper production is from hardwood and bamboo fiber, 30% is from agro waste and remaining 30% is from recycled material. 2 million tonnes of Paper are used for publications and Newsprint. 1.3 million tonnes of newsprint are manufactured in India and remaining is imported from other countries.

Status of The Paper Industry in India

The existence of Indian Paper Industry can be traced back to 1812. The industry has grown over the years both horizontally and vertically and today India ranks 5th globally in paper production. Paper industry started producing papers with grasses like Papyrus, Elephant grass, Esparto grass but due to innovations, paper industries started producing papers with various kinds of raw materials. The Indian paper industries produces papers using raw materials namely wood based, agro based and recycled fibre. The industry has undergone many changes since its inception and today Indian paper mills are modern and advanced. Eco-friendly papers from India are exported in large volumes.

In India there are more than 800 paper mills, out of which some mills are wood based, some are agro residue-based and remaining paper mills are based on waste paper. In financial year 2022, exports of paper as well as paper made products were valued at approximately 3.25 billion U.S. dollars.

Almost after a decade, Indian paper industry is looking like it has a promising future. Waste paper as raw material has immense potential for growth in the paper industry. Most of the paper mills are based on recycled fibers and in view of the environmentally friendly nature of the raw material. In the absence of availability of other raw material a large number of paper mills are using waste paper as raw materials for manufacture of various grades of paper.

Acquisition of Raw Material

Tree paper or paper manufactured from wood pulp contains only 30% - 40% cellulose which means that trees are not a good source for the paper production. In order to make up for this, chemicals are added to the papermaking process resulting in the paper being harmful to the environment and this also wastes thousands of litres of water. Bluecat Paper, use residual waste that is very high in cellulose. Therefore, Bluecat Paper do not add chemicals. This, in turn, makes it easy for company to recycle water back into production. Bluecat Paper does not waste water. Papermaking needs water and litres of it. Bluecat Paper factory has an Effluent Treatment Plant (ETP) on the premises, which recycles water that can be utilized again in production. Bluecat Paper efficiently recycle the water, and it is easy to do so when you add no chemicals. The paper manufactured at Bluecat paper mill is acid-free.

At Bluecat Paper, beautiful papers are created without wood pulp. Instead, company use the pulp of cotton rags, linen rags, coffee husk, banana fiber, mulberry, corn husk, elephant poo, bagasse, vetiver grass, ragi, tea waste, and flax fiber to name a few.

“The paper industry consumes 42% of all the wood felled industrially every year and its share of the world’s cleared forest is an area of about three million hectares annually.” It’s ridiculous to cut 50,000 trees at one go. A tree needs to grow at least 8 – 12 years before it can be cut for paper. But by this time, it has its own little ecosystem. Therefore, vast forests get cut down making paper very expensive for planet earth

Bluecat paper, uses agricultural waste as raw material for the papermaking process. The quality of “tree-free paper” is far superior to the one that is made from wood pulp.

Production Process

For the paper industry an Effluent Treatment Plant is a promising way to dispose of such effluent and wastewater in a controlled manner. According to the industry clients such effluent treatment plants are quite cost-effective, because they consume little power and they are designed in such a way that they also comply with the government's guidelines.

The pulp and paper mill industry consumes lot of water and natural resources (wood), and it emits harmful gases and solid waste into the environment. A growing awareness of the environmental effects of pulp and paper wastes from paper industries has resulted in lower energy consumption and decreased water consumption.

During the production process, a homogenization initiative is undertaken that is aligned with the process of ensuring pH neutralization in effluent, and then after larger solids are broken down.

In the next step if any organic matter is present it is destroyed by oxidation. Organic matter is dissolved into liquid and compressed using biogas, and then the effluent is filtered through a sand filter. After which ultra-filtration membranes are pressed into service.

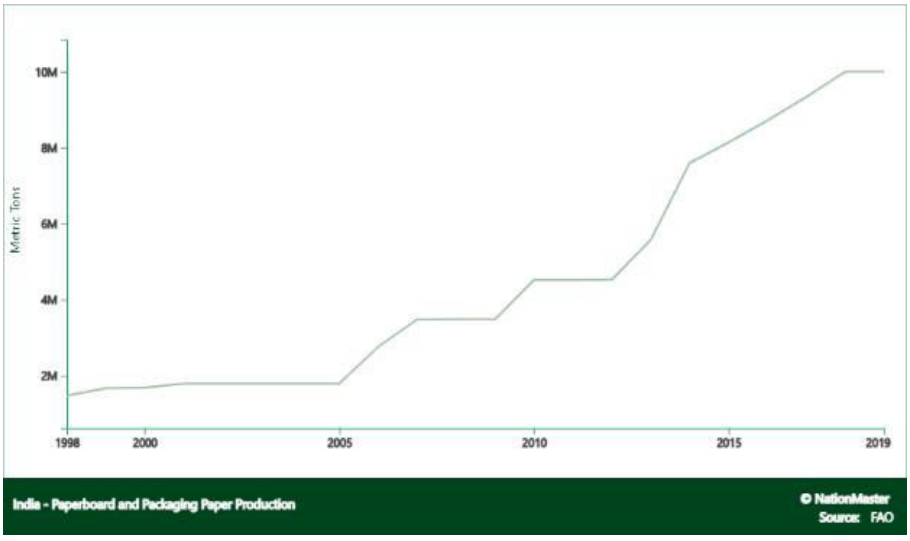
In the final step, Reverse Osmosis (RO) completes this process, by providing a consistent supply of clean water which can be reused for the paper manufacturing process, after which vacuum evaporation is used to treat rejection flow. Therefore, the water extracted from the evaporation process can also be reused, and then the remaining solid is classified as waste and is disposed accordingly.

Consumption of Paper and Paper Products in India

Paper consumption in India is assumed to grow 6 to 7% annually and will reach 30 million tonnes by FY 2026-27. India consumes 5 per cent of the total paper produced in the world. The average per person paper consumption in India is about 13 kg. The demand for quality packaging of FMCG products, pharmaceuticals and other industries has been increased. Paper Industry in the India has changed a lot in the last few years. The industry has become technologically advanced.

Opportunities for Paper Industries

Paper industries in India are assumed to grow 6-8% annually. After plastic ban demand for Paper and paper products has increased as Paper based products are promising substitutes for plastic. Molded paper products have huge scope in the market. Molded paper products can replace plastic and it can be made from water paper pulp. After implementation of plastic ban, the demand for paper-based products for food packaging has increased. Due to this, the paper industry is trying to bring on multiple alternatives for plastic products. The introduction of paper packaging solutions has increased the production of paper products. 6 billion plastic straws are consumed every year by Indians, and these will now be replaced with paper straws if government totally bans plastic. A significant increase in virgin and recycled paperboard demand and capacity as paper food-grade containers and paper cups will replace plastic over the next five years. Paper is the best alternative to plastic material and is biodegradable which lower levels of plastic pollution. The largest share of single-use plastic will be taken over by paper bags. Manufacturing paper bags consumes less amount of energy than plastics Plastic ban has been positive for the paper industry as another opportunity to replace single-use plastic with paper options. The long-term growth for paper industry looks good.



LITERATURE REVIEW

The paper title " Scope and challenges of paper industries in India in 21st century" aims to study the Scope and challenges of paper industries in India.

The paper title " Indian Paper Industry - Growth and Prospects" aims to study the structure and growth of the paper industry

The paper title " Sustainable Production and Consumption of Paper and Paper Products in Nigeria" aims to study the Status of the Global Pulp and Paper Industry and Challenges and Opportunities faced by Paper industries.

OBJECTIVES

The objective of the study is to analyse the performance of Production and consumption of paper and paper products in India. The main objectives of this study are as under:

1. To examine the consumption of Paper Products in India;

2. To review the development of Indian paper industry;

3. To find the opportunities for Paper industries;

4. To offer some suggestions for improvement of the performance.

RESEARCH METHODOLOGY

Primary data: Survey method was used to collect primary data from the respondents a questionnaire was created using Google forms and circulated among the students of Sies College of Commerce and Economics.

It consisted of 7 questions. The questionnaire consisted of closed format questions whereby the respondents had to select answers from the specific set of options given to them. Total 110 responses were recorded. The responses were collected and the information thus obtained was accumulated and analysed using pie charts and graphs for better preliminary evaluation. The main purpose of resorting to questionnaire method for collecting primary data was to minimize the time consumed for collecting data from large number respondents.

