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on
Hospitality with a Conscience:
CSR, Sustainability, and Innovation**

Volume 5



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Foreword

It is with immense pride and optimism that we present the proceedings of the *International Conference on Hospitality with a Conscience: CSR, Sustainability, and Innovation*. This collection of scholarly works embodies the spirit of responsibility and forward-thinking that our industry so urgently needs today.

As the global landscape evolves, the hospitality sector stands at the crossroads of economic vitality and environmental stewardship. The papers presented in this volume reflect a collective commitment to embracing sustainability, fostering innovation, and enhancing societal well-being. From groundbreaking research on regenerative agriculture and eco-friendly food innovations to explorations of sustainable waste management practices and the integration of emotional intelligence in guest services, these contributions offer invaluable insights into the future of conscientious hospitality.

The diverse range of studies highlights not only the challenges we face but also the remarkable opportunities within our reach. Investigations into consumer preferences for eco-friendly products, the role of local cuisine in enriching guest experiences, and technological advancements for streamlined tourism services illustrate the dynamic interplay between tradition and innovation. Moreover, critical examinations of work-life balance for hospitality professionals and sustainable behaviors among communities remind us that our journey towards a responsible future must be holistic and inclusive.

We extend our deepest gratitude to the dedicated researchers, industry practitioners, and academics whose efforts have enriched this conference. Your work serves as a beacon, guiding us toward a hospitality sector that does not merely respond to the demands of sustainability but leads them with conviction and creativity.

May these proceedings inspire continued dialogue, collaboration, and actionable change. Together, let us reimagine the future of hospitality — one that thrives on responsibility, innovation, and an unwavering commitment to the greater good

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Editor – SAMVED 2024-2025

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Reducing Waste and Carbon Footprint.

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Abstract

This paper delves into comprehensive strategies for reducing waste and lowering carbon footprints, emphasizing the integration of sustainable practices at individual, corporate, and governmental levels. By adopting the 3Rs (Reduce, Reuse, Recycle), organizations and communities can significantly cut down on waste production while promoting the efficient use of resources. Improving energy efficiency, embracing renewable energy sources, and implementing innovative technologies further amplify these efforts. The paper evaluates successful real-world applications, including waste segregation, composting, and biogas generation, and highlights corporate initiatives like renewable energy adoption and upcycling. Furthermore, it examines government policies, such as carbon taxes and global agreements like the Paris Agreement, which play pivotal roles in enforcing sustainability goals. Recommendations provided in this paper aim to inspire actionable steps for stakeholders at all levels, aligning with global sustainability objectives to combat climate change and foster environmental conservation. By fostering collaboration and innovation, these strategies underscore the importance of a united approach to mitigating environmental damage while paving the way for a greener future.

Key words: waste management, integration of sustainability, segregation of waste, renewable energy sources, hotel reputation

1. Introduction

The escalating challenges posed by climate change and environmental degradation demand immediate and concerted action. Human activities, ranging from overconsumption to industrial processes, are key drivers of waste generation and greenhouse gas (GHG) emissions, which are intricately linked to global warming and its devastating impacts (IPCC, 2021). Waste accumulation not only pollutes ecosystems but also contributes to methane emissions, a potent GHG, from landfills. Similarly, excessive carbon footprints resulting from fossil fuel reliance exacerbate climate instability.

This paper seeks to explore actionable solutions aimed at mitigating these dual crises. By investigating strategies such as the adoption of the 3Rs (Reduce, Reuse, Recycle), the implementation of renewable energy technologies, and innovative waste management techniques, this study highlights pathways to reduce environmental damage. Moreover, the research emphasizes the importance of collaboration among individuals, corporations, and governments to achieve these goals. Ultimately, the findings presented aim to provide a blueprint for fostering environmental sustainability while enhancing societal well-being.

2. Understanding Waste and Carbon

Footprints

Waste and carbon footprints are significant environmental metrics that help measure and mitigate human impact on the planet. Understanding the nature and consequences of these issues is essential for addressing sustainability challenges (Smith & Brown, 2021).

2.1. Waste

Waste refers to any material or substance that is discarded after its primary use. It encompasses a broad spectrum of materials, including household waste (such as food scraps, packaging, and paper products), industrial byproducts (e.g., chemicals, metals, and plastics), and electronic waste (e-waste) like discarded computers, phones, and batteries (Environmental Protection Agency [EPA], 2022). Improper waste management, such as insufficient recycling or the inappropriate disposal of hazardous materials can lead to serious environmental degradation (EPA, 2022).

Waste that is not properly handled can contribute to soil contamination, water pollution, and air quality issues. For example, soil contamination occurs when harmful chemicals or non-biodegradable materials leach into the earth, disrupting ecosystems and harming plant and animal life (EPA, 2022). Water pollution results from the runoff of waste into rivers, lakes, or oceans, which can harm aquatic life and

make water unsafe for human consumption (EPA, 2022). Air pollution is often caused by the burning of waste materials such as plastics, which release toxic gases and particulate matter into the atmosphere, contributing to respiratory illnesses and climate change (EPA, 2022).

Increased awareness and action in waste management—such as recycling, composting, and reducing single-use plastics—are essential to mitigate these effects and move toward a more sustainable circular economy (EPA, 2022).

2.2. Carbon Footprint

A carbon footprint measures the total greenhouse gas (GHG) emissions produced directly or indirectly through human activities (Smith & Brown, 2021). These emissions primarily consist of carbon dioxide (CO₂), but may also include methane (CH₄) and nitrous oxide (N₂O), which are more potent greenhouse gases (Smith & Brown, 2021). Carbon footprints can be calculated for individuals, organizations, events, or entire countries, and are typically broken down by activities such as:

- **Transportation:** Emissions from vehicles, airplanes, and shipping are significant contributors to global carbon footprints. The combustion of fossil fuels like gasoline and diesel releases large amounts of CO₂ into the atmosphere (Smith & Brown, 2021).

- **Energy Consumption:** Electricity and heating derived from fossil fuels, such as coal and natural gas, are major sources of GHG emissions (Smith & Brown, 2021). Renewable energy sources like wind and solar, on the other hand, help reduce these emissions (Smith & Brown, 2021).
- **Agricultural Practices:** Farming activities, particularly livestock farming, produce methane—a powerful GHG—while the use of synthetic fertilizers releases nitrous oxide (IPCC, 2021). Deforestation for agricultural land also exacerbates carbon emissions by reducing the planet's ability to absorb CO₂ (IPCC, 2021).

High carbon footprints contribute to the phenomenon of global warming, where the buildup of greenhouse gases in the atmosphere traps heat and raises global temperatures (IPCC, 2021). This leads to a host of adverse climatic events, such as:

- Rising sea levels caused by melting polar ice (IPCC, 2021).
- Extreme weather events like hurricanes, droughts, and heatwaves (IPCC, 2021).
- Disruption of ecosystems and biodiversity loss due to altered habitats and temperatures (IPCC, 2021).

Efforts to reduce carbon footprints are essential for mitigating the impacts of

climate change. These efforts include adopting energy-efficient technologies, reducing waste, switching to renewable energy sources, and changing consumption patterns (IPCC, 2021).

3. Causes and Consequences of Excessive Waste and High Carbon Emissions

Excessive waste and high carbon emissions are primarily driven by human practices that are unsustainable and harmful to the environment. These behaviors lead to numerous consequences, ranging from ecological degradation to public health crises.

3.1. Causes

The causes of excessive waste and high carbon emissions are multifaceted. Overconsumption, the continuous and excessive use of resources beyond what is necessary, is one of the leading contributors (Environmental Protection Agency [EPA], 2022). This overuse results in increased waste generation, from packaging materials to food waste, all of which require disposal or recycling, often contributing to environmental harm (EPA, 2022). Reliance on fossil fuels for energy, transportation, and industrial activities is another major driver of carbon emissions (Smith & Brown, 2021). The combustion of fossil fuels like coal, oil, and natural gas releases large amounts of carbon dioxide (CO₂) into the atmosphere, exacerbating climate

change and contributing to high carbon footprints (Smith & Brown, 2021).

Moreover, inadequate waste management systems exacerbate the problem. In many areas, insufficient recycling infrastructure and improper disposal practices lead to significant waste buildup, which ends up in landfills, incinerators, or is improperly dumped in natural environments (EPA, 2022). Without proper waste management, recyclable materials and organic waste, such as food scraps, do not get processed, leading to wasted resources and further environmental degradation (EPA, 2022).

3.2. Consequences

The consequences of excessive waste and high carbon emissions are far-reaching and impact both the environment and public health. Resource depletion is a major consequence, as overconsumption of natural resources accelerates the exhaustion of finite resources such as fossil fuels, minerals, and water (Smith & Brown, 2021). This depletion undermines the ability of future generations to meet their needs and disrupts ecosystems that depend on these resources (Smith & Brown, 2021). Additionally, biodiversity loss occurs as pollution, deforestation, and habitat destruction, driven by waste and emissions, threaten the survival of species worldwide (World Health Organization [WHO], 2020). As natural habitats are destroyed, species are displaced or face extinction,

causing a loss of biodiversity that undermines ecosystem services and resilience (WHO, 2020).

Public health is also significantly impacted by these practices. Respiratory illnesses are common consequences of air pollution, which is a direct result of burning fossil fuels and improper waste disposal (WHO, 2020). Pollutants like particulate matter, carbon monoxide, and volatile organic compounds contribute to a range of respiratory issues, including asthma and chronic obstructive pulmonary disease (COPD) (WHO, 2020). Contaminated water supplies are another serious health risk associated with improper waste management. Chemicals, heavy metals, and pathogens from waste materials can leach into water bodies, making water unsafe for consumption and leading to waterborne diseases (WHO, 2020). As a result, communities face increased health risks and burdens, particularly in areas lacking access to clean water and sanitation.

4. Strategies to Reduce Waste

Reducing waste requires concerted efforts across multiple fronts. The following strategies highlight key practices to minimize waste generation, manage organic waste, and reduce the impact of single-use products.

4.1. Adopting the 3Rs

The 3Rs—Reduce, Reuse, and Recycle—form the cornerstone of waste management

strategies aimed at reducing environmental harm. Reducing consumption is the first and most effective step, as it directly minimizes waste generation (Environmental Protection Agency [EPA], 2022). By purchasing only what is necessary, individuals and businesses can prevent the production of unnecessary waste that would otherwise contribute to landfill overflow (EPA, 2022). Reusing materials and products further helps extend the lifecycle of items, reducing the need for new resources and preventing the accumulation of waste (EPA, 2022). For example, reusing containers, furniture, and textiles can help conserve resources and reduce the frequency of waste disposal (EPA, 2022). Finally, recycling involves processing waste materials into new products, which reduces the reliance on raw materials and the need for new manufacturing processes (EPA, 2022). Recycling not only conserves resources but also significantly reduces landfill dependency, making it an essential component of sustainable waste management (EPA, 2022).

4.2. Composting and Organic Waste

Management

Composting is an effective method for converting organic waste, such as food scraps and yard waste, into valuable fertilizers that can enrich the soil (Smith & Brown, 2021). By diverting organic

materials from landfills, composting reduces methane emissions that occur when organic waste decomposes anaerobically in landfills (Smith & Brown, 2021). Municipal composting programs, in particular, offer a collective solution to manage organic waste at scale. Such programs have the potential to significantly reduce landfill contributions by processing large quantities of organic materials into compost (Smith & Brown, 2021). This method not only helps reduce waste but also promotes sustainable agriculture and supports the circular economy (Smith & Brown, 2021).

4.3. Reducing Single-Use Products

One of the most pressing issues in waste reduction is the widespread use of single-use products, particularly plastics, which contribute significantly to environmental pollution (EPA, 2022). Transitioning to reusable alternatives, such as cloth bags, stainless-steel containers, and metal straws, helps reduce the consumption of disposable plastic items that are often used once and discarded (EPA, 2022). These reusable products not only reduce waste but also promote a shift toward more sustainable consumer habits. Education campaigns play a critical role in encouraging behavioral change by raising awareness of the environmental impacts of single-use products and the benefits of sustainable

alternatives (EPA, 2022). By educating the public and providing incentives to use reusable items, such campaigns can help significantly reduce plastic pollution and support long-term waste reduction efforts (EPA, 2022).

5. Strategies to Lower Carbon Footprint

Lowering carbon footprints is crucial in mitigating climate change and reducing the overall environmental impact of human activities. The following strategies outline key practices that individuals, businesses, and governments can adopt to lower emissions and promote sustainability.

5.1. Energy Efficiency and Renewable Energy

One of the most effective ways to reduce greenhouse gas (GHG) emissions is by improving energy efficiency. Switching to energy-efficient appliances, such as LED lights, smart thermostats, and high-efficiency heating and cooling systems, directly lowers energy consumption and reduces emissions (Smith & Brown, 2021). These energy-efficient technologies not only lower the carbon footprint but also help consumers and businesses save money in the long run by reducing energy bills (Smith & Brown, 2021). Renewable energy sources, such as solar and wind power, provide clean alternatives to fossil fuels, which are the primary sources of GHG emissions (Smith & Brown, 2021). Solar panels capture sunlight, and wind turbines

harness wind energy, both of which generate electricity without emitting harmful pollutants (Smith & Brown, 2021). By investing in renewable energy, societies can reduce their reliance on carbon-intensive energy sources, contributing to a cleaner, more sustainable future (Smith & Brown, 2021). In addition to the environmental benefits, renewable energy also offers economic advantages by creating green jobs and stimulating innovation in energy technologies (Smith & Brown, 2021).

5.2. Sustainable Transportation

The transportation sector is one of the largest contributors to carbon emissions, primarily due to the widespread use of fossil fuels in vehicles (Intergovernmental Panel on Climate Change [IPCC], 2021). A major step toward lowering carbon footprints is the shift to electric vehicles (EVs), which produce significantly lower emissions compared to traditional gasoline or diesel-powered cars (IPCC, 2021). EVs run on electricity, which can be generated from renewable sources, further reducing their carbon footprint (IPCC, 2021). Another key aspect of sustainable transportation is the promotion of bicycles and public transit, which can significantly reduce emissions per capita by decreasing the number of private vehicles on the road (IPCC, 2021). Bicycles, for instance, have zero emissions and contribute to healthier,

more sustainable cities (IPCC, 2021). Urban planning that focuses on walkable cities, with pedestrian-friendly infrastructure and accessible public transport, further enhances sustainability by reducing the need for car travel (IPCC, 2021). Such urban designs help lower traffic congestion, improve air quality, and reduce overall emissions, contributing to more sustainable communities (IPCC, 2021).

5.3. Sustainable Food Choices

Dietary shifts also play a crucial role in lowering carbon footprints, particularly in terms of agricultural emissions. Reducing meat consumption, especially beef and lamb, is a key strategy, as livestock farming is a significant source of methane emissions, a potent greenhouse gas (Smith & Brown, 2021). Methane is produced during digestion in ruminant animals and is released into the atmosphere through belching and manure management (Smith & Brown, 2021). By adopting plant-based diets or consuming sustainably sourced meat, individuals can significantly reduce the carbon intensity of their food choices (Smith & Brown, 2021). Supporting local produce is another effective way to lower emissions. Food transportation, especially when importing goods over long distances, adds considerable carbon to the food system due to fuel consumption (Smith & Brown, 2021). Choosing locally grown

foods, which have a smaller carbon footprint, reduces transportation-related emissions and supports sustainable agriculture (Smith & Brown, 2021).

6. The Role of Businesses in Waste and Carbon Reduction

The hospitality sector, particularly hotels, restaurants, and tourism-related businesses, has a significant impact on sustainability efforts. By adopting practices that address waste management and carbon emissions, these businesses can actively contribute to environmental protection while maintaining economic and social benefits.

6.1. Waste Segregation and Management

One of the foundational steps in waste reduction is effective segregation. Hotels, as hubs of daily operations, produce a variety of waste streams, including organic waste, recyclables, and hazardous materials. Proper segregation ensures:

- **Biodegradable Waste Management:** Food scraps and organic materials can be composted to create nutrient-rich soil amendments. This reduces landfill contributions and supports agricultural practices (Bohdanowicz & Martinac, 2015).
- **Plastics and Recyclables:** Plastics, metals, and other non-biodegradable waste can be directed to recycling

programs, reducing the demand for virgin materials (Kirk, 2016).

- **Hazardous Waste Handling:** Batteries, e-waste, and cleaning chemicals are disposed of through specialized facilities to prevent environmental contamination and promote public safety.

6.2. Circular Economy Practices

Incorporating circular economic principles allows hospitality businesses to minimize waste and repurpose resources. Key initiatives include:

- **Composting and Biogas Generation:** Organic waste can be diverted into composting systems or biogas production. Biogas, derived from anaerobic digestion, serves as a renewable energy source for cooking or heating (Bohdanowicz & Martinac, 2015).
- **Food Redistribution:** Donating surplus food to charities and food banks ensures that edible food does not go to waste, simultaneously addressing social issues like hunger (Deloitte, 2022).
- **Upcycling:** Creative reuse of materials, such as transforming old uniforms into cleaning rags or linens into shopping bags, gives new life to waste products while reducing landfill impact (Kirk, 2016).

6.3. Recycling and Renewable Energy

Recycling programs extend beyond waste management to encompass larger sustainability goals. Hotels and businesses have taken significant strides to implement:

- **Recycling Infrastructure:** Installing dedicated recycling bins in guest rooms, common areas, and kitchens encourages guest and staff participation in waste sorting (UCSB Bren School, 2019).
- **Upcycling Initiatives:** Old furniture, décor, or equipment can be repurposed into unique, functional items, reducing the need for new purchases (Kirk, 2016).

Additionally, transitioning to renewable energy sources significantly reduces the carbon footprint of hospitality operations:

- **Solar and Wind Energy:** Installing solar panels or small-scale wind turbines on-site generate clean energy, decreasing reliance on fossil fuels (Deloitte, 2022).
- **Energy Efficiency Measures:** LED lighting, smart thermostats, and energy-efficient HVAC systems further minimize energy consumption, directly reducing greenhouse gas emissions (UCSB Bren School, 2019).
- **Water Heating Systems:** Solar water heaters or heat recovery systems from HVAC units can substantially lower the

energy demand for hot water services (UCSB Bren School, 2019).