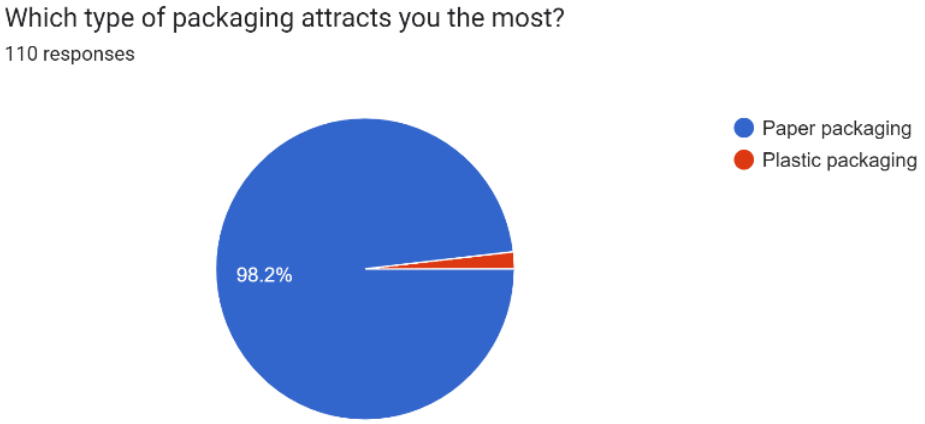
Secondary data: For the purpose of supplementing the interpretation, along with primary data, secondary data is also used in this research. The sources of collecting secondary data are as follows:

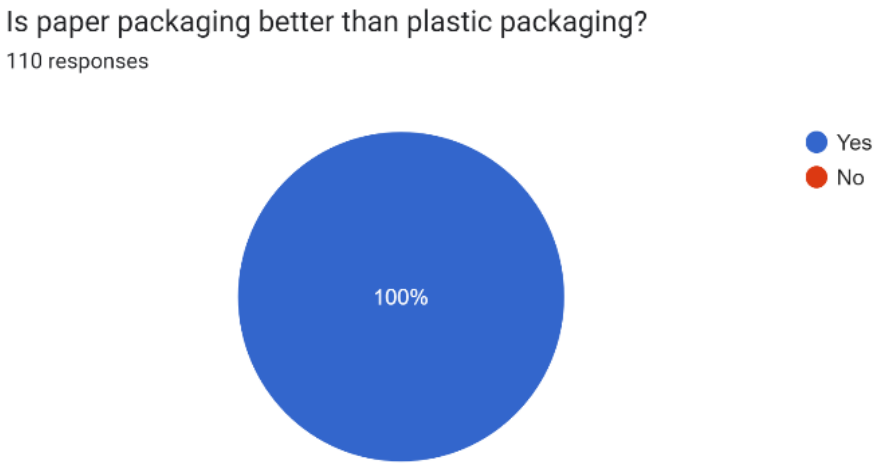
i) Research papers

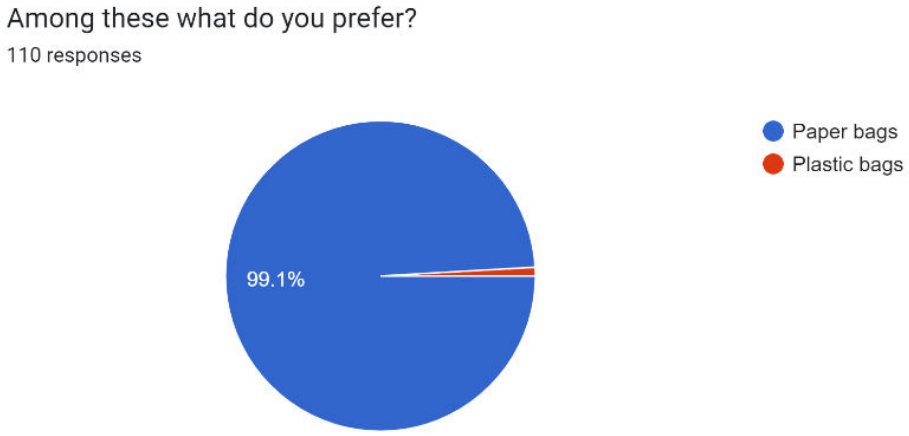
ii) Websites

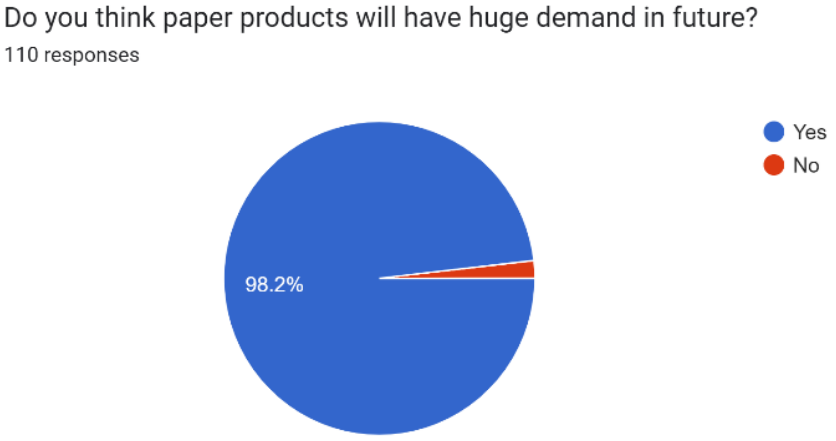
iii) Blogs

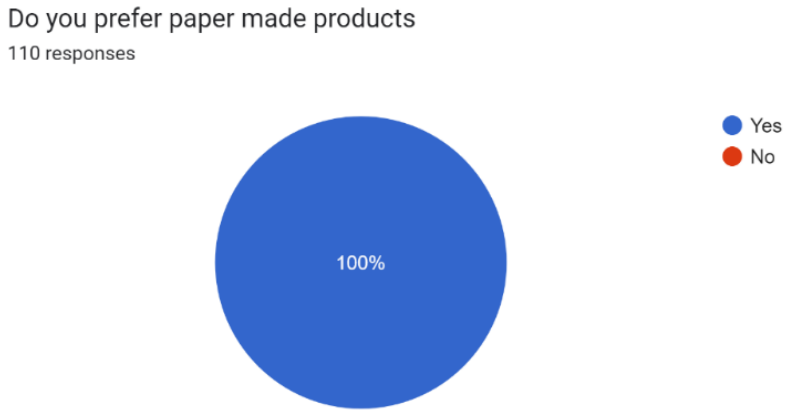
DATA ANALYSIS



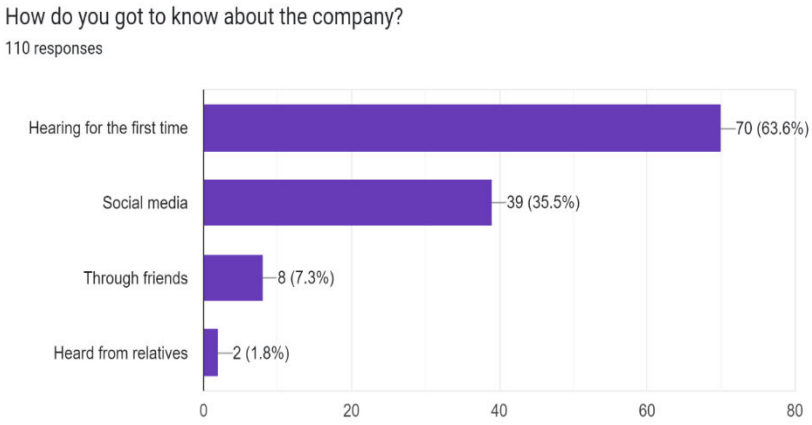

Is paper packaging better than plastic packaging?
110 responses
Yes
No
100%

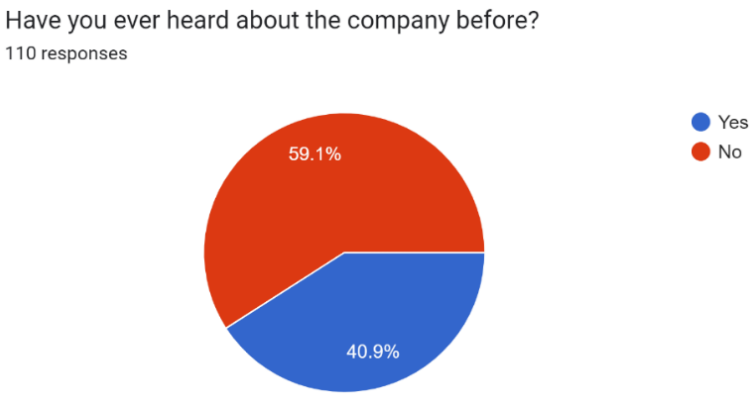

Among these what do you prefer?
110 responses
Paper bags
Plastic bags
99.1%


Do you think paper products will have huge demand in future?
110 responses
Yes
No
98.2%



BLUECAT PAPER





CONCLUSION

Paper is very important commodity of our everyday life.

Plastic ban has positively impacted paper industries. Demand for paper made products have rapidly increased. As per the research majority of the respondents preferred paper above plastic. It has seen that the paper industry consumes 42% of all the wood felled industrially every year and its share of the world's cleared forest is an area of about three million hectares annually. It's ridiculous to cut 50,000 trees at one go. Bluecat paper, uses agricultural waste as raw material

for the papermaking process. The quality of "tree-free paper" is far superior to the ones made from wood pulp.

REFERENCES

- Scope and challenges of paper industries in India in 21st century
- Retrieved from
- https://www.researchgate.net/publication/318283709
- Indian Paper Industry - Growth and Prospects
- Retrieved from
- https://ippta.co/wp-content/uploads/2021/01/IPPTA-182-73-77-Indian-Paper-Industry.pdf
- Sustainable Production and Consumption of Paper and Paper Products in Nigeria
- Retrieved from
- https://www.researchgate.net/publication/331854651_Sustainable_Production_and_Consumption_of_Paper_and_Paper_Products_in_Nigeria_A_Review
- Production process
- Retrieved from
- https://bluecatpaper.com/

INNOVATIVE SUSTAINABLE PRACTICES IN POWER & RENEWABLE ENERGY INDUSTRY – WEBSOL ENERGY SYSTEMS LTD

Vinayak Krishnan and Gautam Kothari
SIES College of Commerce & Economics, Sion East, Mumbai

ABSTRACT

India's energy demand is expected to increase more than that of any other country in the coming decades due to its sheer size and enormous potential for growth and development. Therefore, it is imperative that most of this new energy demand is met by low-carbon, renewable sources. India's announcement that it intends to achieve net zero carbon emissions by 2070 and to meet 50% of its electricity needs from renewable sources by 2030 marks a historic point in the global effort to combat climate change.

The Indian renewable energy sector is the fourth most attractive renewable energy market in the world. India was ranked fourth in wind power, fifth in solar power and fourth in renewable power installed capacity, as of 2020. Installed renewable power generation capacity has gained pace over the past few years, posting a CAGR of 15.92% between FY16-22. India is the market with the fastest growth in renewable electricity, and by 2026, new capacity additions are expected to double.

With the increased support of the Government and improved economics, the sector has become attractive from an investors perspective. As India looks to meet its energy demand on its own, which is expected to reach 15,820 TWh by 2040, renewable energy is set to play an important role.

Keywords- Renewable energy, Sustainable practices, Solar Power

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are a vital part of the India economy by contributing significantly to the economic progression and employment. It contributes 45% of the manufactured output, 40% of its exports and 8% of the country's GDP. It provides employment to more than 60 million people.

India has set a target to reduce the carbon intensity of the nation's economy by less than 45% by the end of the decade, achieve 50% cumulative electric power installed by 2030, and achieve net-zero carbon emissions by 2070. Low-carbon technologies could create a market worth up to $80 bn in India by 2030.

India has been ranked amongst top 5 countries in the world, and the best among the G20 countries, based on its Climate Change performance. India jumps 2 spots higher, and is now ranked 8th as per Climate Change Performance Index (CCPI, 2023).

India attracts $13 bn FDI in non-conventional energy sector.

India could attract close to $10 bn in renewable energy investment in 2023.

India's target is to produce 5 MT of green hydrogen by 2030. Green Hydrogen target is set at India's electrolyzer manufacturing capacity is projected to reach 8 GW per year by 2025. The cumulative value of the green hydrogen market in India could reach $8 bn by 2030 and India will require at least 50 gigawatt (GW) of electrolysers or more to ramp up hydrogen production.

Websol Energy System Ltd. (formerly Websol Energy Systems Ltd.) is a leading manufacturer of photovoltaic monocrystalline solar cells and modules in India. With a state-of-the-art integrated production facility at Falta SEZ Sector II Falta West Bengal Websol has steadfastly

delivered an advanced and excellent products since 1994 - a commitment to quality that our customers worldwide have come to trust. Over the years the company has established a reputation for making highly reliable photovoltaic modules for various domestic commercial and Industrial applications.Websol has picked up many awards and accolades in addition to international certifications making it one of the few technologically independent manufacturers of solar cells and modules in India.

LITERATURE REVIEW

History and Evolution of Renewable Energy in India

India's commercial energy consumption has been growing fast in recent years keeping pace with high economic growth rate. Table 1 shows the growth in commercial energy consumption of India and a few other selected countries and regions during the period 1995–2005. India had the second highest percentage growth in energy consumption among the listed countries after China during this period.

India depends heavily on coal and oil for meeting its energy demand. The shares of different sources in primary conventional energy consumption in 2005 were: coal – 55.0%; oil – 29.9%; natural gas – 8.5%; hydroelectricity – 5.6%; and Nuclear energy – 1.0% [1]. This pattern of energy consumption is highly problematic for the country. Coal is a polluting fuel and is the biggest source of national greenhouse gas emissions; its use needs to be curtailed for reducing emissions of both greenhouse gases and local air pollutants. India depends heavily on imports for meeting its domestic oil requirements; imports accounted for 72% of India's total oil consumption in 2004–2005 [2]. As a result of growing import, India's oil import bill has also been growing rapidly; the bill was INR 1717 billion (US$ 39 billion) in 2006. Growing oil import would imply even greater economic burden in the future and greater energy insecurity.

The above obviously shows the need to reduce India's dependence on both coal and oil. Currently, India's per capita energy consumption is very low; in 2003 the consumption was 439 kgoe per capita compared with 1090 kgoe per capita in case of China, 4052 kgoe per capita for Japan and 1688 kgoe per capita for the world [2] Energy consumption of India is therefore expected to continue growing significantly in the future. The only practical options for enhancing energy security and reducing coal consumption as well as oil import bill would be improving efficiency of energy use and promoting renewable energy.

NEED OF RENEWABLE ENERGY IN INDIA

Varying Impacts

Power companies use a variety of processes to create electricity, and not all processes affect the environment in the same way. For example, coal is a much more environmentally problematic source of energy than solar power, which has minimal environmental effects. Other forms of electricity generation include natural gas, hydroelectric power plants, nuclear energy and oil.

Greenhouse Gases

Most mechanisms for generating electricity release carbon dioxide and other greenhouse gases – gases that absorb and emit radiation – into Earth’s atmosphere. While small quantities of carbon dioxide exist naturally in the atmosphere, the generation of electricity has greatly increased the presence of greenhouse gases in the planet’s atmosphere. The overwhelming majority of scientists believe that this contributes to an unnatural degree of global warming that has the potential to affect the global climate, destroy animal populations and change local ecosystems.

Pollution and Acid Rain

Almost all forms of electricity generate waste. For example, natural gas releases carbon dioxide and nitrogen oxide. Earth’s atmosphere traps these gases, leading to air pollution and smog.

Weather patterns and geological variations can affect the prevalence of smog in a particular area. For example, a valley trapped between hills with little wind might trap a pocket of smog. When smog containing sulfur dioxide and nitrogen oxide is released into the atmosphere, it can contaminate precipitation and rain back down as acid rain.

Waste Disposal Challenges

Almost all forms of electricity generation produce some waste, but energy sources such as nuclear energy produce dangerous solid wastes. Some sources of radioactive waste remain radioactive for thousands of years, which means the waste can cause cancer and genetic mutations in humans and animals. Radioactive waste may alter the soil's chemical composition, making it unsafe for local wildlife and potentially killing off plant species. Burning coal produces a type of solid waste called ash, which is frequently deposited in landfills, contributing to landfill overfill. The Environmental Protection Agency says it is possible to recycle this material into cement and other useful products, and some coal manufacturers recycle their waste.

Injuries to Wildlife

Both the generation and delivery of electricity can harm local wildlife. Birds may fly into power lines, resulting in electrocution. Wind farms endanger flying animals such as bats and birds. No power generation system can be perfect, and power plant accidents can also injure animals. For example, a 2009 study found that the Chernobyl nuclear disaster resulted in lower animal populations even 20 years after the disaster.

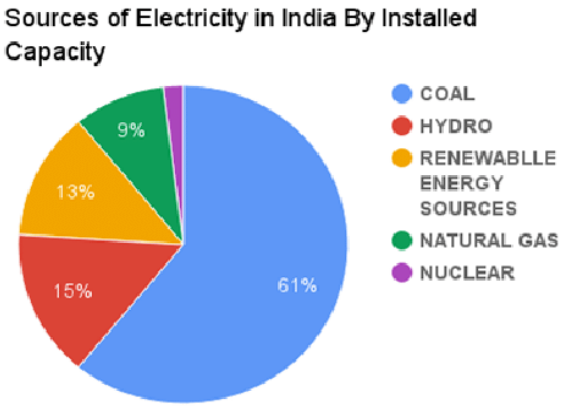
Renewable Energy in India

India was the first country in the world to set up a ministry of non-conventional energy resources, in early 1980s. Renewable energy in India comes under the purview of the Ministry of New and Renewable Energy (MNRE). Newer renewable electricity sources are targeted to grow massively by 2022, including a more than doubling of India's large wind power capacity and an almost 15 fold increase in solar power from April 2016 levels. Such ambitious targets would place India amongst the world leaders in renewable energy use and place India at the center of its International Solar Alliance project promoting the growth and development of solar power internationally to over 120 countries.

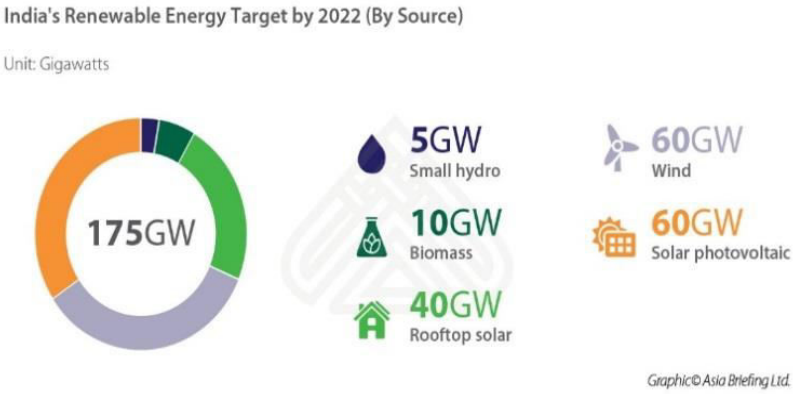
As of 30th April 2016 India's cumulative grid interactive or grid tied renewable energy capacity (excluding large hydro) reached about 42.85 GW, surpassing the installed capacity of large scale hydroelectric power in India for the first time in Indian history. 63% of the renewable power came from wind, while solar contributed nearly 16%. Large hydro installed capacity was 42.78 GW as of 30 April 2016 and is administered separately by the Ministry of Power and not included in MNRE targets.

From 2015 onwards, the MNRE began laying down actionable plans for the renewable energy sector under its ambit to make a quantum jump, building on strong foundations already established in the country. MNRE renewable electricity targets have been upscaled to grow from just under 43 GW in April 2016 to 175 GW by the year 2022, including 100 GW from solar power, 60 GW from wind power, 10 GW from bio power and 5 GW from small hydro power. The ambitious targets would see India quickly becoming one of the leading green energy producers in the world and surpassing numerous developed countries. The government intends to achieve 40% cumulative electric power capacity from non-fossil fuel sources by 2030.