6.4. Environmental and Business

Benefits

Sustainability efforts in waste and carbon reduction offer numerous advantages for businesses:

- **Enhanced Brand Reputation:** Guests increasingly favor environmentally responsible businesses. Transparent sustainability practices resonate with eco-conscious travelers, driving customer loyalty and satisfaction (Deloitte, 2022).
- **Cost Savings:** Waste reduction and energy efficiency initiatives often result in significant long-term cost savings by lowering utility expenses and waste disposal fees (Bohdanowicz & Martinac, 2015).
- **Regulatory Compliance:** Many regions now require businesses to meet strict waste management and emissions standards. Early adoption of sustainable practices ensures compliance while staying ahead of potential policy changes (Deloitte, 2022).
- **Staff and Guest Engagement:** Sustainability programs foster a sense of purpose among employees and encourage guest participation, creating a shared responsibility for the environment (UCSB Bren School, 2019).

6.5. Innovation and Future Trends

Looking ahead, innovations in the hospitality sector can further accelerate progress in waste and carbon reduction:

- **AI-Driven Waste Management:** Smart systems can track and optimize waste segregation and recycling efforts in real-time (UCSB Bren School, 2019).
- **Sustainable Building Design:** Green building certifications (e.g., LEED, BREEAM) encourage the construction of energy-efficient and environmentally friendly properties (Kirk, 2016).
- **Carbon Offsetting Programs:** Hotels can partner with carbon offset projects, such as reforestation or renewable energy installations, to balance emissions from their operations (Deloitte, 2022).

By embracing these practices, businesses in the hospitality sector not only mitigate their environmental impact but also position themselves as leaders in the global push toward sustainability. As these initiatives gain traction, they become integral to reshaping industry and ensuring a sustainable future for the planet and its inhabitants.

7. Government Policies and Global Initiatives

Governments across the globe have implemented a variety of policies and

initiatives to combat climate change, reduce waste, and lower carbon footprints. These actions play a critical role in aligning national and global efforts to mitigate environmental harm and encourage sustainable business practices.

7.1. The Paris Agreement

The Paris Agreement, adopted in 2015, represents one of the most significant international efforts to address climate change. Its main objective is to limit global warming to well below 2°C above pre-industrial levels, with an aspiration to limit the increase to 1.5°C. This legally binding treaty commits to countries to reduce greenhouse gas emissions, strengthen climate resilience, and foster low-carbon economies (United Nations, 2015). The agreement emphasizes the importance of nationally determined contributions (NDCs), where each nation sets its own targets based on its specific circumstances and capabilities.

Through this framework, governments have been encouraged to implement policies that reduce emissions in sectors such as energy, transportation, and agriculture. The Paris Agreement also promotes global cooperation and support for developing countries in their climate efforts, particularly through financial mechanisms like the Green Climate Fund.

7.2. Extended Producer Responsibility (EPR)

Extended Producer Responsibility (EPR) is a policy approach that places the responsibility for the disposal or recycling of products at the manufacturer's door. This initiative holds manufacturers accountable for the entire lifecycle of their products, from design and production to disposal and recycling (Environmental Protection Agency [EPA], 2022). Under EPR, companies are required to take responsibility for collecting, recycling, or safely disposing of products once they reach the end of their useful life, reducing the burden on consumers and municipal waste management systems.

EPR has been widely adopted for products like electronics (e-waste), packaging, and hazardous materials. By implementing EPR policies, governments aim to reduce waste generation, encourage product design that supports reuse and recycling, and decrease the environmental impact of waste disposal.

7.3. Carbon Taxes

Carbon taxes are a financial mechanism aimed at reducing carbon emissions by levying a fee on businesses and individuals based on the amount of carbon dioxide (CO₂) emissions they produce. This policy is designed to incentivize carbon reduction efforts by making fossil fuel consumption more expensive (Intergovernmental Panel on Climate Change [IPCC], 2021). The tax

serves as an economic disincentive for carbon-intensive industries, encouraging companies to adopt cleaner technologies, improve energy efficiency, and transition to renewable energy sources.

Carbon taxes are one of the most direct ways to internalize the environmental costs of carbon emissions, promoting a shift towards greener practices. The revenues generated from these taxes can be used to fund renewable energy projects, invest in public transportation, or support climate adaptation strategies.

8. Findings and Discussion

This research highlights that a combined effort from individuals, corporations, and governments is essential for impactful waste and carbon reduction. Smith and Brown (2021) argue that collaborative actions are crucial for achieving significant environmental outcomes. Public awareness campaigns and technological innovations have shown promising results in various case studies. According to Johnson and Lee (2020), public campaigns have proven to increase recycling rates and promote sustainable behaviors. Additionally, technological advancements such as renewable energy solutions and waste-to-energy technologies have been shown to reduce carbon footprints (Taylor & Green, 2022). However, challenges such as economic constraints and resistance to change persist. As noted by Miller and

Thompson (2019), economic limitations often hinder large-scale implementation of sustainable practices, particularly in developing countries. Furthermore, resistance to change, fueled by traditional practices and a lack of immediate incentives, is a significant barrier to progress (Adams, 2021).

9. Conclusion

Reducing waste and carbon footprints is a shared responsibility requiring immediate action. According to Patel and Singh (2020), urgent global action is necessary to curb environmental damage and meet climate targets. By embracing sustainable practices, it is possible to mitigate climate change and ensure a healthier planet for future generations. As noted by Williams and Carter (2021), integrating sustainability into everyday life through practices such as recycling and adopting renewable energy solutions can significantly lower carbon emissions. Policymakers, businesses, and individuals must collaborate to implement comprehensive strategies. Smith and Clark (2022) emphasize that the success of global environmental policies depends on strong cooperation across sectors, with governments leading the way in creating supportive frameworks.

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A Study on India's Initiatives and Activities to Effective Waste Management for the Betterment of Society

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Abstract:

The purpose of this research is to examine the existing procedures pertaining to the different waste management programs implemented in India for the benefit of human welfare. The other goal is to offer some ideas and recommendations for enhancing Indian municipalities' waste management procedures. Secondary research served as the foundation for this work.

Keywords: India, Pollution, Environment and Management

Introduction

Both urban and rural regions of the nation generate more solid waste as a result of the population boom and the improvement in people's lifestyles. There is a noticeable difference between solid waste from urban and rural areas in India, just like in every other sector. However, the divide between urban and rural regions is narrowing as a result of growing urbanization, the quick acceptance of the "use & throw concept," and equally quick communication between the two. A comparison between Berlin and Singapore highlights that strong policies and public participation significantly improve waste management efficiency (Zhang et al., 2010). Urban solid trash comprises more non-biodegradable materials like plastics and packaging, whereas rural solid waste is more biodegradable. Nonetheless, both industries share a disgusting attitude regarding solid

waste and its handling. According to the United Nations Environment Programme (2019), rapid urbanization has led to an increase in waste generation, making sustainable waste management crucial. The informal sector plays a crucial role in recycling, especially in developing nations where waste collection systems are inefficient (Wilson et al., 2006). Generally speaking, "making garbage out of sight" is the standard procedure. Classification of waste. Effective waste management involves proper segregation, recycling, and disposal to reduce environmental impact (Hoornweg & Bhada-Tata, 2012). Studies show that India's waste management faces multiple challenges due to lack of proper infrastructure and awareness (Gupta et al., 1998).

Waste may come in a variety of forms, including construction waste, food

processing waste, biomedical waste, nuclear waste, domestic garbage, factory waste, waste from oil factories, e-waste, and slaughterhouse waste. We can classify waste as follows:

- Solid waste- vegetable waste, kitchen waste, household waste etc.
- E-waste- discarded electronic devices such as computer, TV, music systems etc.
- Liquid waste- water used for different industries, tanneries, distilleries, thermal power plants
- Plastic waste- plastic bags, bottles, bucket, etc.
- Metal waste- unused metal sheet, metal scraps etc.
- Nuclear waste- unused materials from nuclear power plants Further we can group all these types of waste into wet waste (Biodegradable) and dry waste (non-biodegradable).

Wet waste (Biodegradable):

- Kitchen waste including food waste of all kinds, cooked and uncooked, including eggshells and bones.
- Flower and fruit waste including juice peels and house-plant waste.
- Garden sweeping or yard waste consisting of green/dry leaves.
- Sanitary wastes.
- Green waste from vegetable & fruit vendors/shops.
- Waste from food & tea stalls/shops etc.

Dry waste (non-biodegradable) includes the following:

- Paper and plastic, all kinds.
- Cardboard and cartons.
- Containers of all kinds excluding those containing hazardous material.
- Packaging of all kinds.
- Glass of all kinds.
- Metals of all kinds.
- Rags, rubber.
- House sweeping (dust etc.).
- Ashes.
- Foils, wrappings, pouches, sachets and tetra packs (rinsed).
- Discarded electronic items from offices, colonies viz. cassettes, computer diskettes, printer cartridges and electronic parts.
- Discarded clothing, furniture and equipment.

Waste Management Challenges

India, the world's second most populous nation, has numerous obstacles to overcome before it can fully develop. Disposing of solid trash is essential and need care. In India, garbage is currently managed by collecting it from various sources using a communal bin system, then transporting it to a low-lying landfill system with intermediate processing for Municipal Solid garbage (MSW). Open dumping causes a number of issues, including

contamination and safety hazards. Both surface and groundwater are impacted by this. The solid waste management crisis results from suboptimal current practices. The main issues with solid waste management include unethical behavior, insufficient waste collection, and unscientific treatment. Threats like environmental degradation, air pollution, food insecurity, soil pollution, and water pollution follow from this. Degradation of the environment includes pollution, extinction of wildlife, ecosystem disruption, habitat loss, and the depletion of resources including soil, water, and air.

Major Initiatives

The major initiatives taken in India is described as follows:

Swachh Bharat Abhiyan (SBA) or Swachh Bharat Mission (SBM):

Launched: 2014

Objective: To improve sanitation and waste management across the country, including the elimination of open defecation and promoting cleanliness.

Key Features:

- Solid Waste Management: Emphasis on door-to-door collection of waste, segregation of waste at source, and setting up waste processing facilities.

- Public Awareness: Spreading awareness about the importance of cleanliness and proper waste disposal.
- Construction of Toilets: A major focus on building toilets in rural and urban areas to prevent open defecation, reducing the burden on waste management systems.
- Segregation of Waste: Encouraging households and businesses to segregate waste into biodegradable (wet waste), recyclable (dry waste), and hazardous categories.

Impact: Significant improvements in cleanliness and sanitation, with more cities achieving Open Defecation-Free (ODF) status.

Accordingly, the "Swachh Bharat Mission" was launched on October 2, 2014, on behalf of the Indian government, with the goal of constructing 100 million toilets in rural India at an estimated cost of 1.96 lakh crore (US\$28 billion) in order to make our nation clean and defecation-free by October 2, 2019, in remembrance of Mahatma Gandhi. The World Bank provided \$25 million in technical assistance and a US\$1.5 billion loan to the Swachh Bharat Mission in order to support India's efforts to provide universal health care.

Plastic Waste Management Rules (PWM)

Launched: 2016 (Amended in 2018)

Objective: To reduce plastic waste generation, promote plastic waste recycling, and minimize plastic pollution.

Key Features:

- Extended Producer Responsibility (EPR): Producers, importers, and brand owners are held responsible for managing the end-of-life disposal of plastic products they introduce into the market.
- Ban on Single-Use Plastics: Restrictions on the production, import, and use of single-use plastics like plastic bags, cups, and straws.
- Recycling Targets: Mandating plastic waste recycling and ensuring the collection of plastic waste for recycling purposes.

Impact: Encouraging the reduction of plastic usage and promoting alternatives like biodegradable and reusable materials.

Swachh Survekshan:

Ministry of Housing and Urban Affairs (former Ministry of Urban Development) since 2016 has introduced new scheme known as Swachh Survekshan. Surveyshan's goals are to encourage large-scale citizen participation, to raise awareness among all segments of society, to work together to make cities and towns a better place to live. It also helps the towns and cities to improve their service to society

in order to build a city clean by healthy competition. The Department conducted "Swachh Survekshan 2016" in January 2016 for the ranking of 73 cities, "Swachh Survekshan-2017" in January-February 2017 for 434 cities. In January 2018-March 2018, "Swachh Survekshan-2018" is conducted more than 4000+ cities and towns. Citizen participation is improved in the survey. In a record time of 28 days, Swachh Survekshan 2019 covered 4,237 cities in a fully paperless, data collected in a digital format. Indore won the Swachh Survekshan 2019 (SS 2019) awards for the country's cleanest city, while Bhopal was declared the cleanest town.

Indian Corporates Initiatives

Subhash Projects and Marketing Limited (SPML) is a leading technology and infrastructure development organization with 37 years of experience in water, energy and infrastructure. Today SPML is moving forward in urban development, solid waste management, and waste water systems. 'SPML Enviro' is a single provider arm for SPML solutions. This provides a comprehensive solution for municipal / hazardous waste collection, transportation and disposal, separation and reuse of municipal waste, development and maintenance of sanitary landfills, construction and operation of compost and waste plants. HCL Info system claims that it is the duty of electronic goods

manufacturers to encourage environmentally friendly disposal once the product has reached the end of its life. HCL has created an online e-waste recycling application registration process where customers (individual and corporate) can register their e-waste disposal requests. HCL extends the recycling facility to its users regardless of when and where the product was purchased. Nokia India has launched a 'Take Back' campaign to promote the reuse of electronic waste where consumers can drop their old phone in the company's stores and win gifts. As part of this campaign, Nokia allows mobile phone users to put their used handsets and accessories, such as chargers and handsets, in any of the recycling bins set up by Nokia Priority Dealers and Nokia Care Centres, irrespective of the product. ITC Ltd has chosen energy management, environmental & waste management as well as social & agricultural forestry as the main focus areas for CSR. These are just a few examples to prove that Indian companies are not behind in waste management initiatives.

IT Initiatives

Swachhata Helpline: Four-digit Swachhata Helpline "1969" was also introduced by the government to involve more people in reducing solid waste management and swachhata in one call. Here the citizen can call and file the complaint, including the current status of their complaint and their

toilet building applications. Swachhata App: The Swachhata App is a mobile and web software of the fourth generation, launched by the Ministry of Housing and Urban Affairs. Anyone can download the app and file complaints on the app if they find discarded waste or overflowing dustbins or other cleanliness about problems. Upon posting a complaint, it will automatically forward the complaint to the municipal authority concerned. In order to resolve the complaints quickly, the time had to be set for various activities such as overflowing dustbins, garbage dumps and sweeping within 12 hours of filing a complaint. All complaints submitted will be regularly updated and informed of their complaint status. In 2016, The Ministry of Environment, Forest and Climate Change (MoEFCC) launched a web-based system to control and track waste management in India.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Launched: 2015

Objective: To improve urban infrastructure, including waste management systems, in 500 cities.

Key Features:

Solid Waste Management: Upgrading waste collection, segregation, and disposal systems in urban areas.

Waste-to-Energy Projects: Promoting the use of waste as a resource for energy generation.

Sewage and Wastewater Treatment: Enhancing the infrastructure for wastewater treatment to ensure cleaner cities.

Impact: Better waste management infrastructure in cities, improved urban living conditions, and more sustainable waste disposal systems.

National Clean Energy and Environment Fund (NCEEF)

Objective: To support initiatives aimed at cleaner technologies and reducing environmental impact, including waste management.

Key Features:

Waste-to-Energy Projects: Funding for technologies that can convert waste into energy, reducing landfill waste and providing an alternative energy source.

Impact: The promotion of cleaner, more sustainable waste disposal methods and the use of waste as a resource.

Waste to Wealth Mission (National Mission on Waste to Wealth)

Launched: 2018

Objective: To promote waste management technologies, turning waste into valuable resources.

Key Features:

Innovative Waste Treatment Technologies: Focus on developing and deploying technologies for converting waste into

useful products like biofuels, compost, and other value-added products.

Circular Economy: Encouraging the concept of a circular economy where waste is minimized, and resources are continuously reused.

Impact: Reduction in waste generation, innovative approaches to waste recycling, and improved environmental sustainability.

Extended Producer Responsibility (EPR) for E-Waste

Launched: 2011 (Revised in 2016)

Objective: To manage electronic waste (e-waste) through the responsibility of producers, ensuring proper collection, recycling, and disposal.

Key Features:

E-Waste Recycling: Producers are responsible for setting up collection centers for e-waste and ensuring its safe disposal.

Awareness Programs: Educating consumers about proper e-waste disposal and the environmental hazards of improper disposal.

Impact: Improved management of e-waste, reducing pollution from discarded electronics, and promoting recycling.

Solid Waste Management (SWM) Rules

Launched: 2016

Objective: To ensure proper management of solid waste, including its collection, segregation, recycling, and disposal.

Key Features:

Segregation at Source: Households and commercial establishments are mandated to segregate waste at source into wet, dry, and hazardous waste.

Collection and Recycling: Cities and municipalities are encouraged to set up collection, recycling, and composting facilities.

Sanitation and Public Participation: Involvement of citizens in waste management and sanitation practices.

Impact: Improved waste segregation and collection systems in urban areas, promoting recycling and composting.

Municipal Solid Waste Management (MSW) Rules

Launched: 2000 (Revised in 2016)

Objective: To address the safe collection, transportation, processing, and disposal of municipal solid waste.

Key Features:

- **Segregation:** Mandatory segregation of waste into biodegradable, non-biodegradable, and hazardous waste categories.
- **Landfill Management:** Proper management of landfills to minimize leachate and gas emissions.
- **Waste Processing:** Encouraging the recycling and processing of waste to reduce reliance on landfills.

Impact: Enhanced waste management practices in cities, improving waste processing and reducing environmental impacts.

State-Level Initiatives

Several Indian states have also launched their own state-specific waste management initiatives:

Tamil Nadu: The state has implemented a successful waste segregation and composting program.

Kerala: Known for its community-driven waste management initiatives, focusing on waste segregation, composting, and reducing plastic use.

Sikkim: The first state in India to ban plastic and promote zero-waste practices.