Energy Contribution in India



India's Target by 2022 End



Renewable Energy Companiey in India – Websolar Energy Systems Ltd

Websol Energy System Limited is one of the top Indian brands into the manufacturing of photovoltaic crystalline solar cells and the related modules. Set up at Falta SEZ, Sector II, Falta, West Bengal, we have the best production unit that helps us in delivering the best and an up-to date products in the industry. Having been into the business from 1990, we know exactly what it needs to match the needs of our customers in terms of quality and commitment. Our products are used in various commercial and industrial setups all over the country and abroad as well.

Having reached to the top on the ladder, Websol has been awarded and appreciated for the kind of work it has been delivering over the years. One of the most modernized setups for solar cell and module manufacturing in the country, we use and adapt to all the technological advancements to deliver the best products. The manufacturing of Websol crystalline PV modules is done by following all the policies and industry specific guidelines to make sure that our products stand strong on the quality standards acceptable in the global market. Having received certification and quality approvals from the brands like TUV Rhienland Germany, our solar modules have an approval as per IEC 61215, IEC 61730 and UL 1703 standards. Being an ISO 9001.2015 certified company, all this appreciation are a mere sign of our commitment towards the customers and the hard work our employees put in to improve the type and quality of products that we supply.

Designed with an aim to use the solar energy to its maximum, the Websol modules are used across sectors like Solar PV power plants, remote communication and rural electrification.

With the constant aim of improving our capacities to serve the customers, Websol is technically capable of handling 160 micron thin wafers. With the constant expansion that we are working towards, our expansion programs have ramped up to the limit of 1.8 GW Bi-Facial Mono PERC Cell Line and Fully automatic Module Line and we constantly try to improve it to an even further level.

OBJECTIVES OF THE STUDY

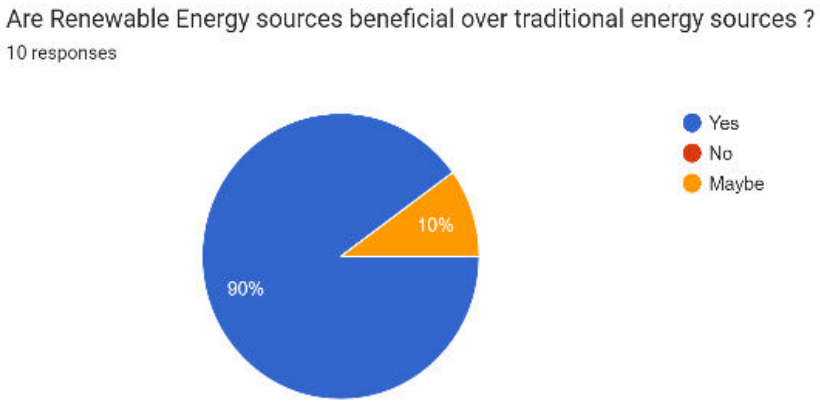
1. To study renewable energy sector in India
2. To study different renewable energy sources, by company evaluation

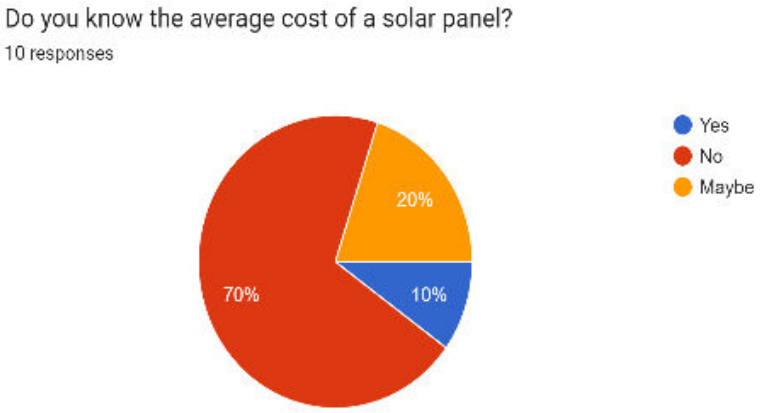
RESEARCH METHODOLOGY

The present study is descriptive in which the need for renewable sources in India have been studied. The sample size of the study is 100. The data were gathered using a standardized questionnaire and evaluated using mean values and the t-test.

Data Analysis & Findings

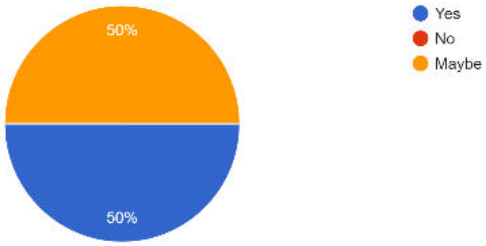
We have taken into consideration the responses of 100 people, on our Questionnaire prepared. People have responded with honest opinions and knowledge.





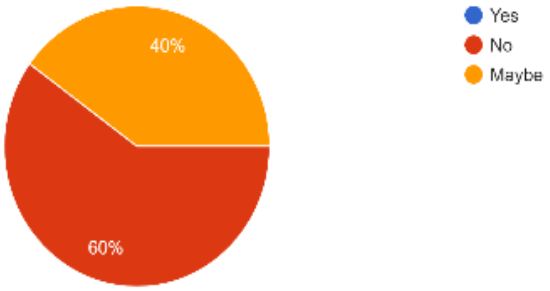
Would you install Solar Panels (in any form like water heaters, battery operated lights) in your household to save electricity expenses?

10 responses



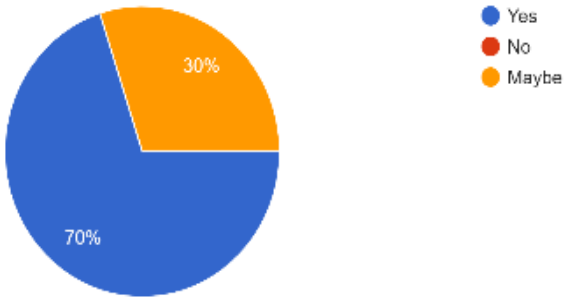
Have you heard of WebSol Energy Systems Ltd?

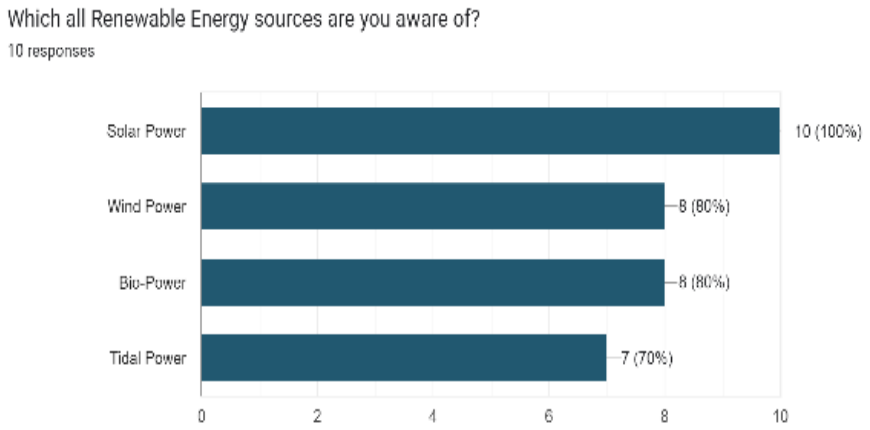
10 responses

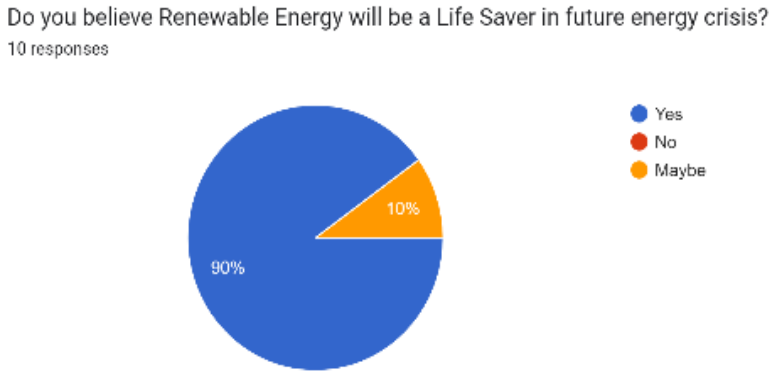


If given a choice, Would you switch to Renewable Energy sources of energy?

10 responses







RECOMMENDATIONS

I would recommend people to start using renewable sources of energy and try using sustainable innovative practices to protect our environment from pollution and boost the usage of Renewable sources of energy like Solar Power, Tidal Power, Wind Power, etc.

CONCLUSION

The fintech sector is one of the major driving forces behind, asking the financial sector what it is today. Especially the recent boom in the fintech companies in India are china makes the finance sector rise exponentially. This has made every life more accessible for some people, thus marketing the banking services available for everyone who has a smartphone and can pay for an internet connection. The fast innovation technologies help to bring more money to the finance sector. However, the primary issue is privacy, safety, security, and the accessories required to access and utilize their services and goods. Considering the arguments, one might argue that Fintech can serve as a dark knight for certain nations if further adjustments are made and security is strengthened (Omarini, 2020).

REFERENCES

- https://www.msmemart.com/msme/listings/company-list/solar-energy-renewable-energy-and-other-energy-conservation-products/11/375
- https://www.moneycontrol.com/financials/websolenergysystem/profit-lossVI/WSL
- https://www.ndtv.com/business/stock/websol-energy-systems-ltd_webelsolar

- http://www.webelsolar.com/company-profile
- https://www.investindia.gov.in/sector/renewable-energy
- https://www.sciencedirect.com/science/article/abs/pii/S0360544208002855#:~:text=An%20independent%20department%20%E2%80%93%20the%20Department,to%20finance%20renewable%20energy%20projects.
- https://jgateplus.com/search

SOLID WASTE MANAGEMENT IN INDIA: A REVIEW ON WASTE VENTURE INDIA PVT. LIMITED

Sumita Prasad and Vinitha Origunta
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
To understand solid waste management in India. Investigation through questionnaire (google forms) As everyone knows that solid waste is one of the major areas of concern all over the world. In developing country like India, there is rapid increase in municipal solid waste due to urbanization and population growth. Composition of waste varies with different factors like living standard, climatic condition, socio-economic factor etc. This paper gives current scenario of India with respect to solid waste quantity, quality and its management. I have presented a brief overview of Solid waste Management in Major cities medium scale towns and small-scale towns. I have also presented some interesting results of Waste Venture India Private Limited (WVI) the company which is actually working on such scenario for controlling the solid waste in India. The Vision and Mission of WVI is Inclusive, decentralized, holistic waste management models to solve India's ongoing trash issue. To create better quality of life for informal waste pickers and rag pickers by including them in low value plastics collection. To avert waste from landfill by providing end-to-end solutions to bulk waste generators.

Keywords: Waste Management, Perception of Indians, Solid waste, Sustainability, Waste minimization.

INTRODUCTION
India generates over 150,000 tons of municipal solid waste (MSW) per day, with Mumbai being the world's fifth most wasteful city. Yet, only 83% of waste is collected and less than 30% is treated. According to the World Bank, India's daily waste generation will reach 377,000 tones by 2025. Blame urbanization and industrialization, but the consequences of India's megacities producing tones of waste are tangible and troubling. At the global level the per capita generation of solid waste is 1.2 kg /person/day and the number of urban residents is 3 billion, together generating about 1.3 billion tones/year. The solid waste generation rate is forecasted for the 2025, where the per capita generation will increases to 1.4 kgs /person/day with increase in urban population to 4.3 billion, thus the generation of solid waste will increase to 2.2 billion. Environmental degradation is results of the dynamic inter play of socio-economic, institutional and technological activities. Environmental changes may be driven by many factors including economic growth, population growth, urbanization, rising energy use and transportation. India with a population of 139 cores is almost equal to the total population of USA, Indonesia, Brazil, Pakistan, Bangladesh and Japan put together. India with only 2.4% of world surface area accounts for worlds 17.5 % population. Solid waste management (SWM) is a basic public necessity and this service is provided by respective urban local bodies (ULBs) in India. SWM starts with the collection of solid wastes and ends with their disposal and/or beneficial use. Proper SWM requires separate collection of different wastes, called source separated waste collection. Source separated collection is common in high income regions of the world like Europe, North America and Japan where the infrastructure to transport separate waste streams exists. Most centralized municipal systems in low income countries like India collect solid wastes in a mixed form because source separate collection systems are non-existent. Source separated collection of waste is limited by infrastructure, personnel and public awareness. There are so many companies in India which are working on reduction of waste and also companies which are helping other companies to reduce their waste one of them is Waste Venture India Private Limited.

Waste Venture India Private Limited

Waste Ventures India Private Limited is a private company established on 17 February, 2011. Classified as a private subsidiary of a foreign company and based in South Delhi, Hyderabad and Chennai.

Scope of Research

The scope of research is to understand the people's perception about waste generated on daily basis and what is their thoughts on companies which are actually working to overcome on it.

- The research is based on primary as well as secondary data.
- The research is studied broadly among the youths.
- The research is done based on the convenience of the researcher.

LITERATURE REVIEW

Chanakya H.N. and Sharatchandra H.C. (2005) state that solid waste disposal is one of the major environmental threats to Indian cities. Bangalore generates 3,000-4,000 tons of waste every day. The total amount of USW (Urban Solid Waste) produced in Bangalore and its per capita production rate has increased over the past three decades with population growth, lifestyle changes and evolution. The city has a semi-central collection point with partial waste segregation at the household level. Urban waste management is moving from centralized waste management to decentralized waste management, with increasing environmental awareness and non-scientific waste treatment in centralized waste management. This white paper presents his case study conducted in Bangalore to see the environmental impact of improper disposal of waste. Currently, there are government-approved nine waste treatment and landfill sites, but there are large public landfills outside the downtown area and on the outskirts of the city. These open landfills include plastics, organics, construction waste, unidentified new waste, old waste, and scrap from recycling units. Waste volume is determined based on visual estimation of area and average waste density. According to Ranjith Kharvel Annepu (2011), according to his research, most of his waste recyclable in India was collected by the informal recycling sector before him and then Urban Local Bodies (ULB) will be formally collected. The amount of recyclables collected by the informal sector prior to formal collection is generally not recorded. The report estimates that 21% of formally collected recyclables are segregated by the official sector at transfer stations and landfills. This figure does not include the amount recycled before formal collection, but it is comparable to the highest recycling rates in the world. Informal recycling systems have recently been recognized as deserving of worldwide recognition for their role in waste management in developing countries. In India, government policies and non-governmental organizations (NGOs) are expected to help organize sectors represented by different regions and integrate them into the overall formal system. The Ministry of the Environment and Forests (MOEF) Plastic Waste Management and Disposal Regulation of 2011 is a step in this direction. These regulations require ULB to coordinate with all those involved in waste management, including waste collectors.

OBJECTIVES OF THE STUDY

- Learn the concept of waste management.
- Study the waste management system in India.
- Suggest suggestions for future improvement.

RESEARCH METHODOLOGY

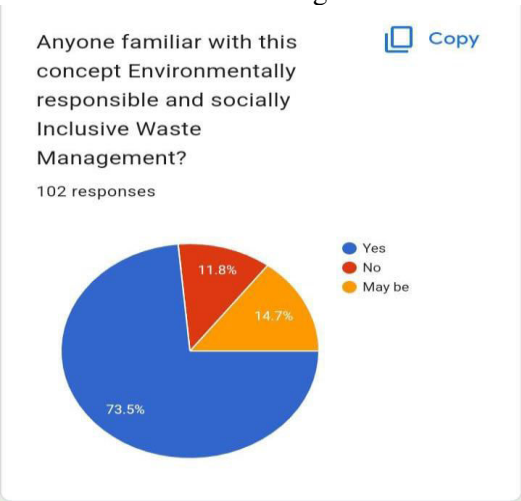
A combination of primary and secondary data has been used in his study. Primary data: distributed to Internet and social media users via a questionnaire method that was created using Google forms. Secondary data has been used to support the study and has taken the form of

websites, PDFs, and social media platforms. This research paper explains the perception of people in India on solid waste created by them and its management and their perspectives over waste management companies Sample Size: The sample size is 102. Sample Method: Survey through Google form was used as the sampling method.

DATA ANALYSIS AND FINDINGS

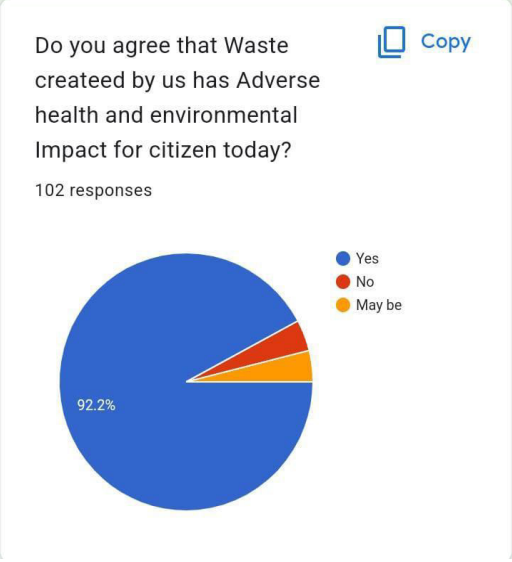
In accordance with the study, over hundred and two responses were gathered from respondents of various ages and genders. From the 102 responses, women provided 39.2% of the responses, while men provided 59.8%. Additionally, 83.3% of responses came from people aged 15 to 25, while 6.9% came from people aged 26 to 40 and 6.9% peopled were between 36 to 45.

Figure 1: Responses regarding people familiar with the concept of environment responsibility and Waste Management.



The majority of respondents out of 102 are aware with the concept of waste management , but some of them were less familiar with them at the time. According to the data, 73.5% of people are aware of the solid waste management responsibility towards it, While 26.5% are less familiar with them.

Figure: 2

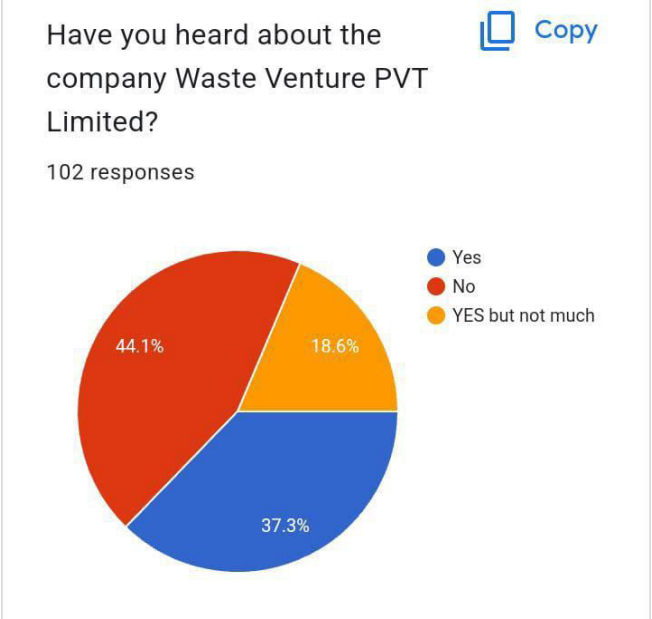


According to our data, the majority of people, i.e 92.2% of them are agree to the point that waste created by them adversely effects to the health of the society.