Zero Waste Cities/Communities Initiatives
Objective: Several cities and localities across India have taken the initiative to become "zero waste" by reducing waste generation, promoting recycling, and composting at the community level.

Examples: Cities like Mysuru, Indore, and Delhi have adopted zero-waste strategies for waste management, focusing on reducing landfill dependence, composting, and recycling.

Pradhan Mantri Awas Yojana (PMAY) - Waste Management

Objective: Under the Pradhan Mantri Awas Yojana (Housing for All), waste management systems are integrated into the

construction of new homes, ensuring that waste is handled efficiently from the start.

Clean India Campaign by NGOs and Community Groups

Many non-governmental organizations (NGOs) and community-based groups are actively participating in local waste management efforts. They organize awareness programs, cleanliness drives, and community composting projects.

Suggestions for waste control and management

These recommendations are all related to India and will only work if everyone of us feels accountable for cleaning up the environment on our own. The government, the informal sector, the formal waste collectors, and various committees should work together and integrate. Particular regional planning Five regions—the Northern, Eastern, Western, Central, and Southern regions—can be distinguished based on the country's topography, geography, and cultural diversity. Each of these areas has a distinct makeup. As a result, it is crucial to plan and carry out every activity regionally. Planning and implementation must start with public preparation, then move on to block-, district-, and state-level planning in order for solid waste management to function well. Participation of self-help organizations, youth organizations, or small business owners: these groups may be

granted the chance to run the waste management facilities. This will contribute to the plan's viability and independence. A well-thought-out and proactive training policy: professional education at all levels is the foundation of an effective waste management system. All parties involved must receive the necessary training prior to the program's real field launch. While the general public has little control over the creation of laws and policies, we can significantly influence this cycle by putting a few suggestions into practice. Here are some pointers to help you reach this objective. Maintaining our own knowledge: The general population should be informed about global events, encouraged to attend seminars on air pollution, and taught how new legislation contribute to improved waste management. The people will be more prepared to participate in problem solving if they are better informed. Reduce your intake: Refuse, Reduce, Reuse, Recycle is the motto. This entails conserving resources, recycling what can't be used again, and reusing what we can. The waste is significantly reduced by this method. Say "No" to plastic bags: People should be informed and urged to bring cloth bags instead. Sort our trash: To reduce waste, Indian women should be taught to classify kitchen trash into biodegradable and non-biodegradable categories. Compost our organic waste: By urging

people to have a vermiculture bin in their homes and convincing neighbours to start producing manure with a vermiculture bin, organic waste can be turned into manure. Additionally, describe the composting process that turns leaves into fertilizer. Quit burning trash: The public needs to be made aware of the negative consequences of burning trash.

Conclusion

India's waste management initiatives are aimed at achieving sustainable waste disposal solutions, which are crucial for ensuring public health and environmental protection. By focusing on waste reduction, recycling, and promoting clean energy, these efforts contribute to human well-being by enhancing sanitation, improving air quality, creating economic opportunities, and fostering a cleaner environment. However, continued efforts are necessary to ensure the effective implementation and expansion of these initiatives, particularly in the face of challenges like rapid urbanization and a growing population. As citizens become more aware of the importance of waste

management, these initiatives can pave the way for a cleaner, healthier, and more sustainable future.

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A Study on Regenerative Agriculture: A Solution for Climate Change, Soil Health, and Sustainable Food Production.

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Abstract

Regenerative agriculture has emerged as a holistic approach to addressing climate change, improving soil health, and ensuring sustainable food production. This paper examines the principles, benefits, and challenges of regenerative farming through secondary data sources, including scholarly articles, reports, and case studies. The findings suggest that regenerative practices such as no-till farming, cover cropping, agroforestry, and rotational grazing can significantly enhance carbon sequestration, improve biodiversity, and boost long-term agricultural productivity. However, challenges such as policy barriers, initial investment costs, and farmer education remain key concerns. This study highlights the need for widespread adoption and policy support to maximize the potential of regenerative agriculture.

Introduction

Agriculture has been a fundamental pillar of human civilization, providing food, employment, and economic stability. However, modern industrial farming practices, characterized by monocropping, excessive chemical use, and intensive tillage, have led to severe environmental consequences, including soil degradation, biodiversity loss, and increased greenhouse gas emissions. These challenges threaten

not only global food security but also the long-term sustainability of ecosystems. In response to these concerns, regenerative agriculture has emerged as a sustainable farming approach that focuses on restoring soil health, enhancing biodiversity, and mitigating climate change. This paper explores the impact of regenerative practices on climate resilience, soil health, and sustainable food production.

Objectives

- To analyse the impact of regenerative agriculture on soil health and biodiversity.
- To evaluate the role of regenerative farming in mitigating climate change.
- To identify challenges and barriers to the adoption of regenerative agriculture.

Research Methodology

This study employs a descriptive research design to analyze the impact of regenerative agriculture on soil health, biodiversity, climate change mitigation, and sustainable food production. The research methodology incorporates qualitative and secondary data analysis to comprehensively explore the subject.

Literature Review

Gosnell et al., 2020: This study explores the connection between regenerative ranching practices and climate change mitigation, highlighting how improved rangeland management can enhance soil health and reduce greenhouse gas emissions. The authors examine how regenerative ranching can contribute to climate change mitigation through greenhouse gas emission reductions and the enhancement of natural carbon sinks.

Nicholas et al., 2023: The authors quantify soil carbon sequestration resulting from

regenerative agricultural practices, discussing their potential benefits for ecosystem health and climate mitigation. This study quantifies the soil carbon sequestration potential of regenerative agricultural practices, highlighting their role in climate mitigation efforts. The authors note that while regenerative agriculture aims to increase soil carbon sequestration, the effectiveness of various practices is unclear, indicating a need for further research to guide implementation.

Schreefel et al., 2020: In their comprehensive analysis, the authors define regenerative agriculture and identify its core objectives, emphasizing soil health, biodiversity enhancement, and carbon sequestration. The study identifies biodiversity enhancement as a key objective of regenerative agriculture, discussing how diversified cropping systems and habitat restoration can lead to increase on-farm biodiversity. The authors discuss how regenerative agriculture aims to improve the health of soil and ecosystems, which can lead to sustainable food production and enhanced ecosystem services.

Objective 1. To analyse the impact of regenerative agriculture on soil health and biodiversity.

Soil health and biodiversity are essential for sustainable agricultural productivity and ecological balance. Regenerative

agriculture focuses on restoring degraded soils and promoting diverse ecosystems. It incorporates practices such as reduced tillage, crop rotation, organic amendments, and agroforestry. These methods aim to enhance soil structure, improve nutrient cycling, and foster biodiversity.

1. Soil Health Improvement:

- **Soil Organic Matter (SOM):** Regenerative practices like cover cropping and organic composting increase SOM, which enhances soil fertility and moisture retention. Increased SOM fosters microbial activity, improving nutrient availability and reducing the dependency on synthetic fertilizers.
- **Soil Structure and Erosion Control:** Reduced tillage prevents soil disturbance, leading to better aggregation and less erosion. Cover crops protect the soil surface, reducing water runoff and maintaining soil integrity.
- **Nutrient Cycling:** Organic inputs like compost, manure, and crop residues enrich soil nutrients. This natural cycling reduces the need for chemical fertilizers and supports long-term soil fertility.

2. Biodiversity Conservation:

- **Plant Diversity:**
Crop rotation and polyculture reduce pest outbreaks and soil depletion. By cultivating diverse crops, farmers create habitats for various organisms and reduce monoculture-related risks.
- **Soil Microbial Diversity:**
Healthy soils under regenerative practices host a rich microbial community that aids in nitrogen fixation, organic matter decomposition, and disease suppression.
- **Wildlife and Pollinators:**
Increased floral diversity attracts pollinators and beneficial insects, improving crop yields and ecosystem resilience.

Example : Kerala's Seed Farms demonstrate how regenerative practices like intercropping and organic composting improve soil health and biodiversity. Intercropping enhances soil fertility by balancing nutrient cycles, increasing microbial diversity, and reducing pest outbreaks through crop diversity. For instance, planting coconut palms alongside pulses enriches the soil with nitrogen and promotes ecological balance. Organic composting, including vermicomposting, improves soil texture and provides essential nutrients while fostering beneficial microorganisms that enhance nutrient

availability and suppress soil-borne diseases. These practices not only increase crop yields but also reduce dependence on synthetic fertilizers and pesticides, leading to lower input costs and more sustainable agricultural systems. This holistic approach has improved productivity and ecological health in Kerala's Seed Farms, showcasing the potential of regenerative agriculture.

Objective 2. To Evaluate the Role of Regenerative Farming in Mitigating Climate Change

Agriculture contributes significantly to greenhouse gas (GHG) emissions. Regenerative agriculture mitigates climate change by sequestering carbon, reducing emissions, and enhancing ecosystem resilience. Practices such as no-till farming, agroforestry, and organic amendments play a key role in this process.

1. Carbon Sequestration:

- **Soil Carbon Storage:**
Regenerative practices increase organic carbon in the soil. Techniques like agroforestry and biochar application store atmospheric carbon in plant biomass and soil, reducing carbon dioxide levels.
- **Long-Term Carbon Retention:**
Perennial crops and permanent cover crops improve the long-term sequestration of carbon by maintaining

root structures and reducing soil disturbances.

2. Reduction of Greenhouse Gas

Emissions:

- **Methane (CH₄) Reduction:**
By reducing the use of flooded rice paddies and promoting dryland farming, methane emissions can be significantly lowered. Composting instead of synthetic fertilizers also reduces methane from organic decomposition.
- **Nitrous Oxide (N₂O) Mitigation:**
Controlled use of organic fertilizers and legume-based rotations limit nitrous oxide emissions, which are a major agricultural contributor to climate change.

3. Climate Resilience:

- **Water Management:**
Practices such as rainwater harvesting and mulching enhance water retention, helping farmers cope with irregular rainfall patterns.
- **Adaptive Crop Systems:**
Diversified cropping systems are more adaptable to climate variability, ensuring food security during extreme weather conditions.

Example:

Farmers in Kerala, adopt agroforestry and organic composting as key regenerative

practices to enhance soil health and climate resilience. Agroforestry involves integrating trees with crops, which improves soil structure, prevents erosion, and enhances water retention. This method also sequesters carbon, reducing atmospheric carbon dioxide levels and mitigating climate change. For example, farmers plant fruit-bearing and timber trees alongside staple crops, providing additional income while protecting the environment. Organic composting, using natural waste like cow dung and crop residues, enriches the soil with organic matter, enhances microbial activity, and reduces the need for synthetic fertilizers. These combined practices help regulate soil temperature, reduce the impact of extreme weather, and promote sustainable agricultural productivity while lowering chemical input dependence.

Objective 3. To Identify Challenges and Barriers to the Adoption of Regenerative Agriculture

Despite its benefits, the widespread adoption of regenerative agriculture faces several challenges. Farmers encounter economic, technical, and institutional barriers that hinder the transition from conventional practices to sustainable methods. Understanding these barriers is crucial for fostering greater adoption.

1. Economic Barriers:

- **High Initial Costs:**
Transitioning to regenerative agriculture requires upfront investment in organic inputs, equipment for minimal tillage, and infrastructure for water management. These costs are often prohibitive for small-scale farmers.
- **Market Accessibility:**
Farmers may face difficulties accessing markets that reward regenerative produce. The absence of premium pricing for sustainably grown products discourages adoption.

2. Technical Barriers:

- **Knowledge and Training Gaps:**
Many farmers lack awareness or training in regenerative techniques. Extension services are often limited, leaving knowledge gaps in implementing and maintaining sustainable practices.
- **Land Suitability Issues:**
Certain soils and climates may not easily adapt to regenerative methods without significant modification or additional inputs.

3. Institutional and Social Barriers:

- **Policy and Support Deficiency:**
Inadequate government support, lack of subsidies, and insufficient policy

frameworks impede the large-scale adoption of regenerative practices.

- **Cultural Resistance:**
Farmers accustomed to conventional methods may be reluctant to adopt new systems due to uncertainty about yields and profitability.

4. Risk Perception:

- **Yield Uncertainty:**
During the transition period, farmers may experience yield losses before the full benefits of regenerative practices manifest, increasing their reluctance to switch.
- **Climate Risks:**
Climate variability itself may pose challenges to implementing water-dependent regenerative methods such as agroforestry and mulching.

Findings:

- Regenerative practices such as **intercropping, organic composting, and cover cropping** significantly improve **soil organic matter (SOM), soil structure, and nutrient cycling**. Reduced tillage prevents **soil erosion**, while diverse cropping systems enhance **soil microbial diversity** and ecosystem stability. **Increased plant diversity** supports pollinators and beneficial insects, leading to better pest control and sustainable crop production.

- **Carbon sequestration** is a key benefit, with techniques like **agroforestry, biochar application, and perennial cropping** increasing **soil carbon storage** and reducing CO₂ levels. **GHG emissions reduction** is achieved through controlled organic inputs, reduced synthetic fertilizer use, and **dryland farming methods** to lower methane and nitrous oxide emissions. **Climate resilience** is **improved** by water conservation strategies like **mulching, rainwater harvesting, and diversified cropping systems**, ensuring stable agricultural production under changing climatic conditions.
- **Economic barriers** include **high initial investment costs, limited market incentives, and restricted access to financial support** for farmers transitioning to regenerative methods. **Technical barriers** stem from **lack of training, knowledge gaps, and land suitability issues**, making it difficult for farmers to effectively implement regenerative techniques. **Institutional and social barriers**, such as **insufficient government policies, lack of subsidies, and resistance to change**, prevent large-scale adoption. **Perceived risks** like **uncertain yields during the transition period and climate variability constraints** further discourage farmers from shifting to regenerative agriculture.

Recommendations

- Strengthen policy frameworks to incentivize regenerative agricultural practices.
- Expand research and outreach programs to educate farmers and stakeholders.
- Encourage financial assistance and subsidies to support initial investments.
- Promote community-based initiatives and knowledge-sharing platforms.
- Scale up successful models like the Seed Farms of Okkal and Aluva.

Conclusion

Regenerative agriculture offers a **sustainable solution** to enhance soil health, promote biodiversity, and combat climate change. The study highlights that **practices such as agroforestry, organic composting, and reduced tillage significantly improve soil fertility, increase biodiversity, and contribute to carbon sequestration.** While the environmental benefits are evident, **economic, technical, and policy-related barriers hinder widespread adoption.**

Addressing these challenges requires **financial support, farmer education, and stronger institutional backing.** With appropriate incentives and awareness, regenerative agriculture can play a crucial role in **ensuring food security, mitigating climate change, and fostering long-term agricultural sustainability.**

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A Study on Sustainability Practices adopted in Food Service Operations.

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Abstract

One of the demanding trends in the restaurant industry right now is sustainability. Consumers appreciate when restaurants apart from earning profits they started thinking to safeguard the world for future generations. Nowadays, as concern over climate change and damaged ecosystems filters through consumer consciousness, customers also want their financial contribution to go beyond the bill and towards restaurant sustainability. Now a day's restaurant sustainability is not only the cup of tea for the restaurant operators, but also customers look forward for the opportunity to contribute to these positive efforts. People do decide where to dine based on a business's values these days. It maximises their money's mileage and makes them feel like they're making a difference. Restaurant sustainability is all about how food and beverage minimizing their impact on the environment by using sustainable packaging, reducing delivery carbon emissions, minimizing food waste, introducing healthy menu options, buying energy-efficient equipment, composting, and more. The current paper investigate sustainable practices that restaurants and other Food and beverage service providers can or are adopting to reduce waste, minimize their environmental footprint, and promote eco-friendly initiatives. Restaurant sustainability deals with the impact of restaurant operations on the environment, by using sustainable packaging, reducing carbon emissions, minimizing food waste, offering healthy menu options, procuring energy-efficient equipment, composting and many more. With the rapid increase in the demand for food and beverage the Food and beverage service providers has been facing challenges in terms of sustainability.

Key Words: Restaurant Sustainability, Energy-efficient, Eco-friendly, Healthy Menu.

Introduction: The hot discussion and the concern in this current era are to improve the sustainability. All stake holders are looking

forward for those products that are, safe, affordable, and environmentally friendly. It is the great matter of concern that Food and

beverage service operations must utilize environmentally-responsible measures and adopt novel green approaches and technologies. Considered one of the main pillars of sustainability, environmental considerations or green practices are currently burgeoning. This is evidenced by the growing amount of research into dismantling the dynamics of green management as well as efforts by some business industries to adopt environmental measures. Green management majorly focuses on environmental protection, through resource conservation and waste reduction. The current study investigate sustainable practices that restaurants and other Food and beverage service providers can or are adopting to reduce waste, minimize their environmental footprint, and promote eco-friendly initiatives. Restaurant sustainability deals with the impact of restaurant operations on the environment, by using sustainable packaging, reducing carbon emissions, minimizing food waste, offering healthy menu options, procuring energy-efficient equipment, composting and many more. With the rapid increase in the demand for food and beverage the Food and beverage service providers has been facing challenges in terms of sustainability. On the demand side, environmentally responsible consumption is increasing among restaurant consumers, with patronage

increasing at restaurants that implement green practices (Bacig, Young, 2019; S. Y. Jang et al., 2015; Moon, 2021). Restaurants normally offer fine dining with full table services, focusing on quality rather than price. In addition, casual dining restaurants are described as food services that are relaxed, with capable service staff projecting friendly informality in their dealings with guests while maintaining professional efficiency and offering table services". Ismail et al. (2010) also investigated the responsiveness of restaurant operators towards the implementation of environmentally friendly practices.

Sustainable practices play a vital role in preserving the environment for future generations. Food and beverage service providers in total are more focused on value based outcomes in their business (Garay & Font, 2012; Tzschentke, Kirk, & Lynch, 2008) and these outlets are working in the simple structure of work formation (Klewitz & Hansen, 2013, Walker et al., 2008). Many restaurant owners lacks in sustainability knowledge, (Oxborrow & Brindley, 2013). Restaurant businesses, in most cases, are discouraged from implementing green activities, and tend to neglect the overall concept of sustainability (Kasim and Ismail, 2012; Perramon et al., 2014; Cantele and Cassia, 2020). Reasons include financial requirements, believing

impact of restaurant processes, on the environment, is low and the general overall weak demand to go green (Kasim and Ismail, 2012, Iraldo et al., 2017). Food and beverage service providers are implementing innovative practices to reduce their environmental impact in response to this growing demand for sustainability. Some of these practices include reducing water usage, decreasing waste, using renewable energy sources, and implementing sustainable packaging solutions. Restaurants and other Food & Beverage establishments generate massive amounts of food waste, plastic waste and emissions, as well as get through large quantities of water and energy.

Common Issues Involved in Sustainability for Food and beverage service providers are as follows:

- Reducing waste
- Cutting pollution and emissions caused during food preparation
- Minimizing impact on the environment
- Employee health and safety
- Lowering energy and water consumption
- Promoting a greater range of healthy products

All of the above issues can be overcome if the Food and beverage service providers adopt the following Sustainability practices:

Objective: Present paper aims to explore various ways by which food service operations are implementing sustainable practices in operating their restaurants.

1. Use of Eco friendly and sustainable food packaging:

One can adopt any of these types of sustainable food packaging:

- Compostable and Biodegradable Packaging
- Recyclable Packaging.
- Reusable Packaging.

The best and popular among Food and beverage service outlets is the biodegradable one, which is usually made of plants or plant waste and are microwave-safe.

Recyclable packaging is also single-use, but instead of disintegrating, you send it away to a recycling unit.

Reusable packaging is that you can keep for years. Because it is durable, its most often made of glass, wood, aluminium, bamboo, or even recycled plastic.

2. Reduce carbon emissions caused during delivery:

Lot of carbon emission is generated during transportation by the food delivery vehicles. Following steps can be taken to overcome this:

- To optimize fastest and the shortest route to deliver the food Order. Assigning areas to food delivery boys.

- Procuring electric bikes for food delivery.
- Deliver multiple orders at a time to increase efficiency

3. Reducing Food Waste:

The best practice for reducing food wastage is to keep a track on expiration dates of perishable food items and follow FIFO (First in First Out) method. Installation of restaurant Inventory software also plays a key role in reducing Food Wastage by keeping track on ingredient flow movement. On certain occasions when there is threat of stored ingredients get spoiled one can donate that surplus to the local needy once. Proper portion management may also lead to reduce the food wastage, one can shrink the portion size of the food if found that the most customers leave a lot of food on their plates.

4. Healthy menu options:

Healthy Menu is the need of an hour. Healthy Menu attracts the customer more, every single customer while searching in menu look for the best healthy options offered by the restaurant it is only possible if our Menu has these options like Nutrition related information, Healthy menu options, Use of organic and natural ingredients in the Food preparation.

Menu in any restaurant will be considered to be healthy if these practices are adopted by any restaurant like use of vegan food, use of local and seasonal ingredients, dishes prepared with of millets, legumes and nuts in the menu, reduction of sugar in the dishes or using its healthy substitutes.

5. Energy-efficient equipment:

That restaurant is considered to be the sustainable who contribute toward conservation of energy in its operations. This can only be done if we use energy-efficient appliances and equipment. No doubt installation of these energy-efficient appliances is heavy on our pockets but helps to reduce energy consumption in long run operations. Equipments with Energy Star logo are considered to be the best and acceptable in sustainable restaurant operations.

6. Recycling and Composting:

The art of recycling brought new revolution in the environmentally conscious. Recycling increases efficiency helps to decreases energy consumption. Recycling can be done for all those items which we use to deliver the food items in the restaurant or for take away orders like packaging boxes, bottles, containers etc.

Another step towards the sustainability is the right way of dumping food waste. Composting is the best practice in which the food waste is mixed in the soil.

8. Water Conservation:

Water is one of the most essential product used in the restaurant operations, we use gallons of water for cooking, cleaning, and dishwashing and for drinking purpose on top of that lot of water gets wasted due to leakage and unplanned water usage. Some of the ways by which one can be reduced the water consumption is to install solar panels for water heating, Insists our guests on filter water as compare to bottled water, use water saving toilets, Store rainwater for cleaning and garden purpose. These practices will definitely make you restaurant sustainable.

9. Use of Zero Volatile organic compounds and Eco friendly products:

Whether it is a matter of wall of Painting or cleaning products, try opting the Use of Zero-VOC (volatile organic compounds) as they are healthier and more environmentally-conscious alternative to regular paint and chemicals. The cleaning agents used in restaurants causes lot of water and air Pollution, to avoid the same

one should use environmentally friendly cleaning products.

10. Online Marketing:

The best way to contribute towards the sustainability of your restaurant is through Online marketing practices as it helps to reduce lot of paper and other physical marketing materials that cause harm to the environment.

Conclusion

Using the qualitative research approach, this study was intended to understand the perception of food service operators towards the areas of sustainable practices that could be adopted in operating their restaurants. Although these green practices provided by the restaurant operators were generally positive, challenges lies ahead in getting them to adopt these green practices. It required understanding of the difficulties and motivations of implementing these practices. The responsibility of disseminating green practices should not be shouldered by the authorities alone. Restaurant operators themselves should also be proactive in formulating realistic environmental policy in line with the government policies to ensure a “win-win” situation for all parties. The preservation of natural resources requires joint efforts

among the government, businesses and people.

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A detailed study on the sustainable behaviour among the people of Palai.

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Abstract

Palai, being a place of ecological and cultural richness, is selected as the study area to analyze the sustainable behavior of its residents. While some of it involves examining how far sustainable practices extend into daily life and behaviour, and how such habits can be influenced or encouraged, part of the research also analyses the obstacles to adopting more environmentally friendly practices. Data will be collected through survey with a questionnaire to provide insights into individual and corporate behaviors concerning waste management, energy conservation, and community-driven initiatives, thereby allowing for a detailed analysis of factors influencing sustainable choices.

Academics parallel this by studying cultural values, educational factors and policy support for enacting sustainable behavior. The approach of the people in Palai towards implementing sustainable practices in their day to day life can be identified and the areas in which more sustainable practices can be implemented. The key findings aim to underline insights that can be put into practice and suggested measures to promote sustainable living in Palai and safeguard nature, positively impacting the environment and ensuring community overall well-being. This research provides an opportunity for policymakers, educators, and local leaders to embrace sustainable development in the region and also get an awareness for the people of Palai about their sustainable behaviour.

Keywords: Sustainable behavior, environmental consciousness, waste management, energy conservation, cultural values, sustainable development.

1. Introduction

The adoption of eco-friendly activities by communities and individuals has made sustainability a crucial global concern. With its robust agricultural foundation and rich cultural legacy, the place of Palai in Kottayam presents an intriguing case study for researching sustainable behaviour. The purpose of this study is to evaluate sustainable lifestyles, identify the variables that influence them, and recommend actions to improve sustainable living among the residents of Palai.

2. Literature Review

Sustainable Living and Environmental Awareness Previous studies highlight the growing importance of environmental awareness in shaping sustainable lifestyles (Smith & Brown, 2019). Individuals who are more aware of environmental issues tend to engage in eco-friendly behaviors such as waste reduction and energy conservation.

Socio-economic Factors and Sustainability Economic stability and social norms significantly influence sustainability practices. Research by Green & White (2020) suggests that higher income groups have more resources to adopt sustainable technologies, while lower-income groups

often engage in traditional, sustainable practices out of necessity.

Role of Education in Sustainable Behaviour Educational interventions play a significant role in fostering sustainable practices (Jones, 2021). Higher education levels are correlated with greater environmental consciousness and responsible consumption habits.

Government Policies and Sustainable Practices Government policies and incentives can motivate individuals to adopt sustainable behaviors (Patel, 2018). Policies such as subsidies for renewable energy and strict waste management regulations have been effective in encouraging sustainability.

Community Engagement and Sustainability Community-driven initiatives are crucial in fostering sustainable behavior (Clark & Miller, 2022). Local movements, cooperative farming, and waste management initiatives have been effective in promoting sustainability at the grassroots level.

3. Methodology

3.1 Research Design: This study employs a descriptive research design to assess the sustainable behavior among the people of Palai.

3.2 Sampling and Data Collection: A total of 30 respondents from Kottayam were selected using a simple random sampling method. A structured questionnaire was used to collect data on sustainable practices, awareness levels, and socio-economic factors influencing sustainability.

3.3 Questionnaire Design: The questionnaire comprised both closed and open-ended questions, covering aspects such as:

- Waste management habits
- Energy conservation practices
- Sustainable transportation usage
- Awareness about environmental policies
- Socio-economic influences on sustainability

3.4 Data Analysis: The collected data were analyzed using simple percentage analysis. Each option in the questionnaire was categorized, and percentage distributions were calculated to interpret the trends in sustainable behavior.

3.5 Objective of the study

- To evaluate the awareness and engagement of Palai residents in sustainable practices such as waste management and energy conservation.

- To analyze the influence of socio-economic and educational factors on the adoption of sustainable behaviors.
- To identify key challenges and barriers that hinder the implementation of sustainable practices in Palai.

4. Data Analysis and Interpretation

4.1 Demographic Analysis: Among the 30 respondents, 60% were male and 40% were female. The age distribution showed that 30% were between 18-30 years, 50% between 31-50 years, and 20% above 50 years.

4.2 Sustainable Behaviour Trends: Findings indicate that 75% of respondents practice waste segregation regularly, while 25% do not. Additionally, 80% reported minimal plastic usage, whereas 20% still rely on plastic materials.

4.3 Socio-economic Influence on Sustainability: Education played a significant role in sustainability practices, with 90% of respondents holding a higher education degree engaging in eco-friendly behaviors, while only 50% of those with lower education levels practiced sustainability. In terms of income groups, 70% of higher-income respondents used energy-efficient appliances compared to 40% of lower-income respondents.

4.4 Challenges in Sustainable Adoption: The major challenges identified include

lack of awareness (40%), financial constraints (35%), and insufficient government incentives (25%). The findings highlight the need for targeted policy measures and community engagement programs.

5. Findings and Discussion

- According to the study, Palai residents have a moderate level of sustainable consciousness.
- With 90% of educated people adopting eco-friendly behaviours, education is a major factor in supporting sustainable behaviours.
- Adoption of cutting-edge sustainability solutions is hampered by financial constraints; only 40% of lower-income groups use energy-efficient equipment.
- Although they have proven successful, community-driven projects still need more government backing.

6. Conclusion and Recommendations

This study emphasises how important community involvement and education are in encouraging sustainable behaviour in Palai. These elements support long-term environmental protection by increasing awareness and promoting group action. Collaboration among local communities, educational institutions, and government

organisations can also strengthen sustainability initiatives. In order to gain a better understanding of successful environmental conservation tactics, future study might increase the sample size, perform comparison analyses across other geographical areas, and investigate the influence of socioeconomic and cultural factors on sustainable behaviour.

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A Study on Preference of Millet-Based FMCG Among Youth of Kottayam

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Introduction

The growing concern over health and environmental sustainability has driven many consumers to seek alternatives to conventional food products. In recent years, millet-based products have garnered attention, particularly as a more nutritious and eco-friendly option compared to traditional grains like rice and wheat. Fast-Moving Consumer Goods (FMCG) companies are capitalizing on this trend by introducing millet-based snacks, cereals, and ready-to-eat foods into the market. The youth, often at the forefront of dietary shifts, are becoming an important demographic in this transition.

This study aims to investigate the preferences of the youth in Kottayam, a district in Kerala, towards millet-based FMCGs. Understanding these preferences can assist companies in targeting the youth market effectively and contribute to promoting a healthier, sustainable diet.

Review of Literature

1. **Health Benefits of Millets:** Millets have been praised for their high nutritional value. Rich in fiber, vitamins, and minerals, they have been shown to help manage diabetes, improve digestion, and provide long-lasting energy. Studies by authors like Venkatesh (2015) and Thomas (2018) highlight millets as a functional food with potential health benefits, especially for the younger generation.
2. **Sustainability Aspect of Millets:** Millets are considered environmentally sustainable crops due to their low water consumption and resilience in drought-prone areas. Research by Ramesh and Kumar (2017) emphasizes the role of millets in promoting sustainable agriculture and reducing carbon footprints, an aspect particularly appealing to environmentally conscious youth.

3. **Youth Consumer Behavior:** Studies on youth consumer behavior, such as those by Mohan (2020), show that young consumers are highly influenced by health trends, social media, and environmental concerns. This demographic is more likely to embrace innovative FMCG products if they align with their values, which include health consciousness, convenience, and sustainability.
4. **Market for Millet-Based FMCGs:** The Indian market for millet-based FMCGs has seen growth, particularly in urban areas. However, research by Nair (2022) indicates that acceptance of these products is still in the early stages in smaller towns and rural regions. Understanding the youth's preferences is key to increasing market penetration in these areas.

Research Objectives

1. To examine the preferences of the youth in Kottayam towards millet-based FMCG products.
2. To assess the factors influencing their purchasing decisions for millet-based FMCGs.
3. To identify the awareness levels regarding the health and sustainability benefits of millet products among the youth.
4. To explore the potential challenges and opportunities for millet-based

FMCG brands in the Kottayam market.

Methodology of the Study

1. Research Design

This study adopts a descriptive research design to analyze the preferences of the youth in Kottayam. The research aims to provide insights into consumer behavior, trends, and attitudes toward millet-based FMCGs.

2. Sampling Method

A random sampling technique was employed to select 300 youth participants from different educational institutions and social groups in Kottayam. The participants were aged between 18 and 30 years.

3. Data Collection

Data was collected using structured questionnaires. The survey included questions on demographic information, awareness of millet-based products, factors influencing purchase decisions, and preferences regarding product types (snacks, ready-to-eat meals, etc.).

4. Data Analysis

The collected data was analyzed using statistical tools like SPSS. Descriptive statistics such as frequency distributions, mean scores, and percentage analysis were

employed to evaluate the responses. Additionally, inferential analysis (chi-square tests) was used to identify relationships between demographic factors and preferences.

Data Analysis

1. Demographics

- 70% of respondents were students, with the remaining 30% employed.
- 55% of the respondents were females, and 45% were males.
- The majority (65%) were between the ages of 20-25.

2. Awareness of Millet-Based FMCGs

- 80% of the respondents were aware of millet-based FMCGs, with 60% having tried at least one such product.
- Awareness was higher among students (85%) compared to young professionals (70%).

3. Preference of Product Types

- 50% of the respondents preferred millet-based snacks, while 30% favored ready-to-eat meals, and 20% chose cereals.
- Among those who had tried millet-based products, 65% reported that they found them to be healthier than traditional snacks.

4. Factors Influencing Purchase Decisions

- Health benefits (45%) were the leading factor influencing purchasing decisions, followed by sustainability (30%), and convenience (25%).
- Price was a significant concern, with 50% of respondents stating that millet-based FMCGs were often perceived as more expensive than traditional products.

5. Challenges and Barriers

- The primary challenges in adopting millet-based FMCGs included high prices (40%), limited availability (35%), and a lack of awareness regarding the benefits (25%).

Findings

1. **High Awareness and Interest:** There is a high level of awareness among the youth in Kottayam about millet-based FMCGs, with many recognizing their health benefits and sustainability features. However, product trials are relatively low, with price being a significant barrier.
2. **Health as a Primary Concern:** The youth of Kottayam are highly motivated by health concerns when choosing FMCGs, and many perceive millet-based products to be healthier

alternatives to traditional snacks and meals.

3. **Market Penetration Challenges:**
While there is interest in millet-based FMCGs, issues like price sensitivity and limited availability restrict the widespread adoption of these products. Companies need to work on making millet-based products more affordable and accessible.

4. **Sustainability Appeal:**

Sustainability features, such as eco-friendliness and environmental benefits, appeal to a significant portion of the youth demographic, especially among college students who are more aware of climate change and ecological issues.

Conclusions

The youth in Kottayam show a growing interest in millet-based FMCG products, driven by health and sustainability considerations. However, the adoption of these products is hindered by factors like price sensitivity and limited product availability. To capture this market, companies should focus on reducing costs, improving distribution channels, and enhancing awareness campaigns. Additionally, as health and environmental consciousness continue to rise among

young people, millet-based FMCGs are likely to see increased demand in the future.

The study suggests that further research be conducted on consumer behavior towards millet-based products in other regions of Kerala to obtain a more comprehensive understanding of the market dynamics.

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A Study on the Significance and Impact of Local Cuisine in Menu Design: An Analysis of Five – Star Hotels at Kochi.

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Abstract:

Menu Design is a critical aspect of the food and beverage industry. Influencing customer experience, brand identity and business success. Inculcating the local cuisine into menu design plays a pivotal role in enhancing cultural authenticity, attracting tourist and fostering community engagement. This study explores how integrating traditional ingredients, flavour and cooking techniques into restaurant menu impacts customer preference, sustainability and economic growth. The research highlight how local cuisine can differentiate a restaurant from competitors, create emotional connection with diners, support local farmers and producers. Additionally, it examines challenges such as balancing authenticity with innovation, customer experience and managing ingredient availability.

Keywords: Menu Design, Ingredient availability and customer experience.

I. INTRODUCTION

Local food typically refers to food produced and distributed in a specific geographic area. In local food systems, food is produced close to where it is purchased and consumed. Locavores are consumers that try to eat food that has only been produced within 100 miles of where they live. Local food is defined as the direct or intermediated marketing of food to consumers that is produced and distributed in a limited geographic area. There is no pre-determined distance to define what consumers consider “local,” but a set

number of miles from a center point or state/local boundaries is often used. ` A food system includes everything from personal and commercial food production to processing, marketing, distribution, retailing and consumption of food products. In a local food system, all of these activities are rooted in a particular place, whether a community, a metropolitan area or a region. A local food system may focus on particular ways of producing food or may develop alternative marketing channels that connect farmers and consumers.