Figure: 3 Reasons of peoples for choosing waste management company

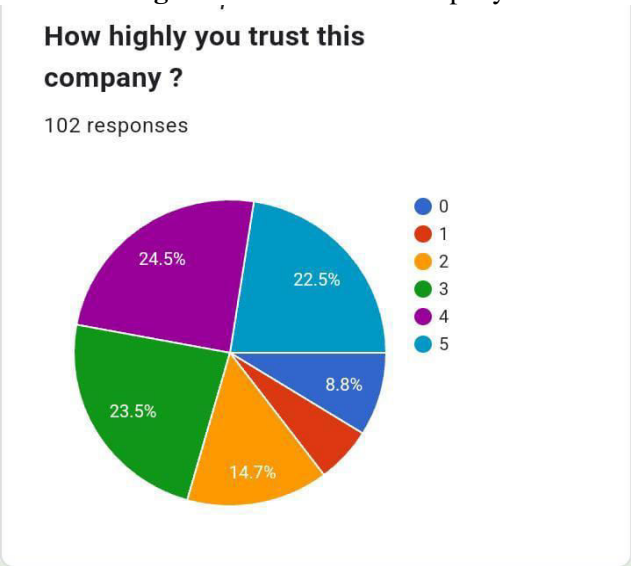
According to the data most of them want that the company should be environmental concern and pollution free.

Figure: 4 People aware about Waste Venture Pvt Limited



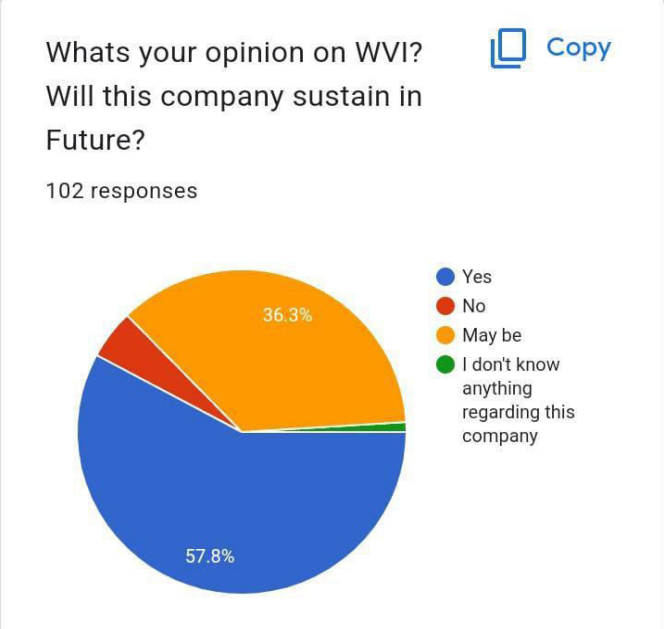
With this information we came to know that only 37.3% of people are aware about this company and most of them are not.

Figure 5: Trust on the company



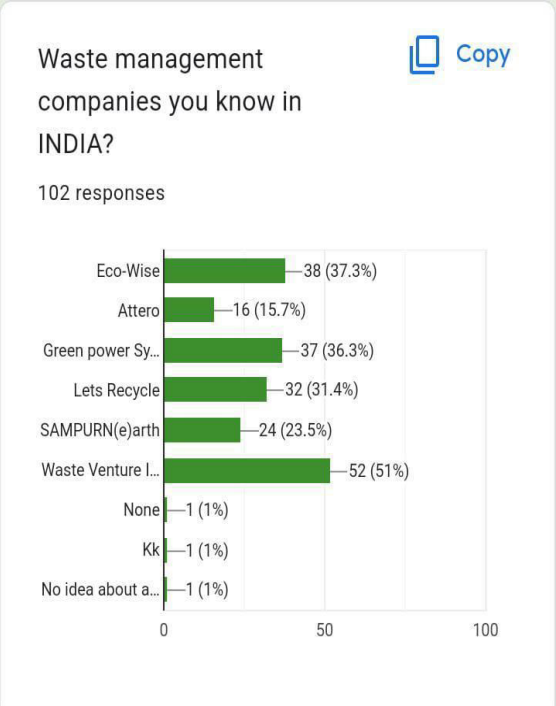
As per the above information gathered 22.5% people highly trust the company and 8.8% people don't.

Figure 6: Sustainability of Company



According to the day 57.8% people believe that the company will sustain in future but 36.3% people are not sure about the same.

Figure 7: Waste Management companies that people know in India



RECOMMENDATIONS

After analysing the data, the study found that the solid waste management companies need to work hard to reach the people in the surrounding the people know the harm and effect they need to barrier and they are also familiar that they have to pay back to the environment because of waste created by them. With community participation, individual biodegradable waste from individual communities/units must be collected and disposed of in these decentralized composting facilities.

1. The waste should be treated as resource and formal recycling sector/industries be developed to recycle non-biodegradable recyclable component from the waste thereby providing employment to rag-pickers and absorb them in mainstream. Also, a policy, fiscal intensive and development of quality standard for reuse and recycle of C&D waste be developed and notified so that producers dispose/reuse it as per guidelines, thereby reducing burden on landfill.
2. Manufacturing of non-recyclable polyethylene bags should be banned or research should be initiated to develop biodegradable polyethylene.
3. In India, normal MSWRs do not allow leachates/water/liquids to be added to landfills, but biodegradable wastes are remixed during transport and ultimately disposed of in landfills.

CONCLUSION

Municipal solid waste generation depends on the climate, urbanization, socioeconomic criteria, etc. of the population. Currently adopted MSWM (Municipal Solid Waste Management) practices in India are inadequate. It is also pointed out that while efforts are being made to improve municipal solid waste management in large cities; sufficient attention is not paid to municipal solid waste in small and medium-sized cities. Current regulations (MSWM Regulations, 2000) are very strict. A number of shortcomings have been identified in the implementation of the policy. Lack of training, financial constraints, lack of planning and

leadership are the major causes of non-compliance in MSWM. Developing countries like India, where 71% of the population lives in small towns and villages, need to implement proper waste management policies in these areas. Optimization studies should be conducted to explore the feasibility of integrated waste management by integrating small towns and their surrounding villages to improve waste management. Waste Venture India pvt limited needs to promote themselves and their amazing projects more to play on the ground.

REFERENCES

- https://wasteventures.com/
- https://www.tofler.in/waste-ventures-india-private-limited/company/U90002dl2011ftc214241
- https://www.zaubacorp.com/company/Waste-Ventures-India-Private-Limited/U90002dl2011ftc214241
- https://www.indiafilings.com/business/company-details/waste-ventures-india-private-limited-cin-U90002dl2011ftc214241
- https://www.insightsonindia.com/environment/environment-pollution-and-control/waste-management/solid-waste-management/#:~:text=In%20India%2C%20Solid%20wastes%20are%20generally%20transported%20first,is%20safe%20disposal%20where%20associated%20risks%20are%20minimised.
- https://testbook.com/learn/environmental-engineering-solid-waste-management/

A STUDY ON SAUKHYAM REUSABLE PADS

Sumita Prasad and Amrutha Prabhu
SIES College of Commerce and Economics (Autonomous)

ABSTRACT
Menstruation is an inevitable phase in woman's life. It is the most important physiological changes occurring among girls during their teen years and then it becomes part and parcel of their life until they reach a certain age. The health and hygiene of the woman depends upon the sanitary products they use during their menstruation period. There are variety of sanitary products available in the market, but the question arises that whether they are safe, sustainable and eco-friendly Sanitary pads have become an unavoidable necessity, so it is important to use best product. In this case study my aim is to offer solutions to this well- known problem. Saukhaym reusable pads fulfils all concerns of a woman relating to their menstruation.

Keywords: Menstruation, sustainable sanitary pads, saukhyam, reusable pads, eco-friendly

INTRODUCTION
sustainability can be defined as the ability to hold something tight or to be maintained a certain rate or level. There are four main pillars of sustainability namely; business sustainability, social sustainability, economical sustainability and human sustainability. Business sustainability is the ability of the business entity to conduct business which adds value to the economy with minimum negative impact towards environment. It is the process of maintaining a reasonable balance between Business and Environment.

Social sustainability simply means managing both positive and negative impact of business activities on people. Businesses that focus on social aspect of sustainability give importance to social issues. Namely: unemployment, public heath, female hygiene, inequality, in-short guarding your social rights by implementing right social measures into their regular business practices.

Economic sustainability means ability to sustain the long-term economic growth without negatively impacting social, environmental, and other aspects of the community.

Human sustainability aims to maintain and improve the human capital in society. Investments in the health and education systems, access to services, nutrition, knowledge and skills are all programs under the umbrella of human sustainability.

Thus all Pillars of sustainability are directly or indirectly interrelated with each other. Sustainable factors are very important concern of any business, without which a business cannot be operated.

INDIAN SOCIETAL PROBLEMS
Indian society has progressed over time, with advancements in variety of disciplines. However, there are still many more issues that people generally neglect and must be taken into serious consideration. Some of the societal concerns in India are women safety, substance abuse, poverty, gender based discrimination on both men as well as women, public health and negligence of female hygiene while on their menstrual cycle. Menstruation is still considered to be a sensitive topic and most women still don't feel comfortable to discuss openly about this topic and it adds to the Indian societal problems.