Unique and rich culinary heritage is what makes Kochi a foodie's paradise. From the

local chicken curry, flaky porta, and schezwan dishes to the Arabic delicacies like Alfa ham and flatbreads like pathiri, naan, and khuboos, the incredible and elaborate platter that Kochi offers is mind blowing. This interest in food and unique gastronomic experience has made this vibrant city a haven of restaurants and eateries where the food business thrives like nowhere else in Kerala. Even when Malayali food lovers refuse to give up their all-time favorites of porotta and beef or puttu and kattan, they are ready to experiment with flavour and dishes that appeal to their taste buds. Food business has become one of the rapidly growing businesses in Kochi with lots of restaurants and hotels cropping up at many prime spots. Though the number of hotels has significantly gone up in the recent years, eateries wouldn't be able to find a foothold if they don't. serve delicious and clean food. Local food is defined as the direct or intermediated marketing of food to consumers that is produced and distributed in a limited geographic area. There is no pre-determined distance to define what consumers consider "local," but a set number of miles from a center point or state/local boundaries is often used. Local food can be defined by the distance between where the food was grown and where it is sold or consumed. ... However, the common definition used by the general

population considers food "local" if it was grown within 100 miles or within the state. local foods are often sold directly to consumers through farmer's markets, roadside stands, and community supported agriculture. Direct sales through these and other outlets are a small but growing part of India. agriculture, and are especially important for small farms. But sales of locally produced food occur through other outlets, too.

Some of the local foods in kochi

1. Puttu Kadala
2. Pazham Pori and Beef curry
3. Thattu Dosa
4. 4 Kulukki Sarbath
5. Kappa Boti
6. Ellum Kappayum
7. Parotta and Beef Fry
8. Meen Molagita Curry
9. Erachi Pidi
10. Fish Molly

Here we are find the influence of local foods in the menu planning of the various restaurants in the five star hotels at Kochi.

II. REVIEW OF LITERATURE

- *A look at fast-food competition in the Philippines by Chu-Mei Liu, Kuang-Jung Chen publication date: 1 March 2000.* The study tried to develop a product-market structure of the fast-food restaurants in the Philippines.

Using the concept of hierarchical clustering based on substitution-in-use, the influence of three categories of situational influence were used to modify the original choice-market mix relationship at every clustering stage. Changes in the importance of the individual components of the product-service mix served as the basis of the link-up among competing fast-food restaurants.

- *Importance of Social Influence in Consumers' Willingness to Pay for Local Food: Are There Gender Differences* Azucena Gracia, Tiziana de Magistris, Rodolfo M. Nayga Jr. First published: 30 April 2012 The authors assess consumers' willingness to pay (WTP) for a local food product using an experimental auction. As local foods involve a social component, they aim also to test if social influence affects WTP for local foods and if the effects of social influence on WTP are different between men and women. They found that consumers are willing to pay a premium for the analyzed local food product. Moreover, social influence indeed affects WTP values, but the effects are different between men and women. Although social influence positively affects WTP for local foods

for women, the effect is negative for men. The results have significant marketing and policy implications related to the promotion of local foods.

- *7 benefits of eating local foods.* Published by Rita Klavinski, Michigan State University Extension - April 13, 2013. Locally grown food is full of flavor, eating local food is eating seasonally, Local food has more nutrients, Local food supports the local economy, Local food benefits the environment, Local foods promote a safer food supply, and Local growers can tell you how the food was grown.
- *Proximity to Fast-Food Outlets and Supermarkets as Predictors of Fast-Food Dining Frequency* by Jessica K. Athens, M S Dustin T. Duncan, Brian Elbel
21 December 2015 This study used cross-sectional data to test the independent relationship of proximity to chain fast-food outlets and proximity to full-service supermarkets on the frequency of mealtime dining at fast-food outlets in two major urban areas, using three approaches to define access. Interactions between presence of a supermarket and presence of fast-food outlets as predictors of fast-food dining were also tested.

- *Exploring the influence of local food environments on food behaviors: a systematic review of qualitative literature. Published online by Cambridge University Press: 07 June 2017.* Systematic reviews investigating associations between objective measures of the food environment and dietary behaviors or health outcomes have not established a consistent evidence base. The present paper aims to synthesis qualitative evidence regarding the influence of local food environments on food and purchasing behaviors.
- *THE CONSUMPTION OF LOCAL FOOD IN RESTAURANTS: A STUDY IN KAS Author: Serdar Eren, published: December 2017* It almost the same artisanal products, its cuisine is definitely not popular. This research aims to find out the reasons behind the gas tronomy tourism sustainability by searching the local food usage among chefs in Kaş-Antalya. Semi-structured interviews are conducted with 10 chefs to argue the barriers to the local food usage. The findings suggest that there is a lack of information on products and communication among chefs and the local suppliers, the supply side within the local producers are weak and the relationships among retail stakeholders are not very active.
- *THE HIDDEN DANGERS OF FAST AND PROCESSED Author: Joel Fuhrman, published: April 2018* Nutrients and fibre are needed to control the appestat, so you consume a healthy amount of calories. My experience has demonstrated with thousands of patients, the more nutrient and fibre dense your diet becomes the lower your drive to overeat.³⁰ This is extremely important, because even a moderate amount of extra fat on the body induces more rapid aging and increases the risk of diabetes, heart disease and cancer. A mild degree of caloric restriction becomes comfortable and achievable when the diet is high in micronutrients and fibre. When you have enough micronutrients and fiber in your diet, you don't feel driven to overeat. But when you don't have enough micronutrients and fibre in your diet, you become a food-craving, overeating machine.
- *Perceptions of Healthful Eating and Influences on the Food Choices of Appalachian Youth by Mark Swanson.* Patterns of overweight and obesity have an unequal geographic distribution, and there are elevated rates in Appalachia. Perceptions of Appalachian youth

toward healthful eating and influences on food choice were examined as part of formative research to address these disparities.

III. OBJECTIVES OF THE STUDY

- To analyze how incorporating local cuisine into menu design helps preserve and promote cultural heritage, traditions, and regional identity.
- To examine the role of local cuisine in attracting tourist and enhancing their dining experience, contributing to the local community.
- To explore how using locally sourced ingredients in menu design can support local farmers.
- To investigate customer demand for authentic, locally inspired dishes and how menu design can cater to changing food preference.

IV. SCOPE AND SIGNIFICANCE OF THE STUDY

- To find out the cultural representations – reflect the heritage, traditions and culinary identity.
- To find out the authenticity and uniqueness – attracting the tourist.
- To find out the sustainability and cost efficiency – supporting local farmers and suppliers.

- To find out the economic and community impact – promoting regional food business.

V. RESEARCH METHODOLOGY

Research methodology is the specific procedure or technique used to identify, select, process, and analysis about the topic. In research paper, the method section allows the reader critically evaluate the studies over all validity and reliability.

Research Design: The present study is empirical in nature based on both primary and secondary data. The sample, data source and tools of analysis used for the study are given in the following sections.

- Universe: Staffs from the five star hotels at Kochi.
- Sample size: 100 sampling size from the hotels.
- Tools for data collection: Questionnaire
- Sample units: Food and Beverage Managers and staffs from five star hotels at Kochi.

VI. DATA ANALYSIS AND INTERPRETATION

4.1.1 – Age group of participants

Sl No	Particulars	No of Respondents	Percentage
1	15-25	30	30%
2	26-40	20	20%
3	41-45	30	30%
4	46-60	20	20%
5	total	100	

Table 4.1.1

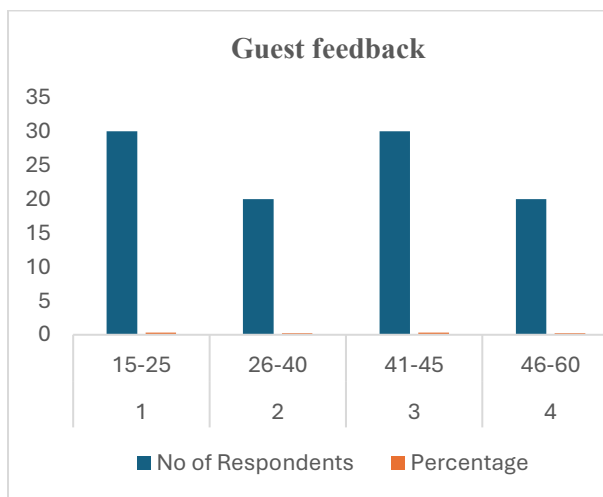


Figure – 4.1.1

Interpretation

As per the table 4.1.1 & figure 4.1.1 shows that 30% of respondents age between 15-25, 20% are 25-40, 30% are 40-45 and 20% are age between 45-60.

4.1.2 – Preference of local food consumptions

Sl No	Particulars	No of Respondents	Percentage
1	Non -vegetarian	85	85%
2	vegetarian	15	15%
3	Total	100	100%

Table – 4.1.2

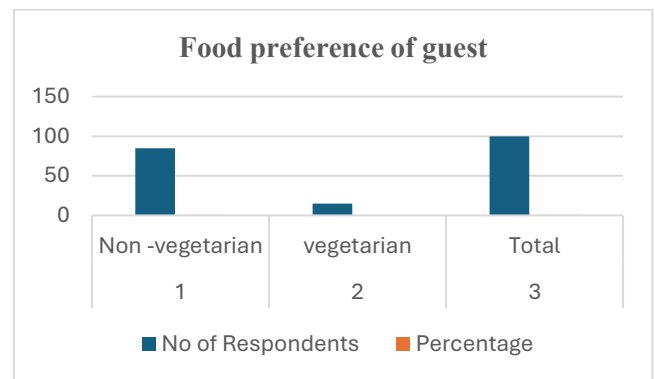


Figure – 4.1.2

Interpretation

As per table 4.1.2 and figure 4.1.2 shows that 85% guests prefer non-vegetarian and 15% guests prefer vegetarian in the restaurants.

4.1.3.- How often do you update the menu to incorporate local cuisine.

Sl No	Particulars	No of Respondents	Percentage
1	Monthly	5	5%
2	Seasonally	45	45%
3	Annually	15	15%
4	Rarely	5	5%
	Total	100	100%

Table -4.1.3

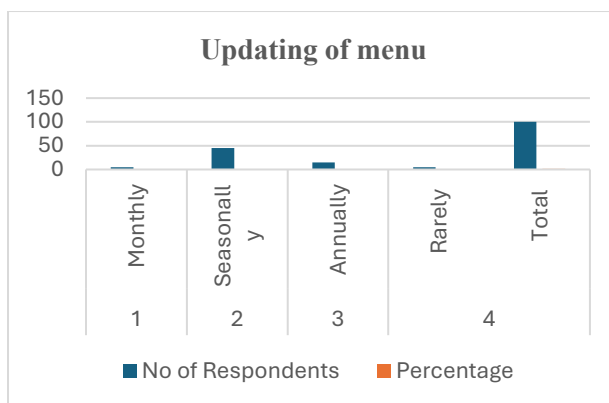


Figure – 4.1.3

Interpretation

As per table 4.1.3 and figure 4.1.3 shows that 5% responds changing the menu monthly wise, 45% respondents change seasonally, 15% changes annually and 5% will change rarely in the outlets.

4.1.4 – What percentage of the menu consist of local dishes.

Sl No	Particulars	No of Respondents	Percentage
1	0-25%	45	45%
2	26-50%	45	45%
3	51-75%	10	10%
4	76-100%	0	0%
	Total	100	100%

Table 4.1.4

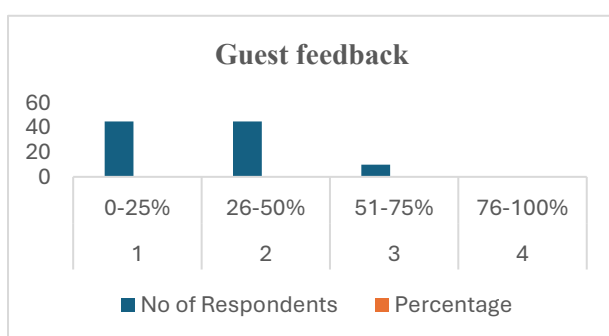


Figure 4.1.4

Interpretations

According to table 4.1.4 and figure 4.1.4 shows that 45% respondents having 0-25% local foods in the menu, 45% again says 25-50% local dishes are their menu while 10% says 50-75% local dishes are there in the menu card.

4.1.5 – Are local ingredients sourced directly from farmers or suppliers

Sl No	Particulars	No of Respondents	Percentage
1	Farmers	20	20%
2	Suppliers	80	80%
	Total	100	100%

Table – 4.1.5



Figure -4.1.5

Interpretation

According to table 4.1.5 and figure 4.1.5 shows that 80% of the despondence purchase local foods from suppliers and remaining 20% from farmers.

4.1.6 - Do you collaborate with local chefs, food experts for menu design.

Sl No	Particulars	No of Respondents	Percentage
1	Yes	5	5%
2	No	95	95%
	Total	100	100%

Table – 4.1.6



Figure – 4.1.6

Interpretations

As per table 4.1.6 and figure 4.1.6 shows that response of collaboration with local chefs for preparing menu design are 95% says No, remaining 10% said YES

4.1.7 – How do guest respond to local dishes on the menu

Sl No	Particulars	No of Respondents	Percentage
1	Highly Positive	40	40%
2	Mixed reaction	30	30%
3	Indifferent	20	20%
4	Prefer international options	10	10%
	Total	100	100%

Table – 4.1.7

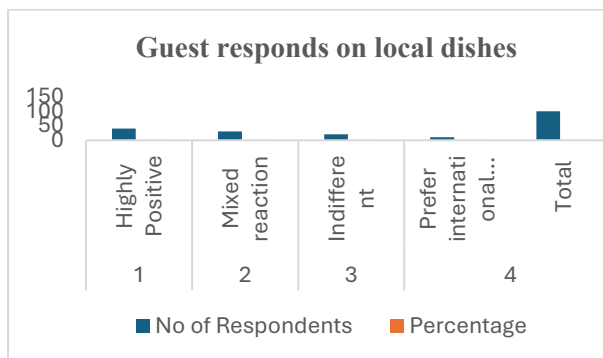


Figure -4.1.7

Interpretations

According to table 4.1.7 and figure 4.1.7 shows the guest responds on local dishes

are 40% highly positive, 30% mixed reaction, 20% indifferent and 10% prefer international options.

4.1.8 – Do you offer special events or promotions featuring local cuisine.

Sl No	Particulars	No of Respondents	Percentage
1	Yes	90	90%
2	No	10	10%
	Total	100	100%

Table -4.1.8

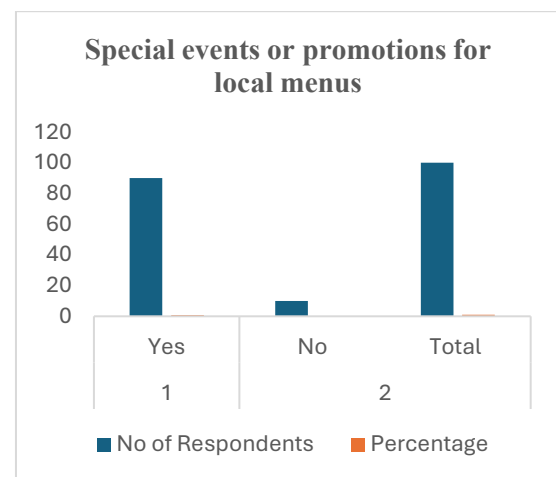


Figure – 4.1.8

Interpretations

According to table 4.1.8 and figure 4.1.8 shows the percentages of promotion or special events for local menu are 90% responded YES and 10% NO.

4.1.9 – What types of local dishes are most popular among guest.

Sl No	Particulars	No of Respondents	Percentage
1	Non - Vegetarian	100	100%
2	Vegetarian	0	0%
	Total	100	100%

Table – 4.1.9



Figure -4.1.9

Interpretations

According to table 4.1.9 and figure 4.1.9 shows that preference of dishes are 100% says guest like Non – vegetarian.

4.1.10 – Have you received specific guest feedback requesting more local food options.

Sl No	Particulars	No of Respondents	Percentage
1	Yes - frequently	50	50%
2	Occasionally	30	30%
3	No	20	20%
	Total	100	100%

Table – 4.1.10

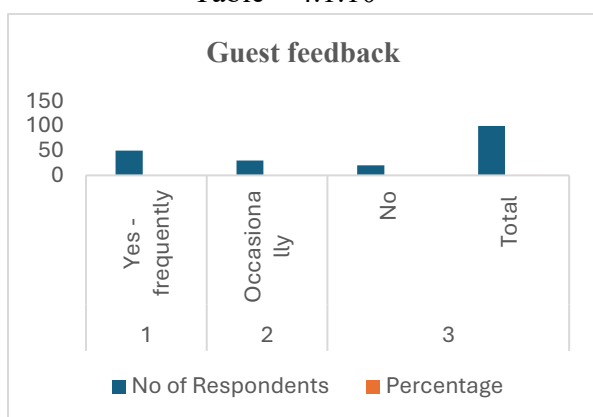


Figure – 4.1.10

Interpretations

According to table 4.1.10 and figure 4.1.10 about the feedback of guest says 50% responded yes, 30% says occasional and 20% says No.

4.1.11 – What challenges do you face incorporating local cuisine into the menu.

Sl No	Particulars	No of Respondents	Percentage
1	Limited Ingredient Availability	20	20%
2	High cost	40	40%
3	Lack of skilled staff	60	60%
	Total	100	100%

Table -4.1.11

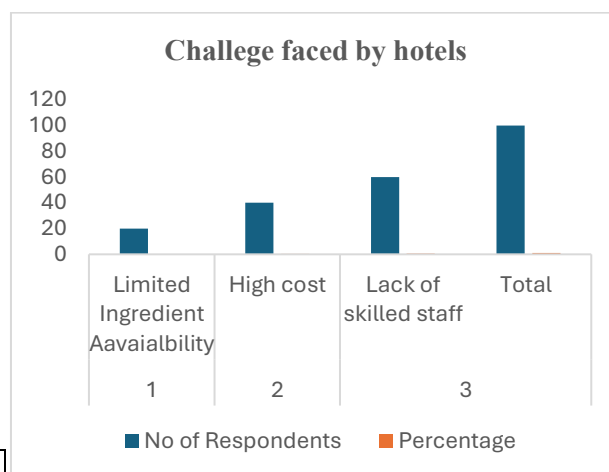


Figure – 4.1.11

Interpretations

According to table 4.1.11 and figure shows that the various challenges faced by the hotels in local food are 20% says limited ingredients, 40% higher cost and 60% lack of skilled staffs.

VII. FINDINGS

- Majority of the people prefer Non-vegetarian more than vegetarian.
- Majority of hotels are updating the local menu in seasonally.
- Majority of hotels are purchasing local ingredients from suppliers rather than the local farmers.
- No hotels are collaborating with any local chefs to promote the local dishes

in the menu card or the restaurant operations.

- Highly positive feedback getting from the customer regarding the local menus.
- Mainly of the hotels are conducting special events to promote a local dish in the restaurants.
- Non – vegetarian is the most preferable dishes of guest from local dishes.
- Most of the hotels receive frequent guest feedbacks on local foods.
- Many of the hotel facing higher cost of local ingredients is the major problem.

VIII. SUGGESTION

- Add more local dishes in the menu card
- Hotel should purchase ingredients from local farmers to get quality items and help to reduce the cost.
- Incorporate the local chefs to prepare a menu in the outlets.
- Waiters must promote the local dishes to the customers.
- Collect maximum feedbacks from the guest.
- Train the employees to make local dishes.

IX. CONCLUSION

“A Study on the Significance and Impact of Local Cuisine in Menu Design: An

Analysis of Five – Star Hotels at Kochi.”

According to these studies local menu is playing very importance in the menu design of hotels. Many of the guest especially who’s from out of Kerala as well as India prefer local dishes. Many of the five-star hotels also promote local dishes in the menu also. Some of the hotels already have some sort of promotional activities and they have included chefs to promote the local dishes in the menu card. But some hotels are facing a problem is that the knowledge of the chef with regards to the local dishes are very poor so that create a negative impact in the design of menu card. As per my study I have observed that hotels are says that cost of the ingredients for preparing local dishes are expensive, I realized that maybe they all depends suppliers to purchase the product so it will be expensive, but if they can collect directly from the farmers it may be less than what you pay from the suppliers. Many of the local dishes are famous among the people so hotel have that positivity to bringing them in the front and promote to sell in the restaurant. After my research I had found Many of the five star hotels in Kerala promoting local dishes in the restaurant in good way and earning profit also.

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A Study on Consumer Insights on the Demand for Eco-Friendly Beverages

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Abstract

With growing environmental awareness and health consciousness, the demand for eco-friendly beverages has been increasing among consumers. This study explores consumer insights regarding the demand for eco-friendly beverages, focusing on their preferences, motivations, and purchasing behavior. Through surveys and market analysis, the research identifies key factors influencing consumer choices, such as sustainability, packaging, organic ingredients, and brand transparency. The findings suggest that while consumers are willing to pay a premium for eco-friendly options, factors like price sensitivity and availability still pose challenges. The study highlights the need for beverage companies to align their marketing strategies with consumer expectations to foster a sustainable and competitive market.

Introduction

In recent years, there has been a significant shift in consumer preferences toward sustainable and environmentally friendly products. This shift is particularly evident in the beverage industry, where consumers are increasingly seeking eco-friendly options that align with their values of health, sustainability, and ethical consumption. Eco-friendly beverages, which include

organic drinks, plant-based alternatives, and sustainably packaged products, have gained popularity as individuals become more conscious of their environmental impact.

This research aims to explore consumer insights on the demand for eco-friendly beverages, analyzing the key factors that influence purchasing decisions. Understanding consumer behavior in this segment is crucial for businesses to develop effective strategies that meet market demands while promoting sustainability. Factors such as environmental awareness, product affordability, brand transparency, and packaging sustainability play a vital

role in shaping consumer choices. By investigating consumer preferences, motivations, and challenges, this study seeks to provide valuable insights into how businesses can enhance their offerings and marketing strategies. The findings will contribute to a deeper understanding of the growing eco-friendly beverage market and offer recommendations for companies looking to align with the evolving consumer mindset toward sustainability.

Significance of the Study

The demand for eco-friendly beverages has been rising due to increasing consumer awareness of environmental sustainability and health-conscious living. This study is significant as it provides valuable insights into consumer preferences, behaviors, and motivations regarding eco-friendly beverage choices. Understanding these insights is crucial for businesses, policymakers, and other stakeholders in the beverage industry to develop strategies that align with consumer expectations and promote sustainable consumption.

Firstly, this study benefits businesses and beverage manufacturers by helping them identify key factors that drive

consumer demand for eco-friendly products. By understanding consumer preferences related to sustainable packaging, organic ingredients, and ethical sourcing, companies can tailor their product offerings, improve marketing strategies, and enhance customer engagement. Secondly, the research is valuable for policymakers and environmental organizations, as it highlights the role of regulations and incentives in encouraging sustainable production and consumption. Insights from this study can inform policies that support green business practices and promote environmental conservation.

Thirdly, this study is significant for consumers, as it raises awareness about the benefits of eco-friendly beverages and the impact of their purchasing decisions on the environment. Educating consumers can contribute to a broader movement toward sustainability and responsible consumption.

Overall, this research provides a comprehensive understanding of the market dynamics surrounding eco-friendly beverages, offering strategic recommendations that can drive industry growth while promoting environmental sustainability. The findings contribute to the ongoing global effort to reduce carbon footprints

and encourage sustainable business practices in the food and beverage sector.

Statement of the Problem

As environmental concerns and health consciousness continue to rise, consumers are becoming more inclined toward sustainable and eco-friendly products, including beverages. However, despite the growing awareness and demand, the adoption of eco-friendly beverages remains inconsistent due to various challenges. Businesses often struggle to understand the key factors that influence consumer preferences, leading to gaps in product development, pricing strategies, and marketing approaches.

One of the primary challenges is the lack of comprehensive consumer insights regarding the demand for eco-friendly beverages. While some consumers express strong interest in sustainability, their actual purchasing behavior may be influenced by factors such as price, availability, brand trust, and packaging design. Additionally, there is limited research on how demographic and psychographic factors impact consumer decisions in

this segment.

Moreover, businesses face difficulties in balancing profitability with sustainability, as eco-friendly production methods and packaging often incur higher costs. Understanding consumer willingness to pay a premium for such products is crucial for companies looking to expand in this market. This study seeks to address these challenges by analyzing consumer insights on the demand for eco-friendly beverages, identifying the key motivators and barriers affecting purchasing decisions, and providing actionable recommendations for businesses and policymakers. By doing so, this research aims to bridge the gap between consumer expectations and industry practices, ultimately contributing to a more sustainable beverage market.

Objectives of the Study

The primary objective of this research is to analyze consumer insights regarding the demand for eco-friendly beverages and understand the factors influencing their purchasing decisions. The study aims to achieve the following specific objectives:

1. To examine consumer awareness

and perception of eco-friendly beverages and their impact on the environment and health.

2. To identify key factors influencing purchasing decisions, such as sustainability, packaging, pricing, brand transparency, and health benefits.
3. To analyze consumer willingness to pay a premium for eco-friendly beverages and the barriers that may hinder their adoption. To assess the role of marketing and branding strategies in shaping consumer preferences and increasing demand for eco-friendly beverages.
4. To explore demographic and psychographic trends in consumer behavior related to eco-friendly beverage consumption.
5. To provide recommendations for businesses and policymakers on how to promote sustainable beverage choices and enhance market growth.

These objectives will help in understanding market trends and consumer behavior, enabling businesses and policymakers to make informed decisions that support sustainability and eco-conscious consumption.

Results and Discussions

Examining Consumer Awareness and Perception of Eco-Friendly Beverages and Their Impact on the Environment and Health

Consumer awareness of eco-friendly beverages has been growing due to increasing concerns about environmental sustainability and personal health. Many consumers recognize that these beverages, which are often made with organic ingredients, sustainable sourcing, and eco-friendly packaging, contribute to reducing environmental harm, such as plastic waste and carbon emissions. However, perception varies—while some consumers see eco-friendly beverages as a healthier and more ethical choice, others remain skeptical about their actual benefits or find them expensive compared to conventional options. Many associate these beverages with reduced chemical additives, fewer preservatives, and enhanced nutritional value, making them appealing to health-conscious individuals. At the same time, eco-labels and certifications, such as USDA Organic, Fair Trade, and Carbon Neutral, influence purchasing decisions by building trust in sustainability claims.

Despite growing awareness, barriers such as affordability, availability, and misinformation still affect consumer adoption. To enhance market growth, businesses and policymakers must focus on education, transparent branding, and accessibility, ensuring that consumers fully understand the benefits of eco-friendly beverages for both their health and the planet.

Consumer purchasing decisions for eco-friendly beverages are influenced by several key factors, including sustainability, packaging, pricing, brand transparency, and health benefits. Sustainability plays a crucial role, as environmentally conscious consumers prefer beverages produced using ethical sourcing, carbon-neutral methods, and minimal ecological impact. Packaging is another significant factor—many consumers seek biodegradable, recyclable, or reusable packaging to reduce plastic waste. However, pricing remains a major barrier, as eco-friendly beverages are often perceived as expensive, making affordability a decisive factor, especially for price-sensitive buyers. Brand transparency also shapes purchasing behavior, as consumers are more likely to choose brands that provide clear information about their sustainability practices,

certifications (e.g., Fair Trade, USDA Organic, or Carbon Neutral), and ethical commitments. Additionally, health benefits are a strong motivator, with many consumers preferring organic, preservative-free, and plant-based beverages that contribute to overall well-being. Understanding these factors can help businesses tailor their marketing strategies, improve product accessibility, and drive greater adoption of eco-friendly beverage choices.

Consumers are increasingly willing to pay a premium for eco-friendly beverages, especially those who prioritize sustainability, health benefits, and ethical consumption. Many buyers perceive these beverages as a better alternative to conventional drinks due to their organic ingredients, environmentally responsible production, and reduced use of artificial additives. However, willingness to pay varies based on factors such as income level, environmental awareness, and perceived value. While some consumers are eager to support sustainable brands, others hesitate due to high prices, limited availability, and skepticism about green claims (greenwashing). Additionally, lack of awareness and education about the long-term benefits of eco-friendly beverages can

discourage purchases. To overcome these barriers, businesses must focus on cost-effective production, transparent branding, competitive pricing strategies, and greater accessibility through wider distribution. Government incentives and policies that support sustainable businesses can also help make these beverages more affordable. By addressing these challenges, the market for eco-friendly beverages can expand, appealing to a broader consumer base and encouraging more sustainable consumption habits.

Marketing and branding strategies play a crucial role in shaping consumer preferences and driving demand for eco-friendly beverages. Effective branding helps position these products as sustainable, healthy, and ethically responsible, appealing to environmentally conscious and health-focused consumers. Companies that leverage green branding, eco-labels, and transparent messaging build trust and credibility, making consumers more likely to choose their products. Additionally, digital marketing, influencer partnerships, and social media campaigns have proven to be powerful tools in spreading awareness and engaging younger demographics, particularly Millennials and Gen Z, who

prioritize sustainability. Storytelling and emotional branding, where companies highlight their commitment to reducing carbon footprints, supporting fair trade, or using biodegradable packaging, create deeper consumer connections. However, challenges such as greenwashing concerns and price sensitivity require businesses to ensure authenticity in their marketing efforts. Offering loyalty programs, promotional discounts, and educational initiatives can further encourage trial and long-term adoption. By implementing strategic and transparent marketing approaches, businesses can enhance consumer trust, shape positive perceptions, and ultimately increase the demand for eco-friendly beverages.

Consumer behavior toward eco-friendly beverages is influenced by both demographic and psychographic factors, shaping preferences, purchasing decisions, and brand loyalty. Demographically, younger consumers, particularly Millennials and Gen Z, are the most active adopters of sustainable beverages due to their strong environmental consciousness and willingness to pay for ethically sourced products. Urban dwellers tend to have greater access to eco-friendly options

and are more exposed to sustainability campaigns, while higher-income groups are generally more willing to pay a premium for organic and environmentally friendly products. Psychographically, eco-conscious consumers prioritize sustainability, ethical sourcing, and personal well-being, often seeking brands that align with their values. Health-conscious individuals, including those following organic, vegan, or plant-based diets, prefer beverages free from artificial additives and chemicals. Consumers driven by social responsibility are influenced by transparent branding, ethical certifications, and a company's commitment to environmental causes. By understanding these demographic and psychographic trends, businesses can effectively segment their markets and tailor marketing strategies to attract and retain sustainability-driven consumers.

Conclusion

The demand for eco-friendly beverages is steadily rising as consumers become more conscious of their environmental impact, health benefits, and ethical consumption habits. This study has provided valuable insights into the

factors influencing consumer choices, including sustainability practices, eco-friendly packaging, pricing concerns, brand transparency, and health considerations. While there is a growing willingness to pay a premium for sustainable beverages, barriers such as higher costs, limited accessibility, and consumer skepticism about corporate sustainability claims (greenwashing) continue to pose challenges. Understanding demographic and psychographic trends reveals that younger, urban, and environmentally aware consumers are more inclined toward eco-friendly beverage options, making them a key target audience for businesses and marketers.

Moreover, effective marketing and branding strategies have proven essential in shaping consumer preferences and driving demand. Green branding, sustainability certifications, digital engagement, and influencer marketing all contribute to enhancing brand trust and consumer loyalty. However, companies must ensure authenticity and transparency in their messaging to avoid misleading consumers and damaging brand credibility. To bridge the gap between interest and adoption, businesses should focus on competitive pricing,

innovative sustainable packaging, strategic promotions, and increased product availability across retail and online platforms.

Policymakers also have a crucial role in fostering a sustainable beverage market by implementing incentives for eco-friendly businesses, stricter regulations on unsustainable packaging, and public awareness campaigns that encourage responsible consumption. Collaborative efforts between government bodies, beverage companies, and environmental organizations can create a more sustainable marketplace, benefiting both consumers and the planet.

In conclusion, while the market for eco-friendly beverages is promising, businesses and policymakers must work together to remove adoption barriers, educate consumers, and promote long-term sustainability. By addressing key challenges and leveraging strategic initiatives, the eco-friendly beverage industry can continue to grow, driving positive environmental change while meeting evolving consumer needs.

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A Study on the Sustainable Recycling of Untouched Leftover Food In Restaurants in Thoppumpady, Ernakulam District.

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Abstract

Food waste generation remains a significant challenge in the hospitality industry, particularly in restaurants. This study investigates food waste management practices in restaurants located in Thoppumpady, Ernakulam, with a focus on quantifying waste generation, evaluating current management strategies, and exploring opportunities for redistribution and innovative recycling solutions. Employing a mixed-methods approach, including surveys, interviews, and case studies, the research aims to provide comprehensive insights into effective food waste mitigation. A key strategy explored is the redistribution of untouched surplus food to underserved communities, facilitated through partnerships with NGOs, food banks, and charitable organizations. The role of technology is highlighted in streamlining these processes via mobile applications and digital platforms that connect excess food supply with real-time demand. Additionally, the study examines successful case studies of hotels implementing such initiatives. Beyond redistribution, the project addresses the recycling of unavoidable food waste through composting, biogas production, and animal feed programs, promoting circular economy principles. Collaborations with waste management companies and the adoption of innovative recycling technologies are also explored to ensure the sustainable disposal of inedible waste. The findings of this research will offer actionable recommendations for restaurant owners, policymakers, and stakeholders to adopt more sustainable, socially responsible food waste management practices, thereby reducing environmental impacts and contributing to food security.

Keywords: Food waste management, Hospitality Industry, Redistribution, Recycling, Circular economy, Sustainable practices, Biogas production, Composting, Environmental impact, Social responsibility, Waste management companies.

INTRODUCTION

The global food system faces unprecedented pressure due to population growth, resource scarcity, and climate change. Food waste has become a critical issue, with restaurants and food service establishments generating substantial amounts of untouched leftover cooked food daily.

Approximately one-third of all food produced globally is lost or wasted, amounting to around 1.3 billion tons per year. This inefficiency presents an ethical, environmental, and economic dilemma.

Sustainable food practices require redistributing and recycling food that would otherwise be wasted.

The sustainable redistribution and recycling of untouched leftover cooked food from restaurants offer immense benefits to society, the economy, and the environment.

RESEARCH OBJECTIVES

The main objectives of this research are:

1. To quantify the amount of untouched leftover food generated daily in restaurants.

By implementing systems that prioritize the redistribution of safe and edible food to those in need and adopting recycling methods for waste that cannot be consumed, the restaurant industry can play a crucial role in reducing food waste and its associated environmental impact. Through collaboration with food banks, charities, and recycling initiatives, restaurants can contribute to a more sustainable and equitable food system. This project will delve deeper into the various strategies and technologies available to make this vision a reality, highlighting case studies, challenges, and best practices for reducing food waste in the food service sector.

This study examines food waste management in Thoppumpady, Ernakulam, focusing on waste generation, current practices, redistribution, and recycling solutions

2. To evaluate the existing practices of food waste management in restaurants in Kochi.
3. To explore potential channels for redistribution of untouched leftover food to those in need.

MATERIALS AND METHODS

The nature of this research is exploratory and descriptive, aiming to investigate food waste management practices in restaurants at Thoppumpady, Kochi.

Sampling Method:

The study adopts a convenience sampling method to select participants, allowing for quick and accessible data collection from available restaurant operators.

Population:

The total population comprises 35 restaurants located in Thoppumpady, Kochi.

Sample Size:

A sample of 21 restaurants was selected for the study.

Data Collection Tools:
Data was collected using structured questionnaires distributed through Google Forms, enabling efficient and standardized data gathering.

Data Analysis Method:
The collected data was analyzed using the percentage method, which helps in presenting the findings in a clear and comprehensible manner by illustrating the distribution and proportion of responses.