MENSTRUAL PROBLEMS
Menstruation is one of the most important physiological changes occurring among girls during their teen years. Over a period of time it becomes part and parcel of their life until they attain a

certain age generally between 50 years and above. menstruation is nothing but a normal vaginal bleeding that occurs as a part of women's monthly cycle. Women during their menstruation period undergoes through a lot of cramps, mood swings, irritation, fatigue, breast tenderness, unbearable pain and various other issues. During the Menstrual cycle, hygiene becomes an important factor which have been neglected in our Indian society.

The Female hygiene depends upon the quality of product they use during Menstrual cycle. There are variety of menstrual products, depending upon various brands that women prefer to use such as sanitary napkins, tampons, menstrual cups and some women still prefer cloth material over these products. Due to such ignorance and lack of awareness, it gives raise to many health issues.

HISTORY OF SANITARY NAPKINS

Throughout the years, women used different kinds of protection against menstruation. The most common kind of protection was cloth material as an absorbent irrespective of rural or urban areas. Cloth pad was a very known form, women used to wash the piece of cloth right after using it and reuse it again and again, until disposable menstrual pads was developed.

CURRENT STATUS OF SANITARY NAPKINS

Sanitary napkin is an absorbent item, worn by women during their menstrual period. It is usually white in colour. It was developed for women to ensure hygiene during menstruation. Today sanitary pads come in variety of colour, size and fragrance depending upon various brands. Although there are various menstrual products other than sanitary pads namely: tampon, menstrual cup, period panties and so on. But majority of women still prefer sanitary pads over anything. In India, an average cost of sanitary pads ranges between 30 to 40 rupees. However, in rural areas women still prefer cloth material during menstruation.

According to research report, revenue in feminine products which include sanitary pads and tampons, amounts to $5.85 billion in 2022. The market is expected to grow annually by 5.15 percent (CAGR 2022-2026)

Unquestionably, Menstrual pads have made menstruation period easy, comfortable and hygienic. But it is not so simple as it seems to be, because these pads have the more side effects on human skin. Disposable sanitary pads contain chemicals that may cause harm to vaginal and pubic skin. Sanitary pads are not naturally white in colour. The fibres in pads are chlorine bleached to make it as aesthetic as possible. Which leads to various skin problems and this bleaching process creates dioxin, a highly toxic pollutant that can cause pelvic inflammatory disease, hormone dysfunction and even cancer and all such ingredients are detrimental to our skin and slowly and steadily it can lead to many heath issues even cancer. Now as the pros and cons of disposable sanitary pads have been considered, safer alternative becomes the necessity. There are many companies, practising sustainable menstruation, Saukhyam is one of them. To curtail the above-mentioned problems, great initiative was started by Saukhyam b. creating eco-friendly sustainable reusable pads

SAUKHYAM RESUABLE PADS

Saukhyam is a Malayalam word which means happiness and well -being. saukhyam makes the best Reusable Organic pads made of fully natural ingredients. which benefits women as well as our mother earth.

Saukhyam reusable pads project was started in the year 2017 to spread awareness and to provide access over best quality product for feminine hygiene. Saukhyam Reusable pads is great initiative made by Mata Amritanandmayi math. The math is an NGO led by Mata Amritanandmayi. That works towards several social issues. Female hygiene and sustainable development being the key issues. The national family health survey (2015-2016) of the

ministry of health and family welfare revealed that only 48.2% of girls used hygienic method of protection during their menstruation in rural India as compared to 77.5% in urban India. Many efforts were begun to find a cost-effective and eco-friendly solution to this problem. It has been proven that saukhyam reusable pads offer the best solutions to these known problem as it is sustainable, economical, safe and reusable.

Today, saukhyam pads are worn by my many ladies in village areas as well as cities in India. Saukhyam reusable pads are made up of cotton and banana fibre. Banana fibre is an excellent absorbent having many therapeutic qualities in it. India being the largest producer of bananas in the entire globe, but no trees are harmed for achieving this. Saukhyam pad set last around 4 -5 years and that is less than 500 rupees. Disposable sanitary pads available in the market would cost you more that will lead to various health problems in future. These disposable sanitary products can serious damage to the environment and pollute the planet. Banana fibre Is the absorbent in saukhyam pads and that is taken from agricultural waste, which means no trees are harmed. In this way saukhyam also promotes recycling of agricultural products. Which means nothing is a waste. Saukhyam Reusable pads were honoured by many profound institutions for their exceptionally great initiative which work towards sustainable India.

STATEMENT OF PROBLEM

India is a developing country, progressing over a period of time, but there are a lot of issues to which people do not pay attention. Issues such as public health, feminine hygiene, etc. Sanitation is not only important but also have a social significance. Menstruation is inevitable in a woman's life. Therefore, the health and hygiene of the woman is determined by kind of products women uses during menstrual cycle. Menstrual products contain toxic chemicals and have detrimental effects on human body. This can even cause cancer. Menstrual hygiene plays a very crucial role. So it becomes important to use right product benefitting herself as well as the environment. Its high time to spread awareness and educate and empower women. so that, they can have access to various eco-friendly reusable pads. This paper aims to offer solutions to this well- known problem.

LITERATURE REVIEW

Krishnashree Achuthan, Sharanya Muthupalani, Vysakh Kani Kolil & Anju Bist (2021)- in their research article titled "A novel banana fibre pad for menstrual hygiene in India: a feasibility and acceptability study", Their findings provided the solutions to feminine hygiene and suggested a sustainable alternative. The study describes the importance of banana fibre pad and its usage in today's contemporary world.

Rajesh Garg, Shobha Goyal, Sanjeev Gupta (2011)- In their research paper titled "India moves towards menstrual hygiene: subsidized sanitary napkins for Rural Adolescent Girls-Issues and challenges" their study highlights the significance of female hygiene and offers the best solutions and recommendations to promote female hygiene.

OBJECTIVES

To spread awareness about sustainable menstruation

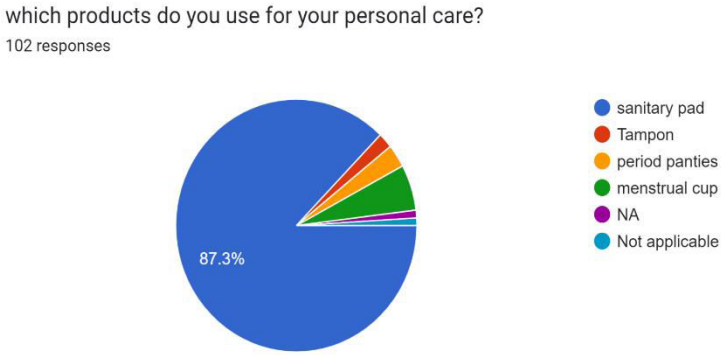
To promote environment friendly reusable sanitary pads

To promote health and hygiene of women in society

RESEARCH METHODOLOGY

in this study the target audience were women, ranging from the age group of 15 to 50 years. Both primary and secondary data were employed in the study. questionnaire method was used for the purpose of data collection. the platform used was google forms in order to collect primary data that is the base of the research. Secondary data was collected through articles, journals, and research papers.

DATA ANALYSIS AND FINDINGS



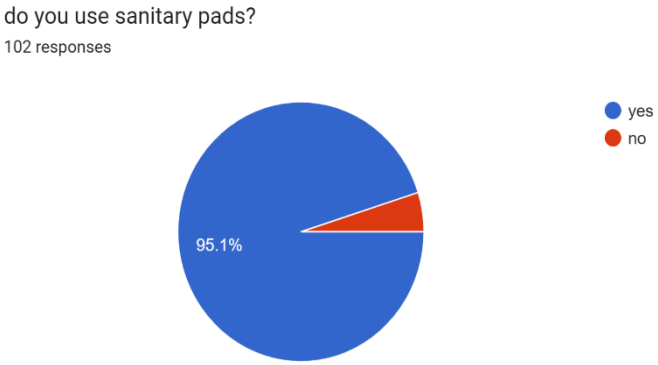
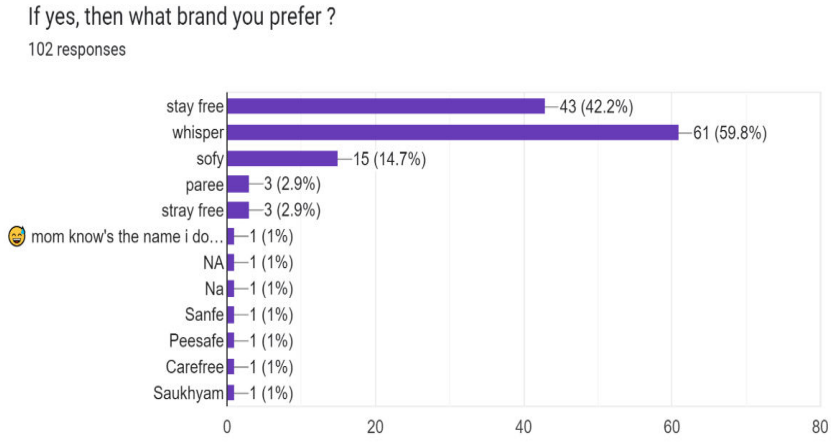


Chart 1 and 2 This above chart gives information about what products women prefer to use for menstruation. And from the following data, it can be concluded that, majority of women, that is 95.1% women use sanitary napkins.