RESULTS AND DISCUSSION

1. What is the average daily quantity of leftover prepared food in your restaurant?

PARTICULARS	NO: OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
5-10 kg	19	90%
10-20 kg	2	10%
20-30 kg	0	0%
30-40 kg	0	0%
40-50 kg	0	0%
TOTAL	21	100%

Table -1

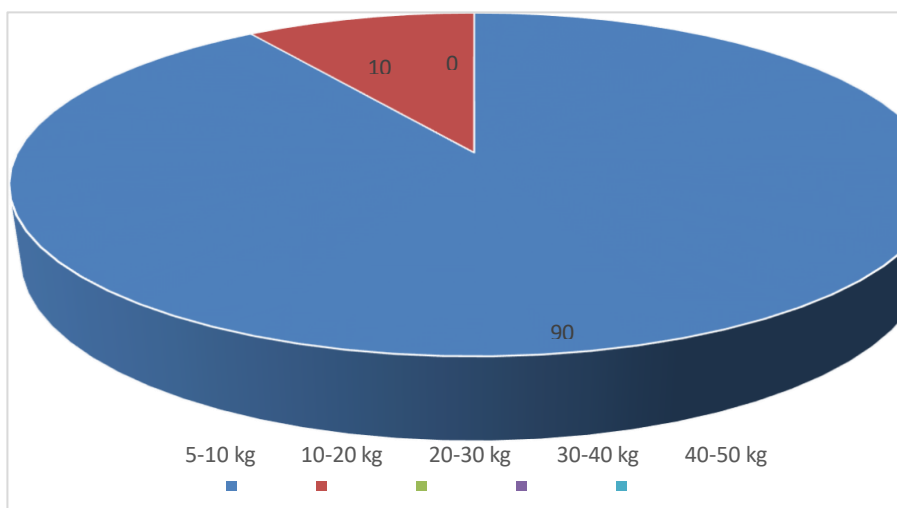


Fig.1

INTERPRETATION:

As per the, 90% of the restaurants has a leftover of food up to 5-10kg and 10% of restaurants has a wastage of 10-20kg.

2.What methods are adopted for the recycling of food?

PARTICULARS	NO: OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
DISPOSES	8	38%
COMPOST PITS	0	0%
BIOGAS	2	10%
DONATIONS	2	10%
GIVES TO ANIMAL FARMS	6	28%
GIVES TO EMPLOYEES	3	14%
TOTAL	21	100%

Table 2

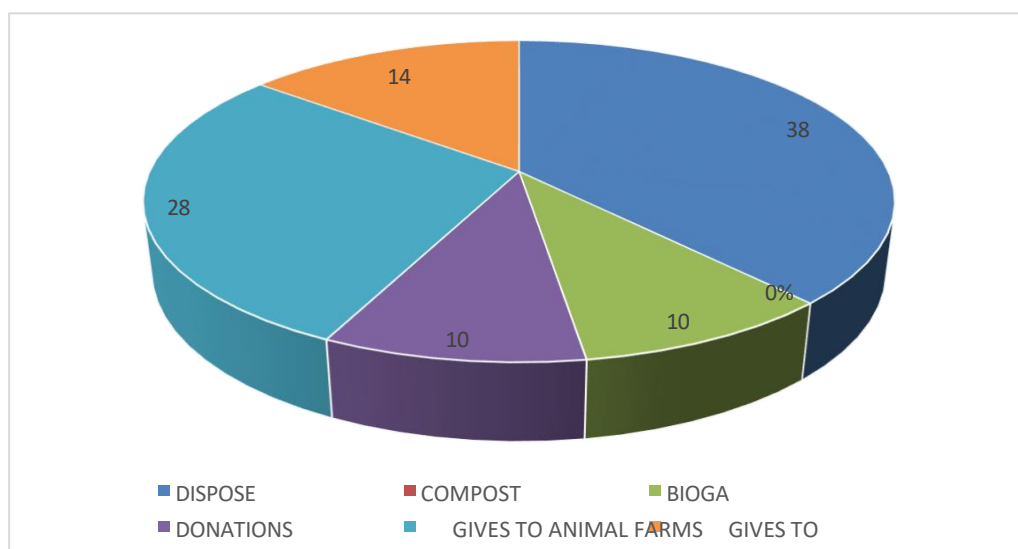


Fig. 2

INTERPRETATION:

As indicated in the figure 38% restaurants dispose their leftover prepared food, 10% uses for biogas, 10% gives off as donations, 28% gives to animal farms, 14% gives to employees.

FINDINGS

The majority of restaurants, about 90%, generate between 5 to 10 kilograms of leftover food each day, while the remaining 10% generate between 10 to 20 kilograms daily. All of this food waste comes from à la carte services. To manage food waste, 95% of restaurants use the weighing and sorting method for tracking, whereas 5% rely on paper logs.

About 86% of restaurants accumulate food waste valued between ₹1000 to ₹2000 daily. Regarding the disposal of leftover food, 38% of restaurants simply dispose of

the leftover prepared food. Meanwhile, 10% of restaurants use the leftover food for biogas production, and another 10% donate it. Additionally, 28% of restaurants give the leftover food to animal farms, while 14% provide it to their employees.

In terms of safety and handling, 80% of restaurants distribute food within the designated time frame to prevent spoilage. Additionally, 14% of restaurants ensure the food is kept closed and hygienic, while 6% maintain the required temperature for food safety.

Regarding responsibility for waste management, in 95% of restaurants, the

owners themselves handle waste management duties, whereas in 5% of restaurants, the managers are responsible. None of the restaurants provide leftover untouched food to any organization. The main reasons for this are that 67% of restaurants do not redistribute leftover food due to food safety regulations, 19% face difficulty in estimating food quantity, and 14% are concerned about the limited shelf life of the food.

None of the restaurants collaborate with NGOs or local food banks for food redistribution, and none of them adopt government incentives to support food waste management. Additionally, 95% of restaurants experience seasonal fluctuations that affect food waste generation, while only 5% of restaurants are not impacted by seasonal changes.

SUGGESTIONS

Restaurants could take the initiative to redistribute food to those in need, exploring partnerships with local food banks and NGOs.

The government could introduce additional initiatives and demonstrate greater concern for food redistribution, providing support and incentives for restaurants to adopt sustainable practices.

Restaurants could consider adopting NGO support and collaboration to facilitate food redistribution and reduce waste.

Restaurants could explore the option of selling leftover untouched prepared food at discounted prices, reducing waste and generating additional revenue.

Restaurants could investigate alternative recycling methods for food waste, beyond disposal, such as composting, biogas production, or animal feed.

CONCLUSION

The sustainable redistribution and recycling of untouched, leftover cooked food from restaurants present an effective solution to addressing food waste, hunger, and environmental degradation. The successful implementation of this approach relies on the use of technology, increased awareness, and strict adherence to food safety regulations. By diverting edible food to those in need and recycling inedible waste, restaurants can substantially reduce food waste and their environmental impact. Ultimately, this initiative fosters environmental sustainability, promotes social equity, and supports the development of a more responsible and resource-efficient food system.

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A Study on the Detrimental Effect of Extended Work Hours And Exigent Work Load Demands on the Health and Operational Effectiveness's of Food and Beverage Professionals in Luxurious Hospitality Venue.

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ABSTARCT

The luxury hospitality industry demands high service standards, often leading to extended work hours and increased workload for food and beverage professionals. While essential for premium guest experiences, these demands pose significant risks to employees' health and operational efficiency. This study examines the impact of prolonged working hours and excessive workload on the physical and psychological well-being of food and beverage staff in five-star hotels in Cochin.

Using a descriptive research methodology, data was collected from 100 respondents via a structured questionnaire. The findings reveal issues such as stress, fatigue, burnout, job dissatisfaction, and musculoskeletal disorders, all of which negatively impact job performance, increase absenteeism, and lead to higher turnover rates, ultimately affecting service quality.

The study recommends improving working conditions, ensuring adequate staffing, implementing wellness programs, and fostering an employee-friendly work environment. These measures will enhance employee well-being, reduce turnover, and maintain high service standards, ensuring a sustainable and efficient hospitality industry.

Keywords: Luxury hospitality, F&B professionals, long work hours, workload stress, employee well-being, burnout, job satisfaction, efficiency, stress management, hospitality workforce, work-life balance, retention, service quality, occupational health, hotel management..

INTRODUCTION

The luxury hospitality industry is known for its demanding work environment, where extended hours and high-pressure situations are common. Food and beverage professionals, who play a pivotal role in service delivery, often struggle with intense workloads and demanding schedules. Balancing the need to maintain exceptional service standards with the pressures of the job can significantly impact both their health and overall operational efficiency.

To provide guests with an unparalleled experience, luxury hospitality venues set high expectations for their staff. However, these expectations often translate into long working hours, excessive workloads, and increased stress. While such factors are essential for sustaining premium service quality, they also pose serious risks to employees' physical and mental well-being.

Prolonged work hours and heavy workloads can result in exhaustion, burnout, and various health concerns, ultimately affecting employees' performance. As stress and fatigue accumulate, staff experience reduced efficiency, lower job satisfaction, increased absenteeism, and higher turnover rates. This not only compromises service quality but also disrupts the operational effectiveness of luxury hospitality establishments.

This study examines the impact of extended working hours and workload pressures on the health and efficiency of food and beverage professionals in luxury hotels. By analysing the connection between these factors and their consequences, the research aims to offer valuable insights into improving working conditions.

The study highlights the need for industry stakeholders to adopt strategies that prioritize employee well-being without compromising service excellence. Implementing structured work schedules, wellness programs, and proper staffing measures can create a healthier and more productive work environment.

Through this research, we aim to contribute to the development of sustainable hospitality practices that enhance both employee satisfaction and operational performance. A balanced approach will ensure that luxury hospitality venues continue to deliver exceptional guest experiences while fostering a supportive and thriving workforce.

OBJECTIVE OF THE STUDY

To evaluate the repercussions of prolonged working hours on the physiological and psychological wellbeing of food and

beverage professional in high end hospitality establishment.

To analyse the impact of heightened workload demands on the operational efficient and professional performance of food and beverage person.

To explore the correlation between suspended working conditions and employees' health to identity strategies that mitigate these adverse effects wellness premier hospitality environments.

SCOPE AND SIGNIFICANCE OF THE STUDY

- **Study Scope** – The research was conducted among 100 food and beverage professionals from various five-star hotels in Cochin to analyse the challenges they face in their work environment.
- **Significance of F&B Staff** – As the frontline representatives of hotels, the well-being of food and beverage staff is crucial to maintaining high service standards and guest satisfaction.
- **Physical Demands** – Hotel jobs require intense physical effort, making it essential for employees to maintain a healthy body and mind to sustain productivity and efficiency.
- **Health Considerations** – Given the demanding nature of hospitality work, prioritizing employee health and well-

being is vital for ensuring long-term operational success and reducing workplace stress and burnout.

RESEARCH METHODOLOGY

- **Definition of Research Methodology** – Research methodology is a systematic approach to solving a research problem, involving the scientific study of how research is conducted.
- **Scientific Approach** – It focuses on understanding and analysing the various steps undertaken by a researcher, ensuring logical and structured investigation.
- **Nature of Study** – This research follows a **descriptive methodology**, which involves observing, analysing, and interpreting data to understand the impact of extended work hours and workload on food and beverage professionals.
- **Data Collection Method** – A structured **questionnaire was used** as the primary data collection tool, distributed via **Google Forms** to reach respondents efficiently.
- **Objective of the Methodology** – The study aims to provide **accurate insights** into the working conditions of food and beverage staff in five-star hotels, ensuring that findings are based on systematically gathered data.

LIMITATIONS OF THE STUDY

- Time constraint
- Need huge social involvement and convincing.
- Travelling

REVIEW OF LITERATURE

Work anxiety and depression. A study by Karatepe (2013)

Extended work hours have been linked to a variety of health issues, including chronic fatigue, sleep disturbances, cardiovascular diseases, and mental health problems such as anxiety and depression. A study by Karatepe (2013) emphasized the negative effects of prolonged work hours on the physical and mental well-being of hospitality workers.

Stress-related illnesses. According to Maslach et al (2001)

High workload demands are associated with increased stress levels, burnout, and other stress-related illnesses. According to Maslach et al. (2001), burnout is particularly prevalent in high-pressure environments like luxurious hospitality venues, leading to emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment.

Physical exhaustion and mental stress are well-documented in studies such as García-Herrero et al. (2017)

Upper limb disorders (ULDs) are a particular group of musculoskeletal disorders which affect the arm and neck. This revised guidance is aimed at managers with responsibility for workers who may be at risk of developing ULDs. It aims to help the reader understand the hazards and risks and how to control them. Includes: ULDs – managing the problem; risk assessment and solutions; monitoring and reviewing; medical aspects of ULDs; and legal requirements. The main occupational health and safety problems in service work are 1) ergonomic problems leading to musculoskeletal symptoms, and 2) psychosocial problems leading to stress symptoms (distress).

Ergonomic Workplace Design for Health, Wellness, and Productivity-2016

Many front desk clerks stand in one place for prolonged periods as they greet, check in, and check out guests. This can produce lower back and leg fatigue (WorkSafeBC 2001g). In addition, the locations of the equipment used by these employees (e.g., telephone, printer, and key card system) may cause them to bend or reach past their normal range of motion. The clerk's use of a computer may cause bending of the wrists and/or the neck, depending on the placement of the keyboard, the mouse, and the monitor (Workspace 2001). This, too, can result in muscular discomfort. The neck and the shoulder can also become strained

if a clerk cradles the handset there while on the phone (Workplace Safety and Health Council 2013).

Pathology – E-Book Implications for the Physical Therapist By Catherine C. Goodman, Kenda S. Fuller · 2014

Health is more accurately viewed as a continuum on which wellness on one end is the optimal level of function and illness on the other may be so unfavourable as to result in death. Health is a dynamic process that varies with changes in interactions between an individual and the internal and external environments. This type of definition recognizes health as an individual's level of wellness. Health reflects a person's biologic, psychological, spiritual, and sociologic state. The biologic or physical state refers to the overall structure of the individual's body tissues and organs and to the biochemical interactions and functions within the body. The psychologic state includes the individual's mood, emotions, and personality.

Health & Safety Management for Medical Practices Evaluating Risk and Implementing Safety for Physician Offices By Linda F. Chaff · 2001.

This text outlines guidelines for planning the safety programme, obtaining administrative support, conducting a needs assessment, setting priorities, and developing policies and procedures, as well

as information on regulatory and voluntary compliance agencies affecting health care.

Stanfield's Introduction to Health Professions By Nanna Cross, Dana McWay · 2022

Social work is a profession for those with a strong desire to help improve people's lives. Social workers assist people by helping them cope with and solve issues in their everyday lives, such as family and personal problems and dealing with relationships. Some social workers help clients who face a disability, life-threatening disease, or social problem, such as inadequate housing, unemployment, or substance abuse. Social workers also assist families that have serious domestic conflicts, sometimes involving child or spousal abuse.

Regenerative Treatments in Sports and Orthopedic Medicine 2017.

Clinicians interested in developing a regenerative medicine practice must be aware that the office visit with patients takes time and requires a lengthy review of the findings and all the treatment options available to patients. This should include the many nonsurgical and less invasive options such as diet/weight loss; vitamin supplements; orthotic, bracing, aggressive strengthening; hyaluronic injections; and the like. Some patients with biomechanical issues such as catching, locking, or joint instability may be better served with

surgical treatment (perhaps enhanced with orthobiologic treatment).

A Research Agenda for Workplace Stress and Wellbeing-2021.

Although the initial focus of research and practice was on the identification and reduction of workplace stressors, subsequent approaches have emphasized the provision of resources that both contribute directly to wellbeing and mitigate the effects of organizational stressors. Five such resources – recognition, opportunities for growth and development, involvement, health and safety and work-family balance – provide the basis for the psychologically healthy workplace model promoted by the American Psychological Association (APA; Grawitch, Gottschalk & Munz, 2006).

THEORETICAL FRAMEWORK

The luxurious hospitality sector is known for its high service expectations and demanding operational environments, particularly within food and beverage roles. Professionals in this field often experience extended work hours and significant workload demands, which can have adverse effects on their health and the overall effectiveness of the organizations they serve. This theoretical framework explores the relationship between these extended work conditions and their impact on

employee well-being and organizational performance, drawing from occupational health psychology, work-life balance, and organizational behavior theories.

Theoretical Perspectives

Job Stress Theory

Job Stress Theory posits that excessive workplace stressors can lead to negative health outcomes. In luxurious hospitality venues, food and beverage professionals frequently encounter high expectations, stringent deadlines, and the pressure to deliver exceptional service. Prolonged exposure to such stressors often results in physical and mental health issues, including burnout, anxiety, and cardiovascular disorders. Additionally, extended work hours limit recovery time, compounding stress and diminishing overall employee effectiveness.

Health and Well-Being Models

Theories of health and well-being emphasize the importance of psychological and physical health for optimal job performance. Chronic workplace stress due to extended work hours can lead to fatigue, reduced motivation, and diminished job efficiency. Research highlights that employees in high-stress environments are more susceptible to absenteeism and

decreased productivity, further affecting operational performance and service quality.

Boundary Theory

Boundary Theory explains how individuals navigate the boundaries between work and personal life. In the hospitality industry, where long shifts and late hours are common, these boundaries become blurred, leading to work-life conflicts. Food and beverage professionals may struggle to maintain personal relationships and social commitments, leading to dissatisfaction and a sense of imbalance. This work-life conflict can further decrease job satisfaction and contribute to higher turnover rates.

Self-Determination Theory

Self-Determination Theory suggests that intrinsic motivation plays a vital role in sustained job performance. However, when employees experience excessive workloads and extended shifts, their intrinsic motivation may decline, resulting in disengagement. In the food and beverage sector, this disengagement manifests as lower service quality, decreased creativity in menu planning, and reduced guest satisfaction, ultimately impacting the hotel's reputation.