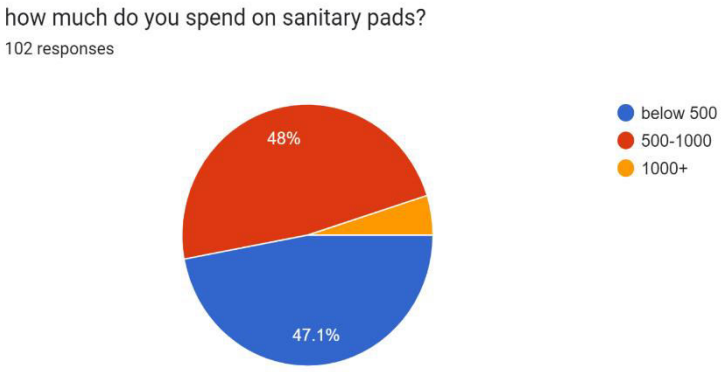
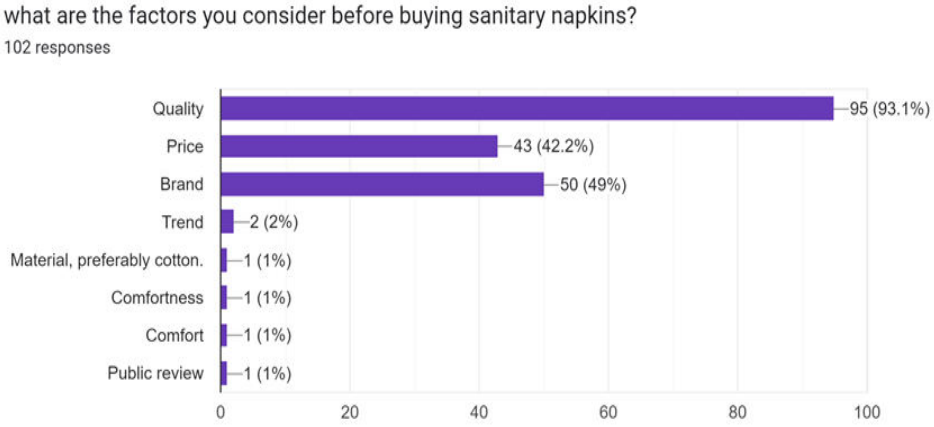


Chart 3 and 4 The above figure gives information about what brand women prefer to use and how much they spend on their sanitary napkins, hence the result came out as 59.8% of women use whisper and 42.2% of women use sanitary pads of stayfree.48% of women on an average spends somewhere between 500-1000 rupees, where as 47.1% of women spend below 500 rupees for sanitary napkins.



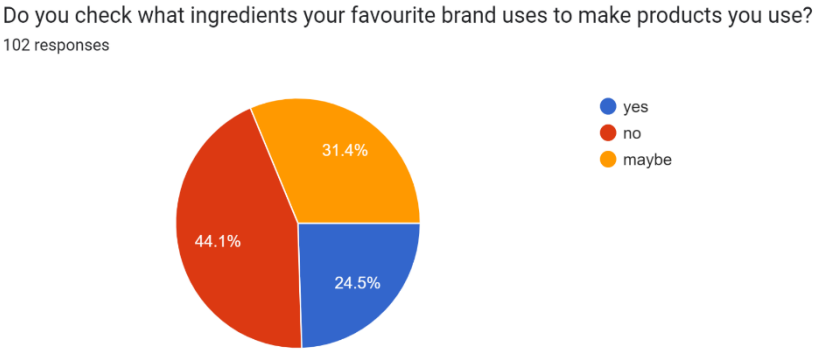


Chart 5: Then I have asked them on what basis they make a purchase and do they check the ingredients before buying sanitary napkins. In the above figure 93.1% of women consider

quality before buying sanitary pads, while 42.2% check price and rest 49% rely on brand and 2% on trend.

Chart 6: as shown in the bar graph that 44.1% of women do not check the ingredients and 24.5% of women are aware about the ingredients. Rest that is 31.4% are indecisive.

Then I gave a brief information about how sanitary pads can affect your body and have a detrimental effect on human body. And what is the safer alternative to disposable sanitary and how saukhyam reusable pads can be the best solution to these problems. Saukhyam reusable pads are made up of cotton and banana fibre. It has many therapeutic qualities. And most importantly it does not harm the consumer as well as the environment.

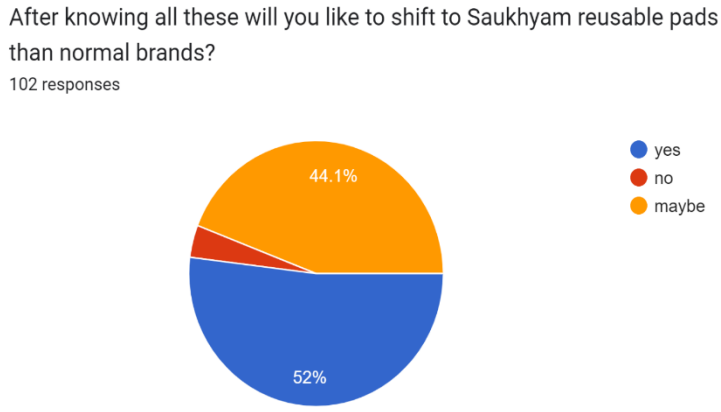


Chart 7: from the following data it can concluded that. After knowing the benefits of saukhyam reusable pads Most of the Women seem to be concerned about this issue. 52.2% of women will likely to shift to saukhyam reusable pads.and rest 44.1% are still unsure and 3.1% of women are not willing to change as of now, but in future.

RECOMMENDATIONS

Saukhyam needs to put more efforts into branding and marketing

It is advisable to make the reusable pads more economical, so that anyone can afford it.

CONCLUSION

The following study's findings indicate that, Reusable sanitary napkins are need of an hour and the benefits of such eco-friendly sanitary pads can only be seen in future. It is high time to discard disposable sanitary pads and shift to reusable sanitary pads. There still many women who are not aware about this topic, menstrual hygiene should be discussed openly in our Indian society. Brands like saukhyam should put more efforts on branding and marketing of such eco-friendly products. Government should promote such eco-friendly products by providing subsides, tax incentives and social advertisement. Co-operation and collaboration with every section of society shall make this initiative a great success.

REFERENCES

- https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-021-01265-w
- https://ecovillage.org/sustainability-education/?gclid=Cjw KCAiAkrWdBhBkEi wAZ9cdc HmFaPqnser_-IJkxGqMU4D46gPb-9QdLw8KE83MiqvQiR84vi5E5hoCvjsQAvD_BwE
- https://link.springer.com/article/10.1007/s10995-011-0798-5

- https://www.saukhyampads.org/about-us
- https://www.saukhyampads.org/
- https://exploresaf.com/applications/hygiene/?gclid=CjwKCAiAzKqdBhAnEiwAePEjko3Yw0bBIM8sQbCeOvv38IcRcl76pR-_2-cXPZToGHM55rMAfdaBaBoCQmEQAvD_BwE
- https://ecovillage.org/sustainability-education/?gclid= CjwKCAiAkrWd BhBkEiwAZ9cdcHmFaPqnser_-IJkxGqMU4D46gPb-9QdLw8KE83MiqvQiR84vi5E5hoCvjsQAvD_BwE
- https://en.wikipedia.org/wiki/Menstrual_pad
- https://koreascience.kr/article/JAKO201424566495497.page
- https://toolkits.knowledgesuccess.org/sites/default/files/garg_-_indiamovestowards menstrual hygiene. pd

ABOUT THE EDITORS

Aniket Swaraj is an Industry Professional and Academician with 15+ years of experience.

He is Phd Scholar and currently employed as an Head of the Department and Assistant Professor of Bachelor of Management Studies at SIES College of Commerce and Economics (Autonomous), Sion, Mumbai. He is an Content creator and Instructor in a U.S. based company which provides Online education to professionals.

Globally 3000+ learners have benefited from his online course. He is an approved faculty for Master of Management Studies under University of Mumbai, Maharashtra. His qualifications include Master of Philosophy (Business Management), Master of Personnel Management, B.Sc. (Chemistry), LLB, Diploma in HRM from NMIMS, UGC - NET (Personnel Management). His areas of teaching and research include Business and Labour laws, Strategic Management, Entrepreneurship Management, Research Methodology.

He received Best Research Paper award in an International Conference for his research paper titled 'Digital Amnesia'. he has published 30+ research papers, including works in ABDC and UGC CARE listed journals of High repute. he has been invited as a guest speaker for POSH and Labour reforms in various workshops and conferences. He has trained various companies across different sectors such as IT, manufacturing, and educational institutions. He specializes in POSH training which includes awareness training, capacity building and audit & reporting.

Fleur Fernandes is an Academician and Researcher with 10 years of experience in Academics, and 2+ years as Industry and Company Research Analyst at Centre for Monitoring Indian Economy (CMIE). She is currently employed as an Assistant Professor and Research Scholar at SIES College of Commerce and Economics (Autonomous), Sion, Mumbai. She is an approved faculty for Master of Management Studies under University of Mumbai, Maharashtra. Her qualifications include Master of Management Studies (Finance), B.Com. (Banking and Insurance), NET-JRF and SET.

Her areas of teaching and research include Corporate Finance, Financial Markets, International Finance, Financial Services, Wealth Management, Entrepreneurship, Business Environment, Sustainability, Internships and Employability.

She received three Best Research Paper honours. She has published 24 research papers, including works in ABDC and UGC CARE. She was awarded Minor Research Project grant of Rs.27,000 by University of Mumbai for the topic "A study of effectiveness of Internships in enhancing employability of Commerce and Management students of University of Mumbai". She also won CIMA Campus Culture Excellence Award 2022 - Global Bronze by AICPA & CIMA. She has been invited as a guest speaker for various seminars. She can be reached at dsouzafleur@gmail.com. ORCID ID: 0000-0002-3100-8211

NEX GEN PUBLICATIONS

ISBN 978-81-963599-3-5

India | UAE | Nigeria | Uzbekistan | Montenegro | Iraq | Egypt | Thailand | Uganda | Philippines | Indonesia

www.nexgenpublication.com