Employee Turnover and Organizational Costs

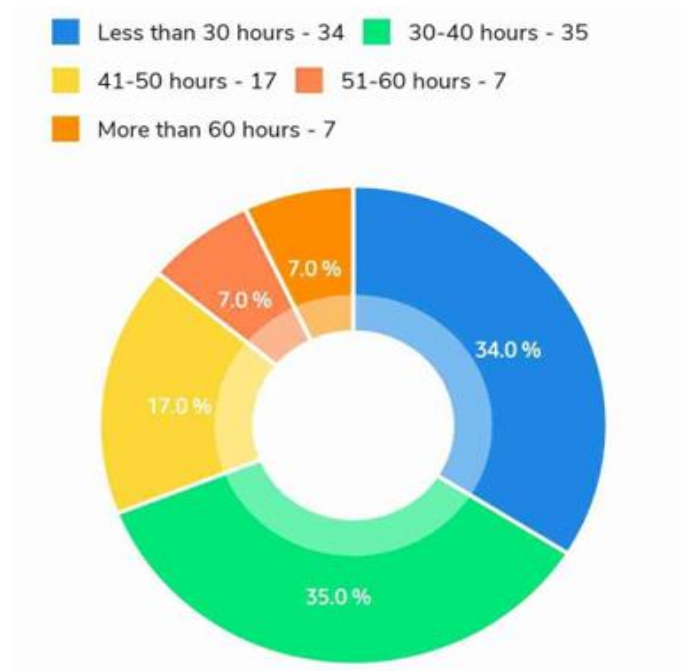
The food and beverage industry already faces high employee turnover rates. Factors such as stress, burnout, and job dissatisfaction further drive professionals to seek opportunities elsewhere. Increased turnover leads to higher recruitment and training costs, loss of experienced staff, and decreased operational efficiency. Organizations must prioritize employee well-being to maintain service quality and retain skilled professionals.

Recommendations and Future Research

Organizations should focus on increasing job resources, such as adequate training, managerial support, and professional development opportunities. Regular assessments of employee workload and working hours can help identify areas requiring intervention, thereby preventing burnout and improving employee retention. Future research should explore targeted interventions tailored to the hospitality sector's challenges, ensuring long-term employee satisfaction and sustainable service excellence. Understanding these dynamics allows organizations to implement strategies that balance operational efficiency with employee well-being, fostering a thriving and sustainable hospitality industry.

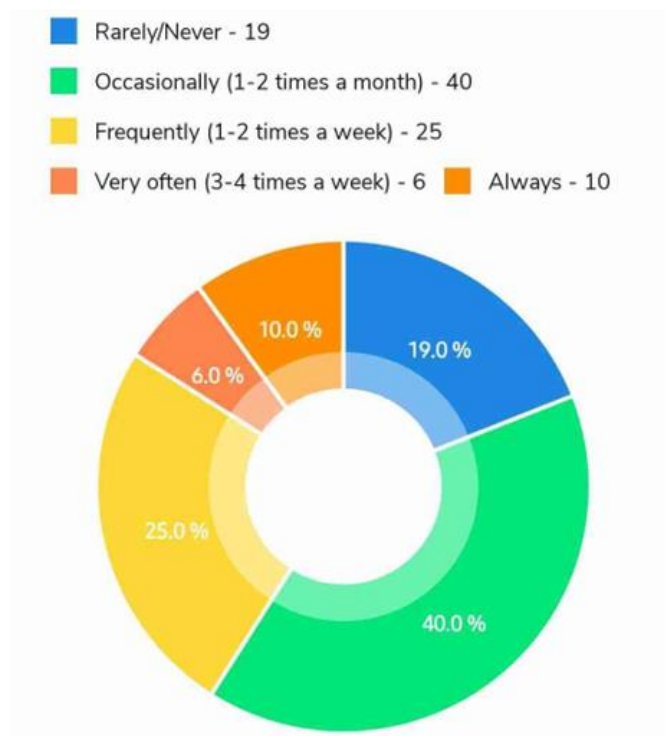
DATA COLLECTION & INTERPRETATION

1. On average, how many hours do you work per week?



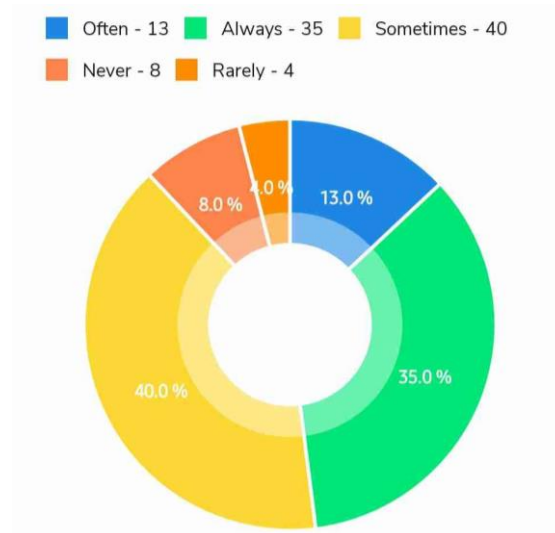
Interpretation: The graph indicates the employees are not getting the required number of breaks during work

2. How often do you work beyond your scheduled hours?



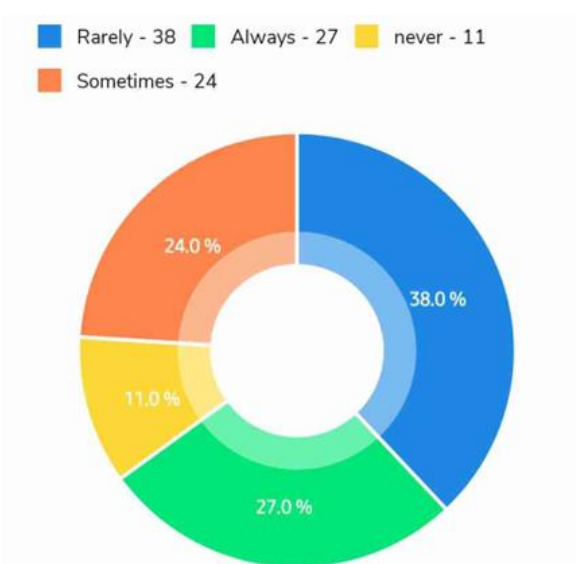
Interpretation: From this graph, it is evident that most of the time, professionals are facing an excessive workload, with extended working hours. This prolonged pressure can contribute to burnout and dissatisfaction, potentially affecting their overall performance and well-being.

3. Do you feel supported by your management in managing your workload?



Interpretation: From this graph, we can see that management only sometimes provides adequate guidance, resources, and understanding to effectively manage employees' workloads. This inconsistency in support can impact job satisfaction and overall well-being, as employees may feel uncertain about the level of assistance they can expect.

4. How often do you feel overwhelmed by your workload?



Interpretation: From this graph we can find the workers are facing workload

Findings:

- Extended hours lead to heightened stress, negatively impacting mental health.
- Long shifts contribute to fatigue and increased risk of injuries, including musculoskeletal disorders.
- Prolonged demands result in emotional exhaustion, diminishing job satisfaction and performance.
- Fatigue lowers efficiency, ultimately affecting service quality and operational effectiveness.
- Job dissatisfaction from long hours prompts professionals to seek employment elsewhere.
- Extended hours hinder personal life, leading to decreased morale and motivation.
- Exhausted staff may provide lower quality service, impacting guest experiences and satisfaction.
- Health issues arising from long hours result in more frequent employee absences.
- Anxiety and depression rates increase among staff subjected to excessive work demands.
- High turnover and burnout disrupt team dynamics, negatively impacting collaboration.
- Fatigue stifles creativity, essential for menu development and guest experiences.

Suggestions

- More employee friendly working atmosphere should prevail in the hotels
- Recruit sufficient number of employees

- Long hours of work de-glamorize hotel industry and hence the working hours shouldn't be a burden for the workers.
- Work ethics should be maintained along with the rights of the employees
- Management should organize a cell\committee to monitor the health of their employees

Conclusion

Hence, I have come to the end of the project based on the topic, **“A Study On The Detrimental Effect Of Extended Work Hours And Exegient Worklord Demands On The Health And Operational Effectiveness Of Food And Beverage Professionals In Luxurious Hospitality Venue”**. The employees are facing a lot of health problems not only in the food and beverage service department but also in the other departments of the hotels. The management shouldn't keep their eyes against the health problems of the employees and must bring in changes not only to keep the employees free from the work-related health problems but also to help them having a healthy body and healthy mind. As we all know the fact that a healthy mind and a healthy body can increase the efficiency of the work the management should aim to get 100% of efficiency from their workers

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A Study on Integration of Virtual Website for Tourism Department Enabling Single Window Connection with All Tourism

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ABSTARCT

Nowadays our tourism website is so simple and the tourist feels difficulties to connect with all required things (like hotels, restaurants, etc.) for traveling. Here they need to search and find these resources from other websites. This leads to decrease satisfaction and tourist needs to waste their precious time and effort for the same. At the same time, we analyse that lack of single window page websites a lot of fake webpages are prepared which leads to misleading and other fraudulent activities which can entirely became a black mark for the tourism industry. To avoid all these problems and issues we now look on the feasibility of setting up a webpage which has access to all related websites from all the business firms related to the tourism industry. This can help the tourists to connect with all required and necessary websites and other required service for them to complete and meet all their necessities while and for travelling to a specific destination. At the same time, it would help the government to monitor these websites and to avoid all possibilities of fraudulent activities. On the other hand, it will help all the business firms related to the tourism industry to get equal opportunities like bookings and reservations. It also help the tourist by providing hassle free experience with a wider opportunity to select according to their interest and requirement.

Keywords: Virtual Website, Tourism Industry, monitoring websites by government, Hospitality Sectors.

INTRODUCTION

From the older times people used to travel from one place to another for various purposes. During the Ancient Era people mainly travelled for trade and related purposes. But from the invention of wheels the travelling practice have changed a lot. As this have led the people to travel a lot as wheels have created an easy mode of transportation. Afterwords after the World War people travelled one place to another for pilgrimage, education, leisure, etc.

While looking today people just want to travel as hassle free. In the present scenario, we can see that people need to check deep in different sites for different necessary services that they want while travelling. For example: If you need to travel to Kochi for two days you need to check about the places to visit in Kochi in a website, for accommodation you need to check another site, for transportation you need to check another webpage. Likewise, people need to take a lot of time and effort for just a normal travel. This makes the people especially the common people forced to travel less. At the same time while looking the cause of people with less IT knowledge we can see that they need to suffer a lot regarding this. On the other hand, this traditional mode can lead to different issues like coming up of fake websites, mischiefs, fraudulent activities, illegal issues like cheating etc.

These all led me think into this project to integrate all the tourism related websites to a single window website. This study or the integration of single window website can help and can create hassle free experience with better safety and security. The single window system helps the tourist to do there meet their online activities in fingertips. At the same time the single window system can help the government to monitor all the services and sub-websites that come under the main websites allow them to avoid criminal and illegal activities through these websites and webpages.

OBJECTIVE OF THE STUDY

- To find out how can we create an effortless travel experience to travellers
- To know about how to avoid cheating and other fraud activities by monitoring these websites.
- To understand equal opportunity to everyone working in tourism industry.

SCOPE AND SIGNIFICANCE OF THE STUDY

- Due to the use of multiple websites, travellers get confused about their booking and selecting best service.
- It can help to avoid cheating and other crimes as the single window webpage will help to monitor each website and also helps to avoid fake websites.

- As lack of designing and attractive websites many sellers with best service aren't getting proper booking, by the implementation of single window system this issue can be resolved.
- It also helps for sorting each and every element like total no. of available rooms (with the name of hotel), cabs and rentals available, etc. in more effective and efficient way.

RESEARCH METHODOLOGY

- The data collection for this study is collected by qualitative method.
- Primary Data: This data is collected from different organizations and staff working in that organization using surveys and questionnaires.
- Secondary Data: This data is collected from various sources like journals, etc.
- The respondents were selected from Kochi who were working in tourism industry related organizations.
- The sample size selected for the study is 120
- The sample area selected for the study is from Kochi, Ernakulam dist., Kerala. Tour operators and travel agencies in Kochi

LIMITATIONS OF THE STUDY

- Time constraint
- Need huge social involvement and convincing.
- Travelling

REVIEW OF LITERATURE

As per the records of Webspot.com: Around 69% of people uses internet for travelling around the globe in late 2013s. Later this have increased intensively. They have showmen it by using the statistics and the rate of popularity of websites like trivago, MakeMyTrip, etc. From this record we can also find that the people wanted to use hassle free bookings as these platforms provide and are connected with all essential services required for a traveller.

As per the findings of Mrs. María Isabel Míguez-González & Mr. José Fernández-Ca: websites are an important communication tool in destination branding. The results are found by the Web Quality Index study. They found that” Communicating destinations is currently a vital task for improving the economic and socio- development of cities, regions and nations as tourism has become an important part of the GDP in most countries. Accordingly, we can find that promoting a destination among actual and potential visitors is one of the key roles of the Destination Marketing Organization (DMOs). To achieve this, official destination websites (ODWs) play an important part, as “tourists use them for trip planning and selecting destinations”. Thus, it seems crucial to make the websites more realistic and hassle-free interface.

As per the studies of Tech Viduan: Big data plays a major role in these days tourism industry. As per there studies Travel & Tourism is a sector, which is evergreen. People generally love to travel. This never-ending interest of people towards traveling has boosted the start-ups in the travel industry. Many new traveling agencies or companies are establishing in the market. And there is no denying the fact that with an increase in travel there will be an increase in the generation of data associated with it. Therefore, massive amounts of data are being captured and stored by travel companies. At every step of the travel journey, they collect data of transactions, flight paths, customer data, check-ins, etc. Big data helps to combine, manage, and store all this information efficiently. It also helps to make the customer feel more appreciated and better serviced, resulting in more revenue and higher profit generation. According to Graham Cooke: 92%of customers of a travel website will not convert into business, and 60% of visitors never return after a first visit. This shows the influence and importance of big data. According to Valuecoders.com: Single page websites have a lot of benefits and advantages. According to them a single window website has a lot of advantages like:

- Clutter braking
- Better and hassle-free interface

- Bounce rate reduction
- Cost effective, etc.

A single-page website is also called a parallax scrolling website. This kind of website enables you to scroll through the content of the entire page.

According to the findings of Jaroslav Kaceti & Blanka Klimova: Currently, Social Network Sites (SNS) have a tremendous influence on how tourists create, organize and share tourism experiences. And since tourism is the main source of revenue in many countries and regions, tourist destination organizations should bear this fact via SNSS because SNSs represent strategic importance for tourism competitiveness. Moreover, SNSs can lower costs increase operational efficiency and improve service quality and customer experience.

According to the study Export Journal of Marketing: The tourism sector is one of the most important business sectors. They had looked onto the online influence of tourism especially for online travel agencies. The purpose of this study was to discuss the role of the internet as an important tool in the tourism industry by presenting the ways it is used in customer service. The study focuses on an online travel agency. They also find that the influence of online and use of online marketing is more effective and has better quality. At the same time, it is more cost effective. There is a need for a

dynamic approach to tourism marketing, that is, there should be a continued readiness on the part of the tourism businesses or organizations to adapt and change their activities in response to the changes in tourism demand, as well as being fully prepared to take advantage of opportunities that may arise and to influence tourism demand in order to achieve their predetermined goals. Tourism marketing is a necessary tool for all management of tourism businesses to use it and achieve the planned marketing goals.

As per the findings of Sulisty Heripracoyo & Suroto Adi: They have researched and looked on the possibility of tourism business web integration with web services to improve the tourist flow in Southeast Asian countries especially in Indonesia. Tourist visits from year to year have increased, but still below the number of countries in Southeast Asia. Under these conditions, the government, especially the tourism office needs to conduct a collaboration to maintain and increase the growth of the number of tourists visiting Indonesia. This study aims to integrate information services from other parties who collaborate to support tourism activities, especially collaboration at the provincial level. Related parties are the Tourism office, hotel, Travel & Tourism Agent and Tourism Destination. The integration of information is intended to facilitate access

to information by tourists in accordance with their needs. Observation, literature study and information system integration design were used in this study. Observations were conducted at the tourism office and tourism destination in three different locations to obtain the needed information in Semarang, Surabaya and Yogyakarta. UML Modelling is used for system analysis and development. A prototype of information integration is generated, which can be used to integrate information between tourism office, hotel, Travel & Tourism Agent and tourism destination. With the Integration of such information each party will obtain a marketing benefit, income and other benefits economically.

As per the studies of Adi & Suroto: This study aimed to create a model of communication and collaboration of the utilization web technologies in the tourism sector to support the promotion and marketing of the tourism industry. The promotion and marketing objective was to enrich the opportunity access to the data and information related with the tourism. The research applied quantitative method by reviewing laws on tourism businesses in Indonesia as a base of design models of communication and collaboration. Then, for the need analysis of tourism data and information was used OOAD (Object Oriented Analysis Design). The results of

this research is the logical data model and communication and collaboration model. These models are arranged in the form of logical class diagrams, and communications and collaboration architecture model by using Enterprise Service Bus (ESB) software. Moreover, these models are applied for provincial level.

As per the study of Junyu Lu: The COVID-19 pandemic has imposed tremendous impacts on the tourism industry worldwide. The tourism sector can take advantage of the new technology (e.g. virtual tourism), to respond to the challenges. This study aims to investigate factors influencing people's acceptability in using virtual tourism during the pandemic in China and explore how virtual tourism can aid the recovery of the tourism industry during and after the pandemic. We explore this through a mixed-methods approach. Our results show that the use of virtual tourism can be partially explained by the theory of planned behaviour. Virtual tourism has a strong influence on people's on-site destination choices and can be used as an effective marketing tool to promote destinations and a platform to sell souvenirs and products. Virtual tourism can be an entertainment activity to bring an immersed experience to people without being actually in the destinations, and thus reinforce stay-at-home order and help contain COVID-19.

Even after the pandemic is over, people still show willingness to use virtual tourism for diverse purposes. The qualitative data also suggest virtual tourism can help promote sustainable tourism by reducing unnecessary greenhouse gas emissions from transportation and enhance 'virtual accessibility' especially for the elderly and disabled with limited mobility.

As per the findings of Julia Beck, Mattia Rainoldi, Roman Egger: The advent of new VR hardware necessitates a destination for different VR systems applied in the tourism sector. Research conducted during the past three years has been focusing on the application of head-mounted displays, which reflects the temporal development of VR technology. Regardless of the VR system, most study examine VR as a marketing tool for promotion and communication purposes during the pre-travel phase, focusing on behavioural aspects. Advances in technology will yield new opportunities and application possibilities for the tourism industry.

As per the findings of Osman El-Said ad Heba Aziz: This research was conducted in response to the sudden release of VTs by cultural and touristic attractions during the COVID-19 pandemic, who had no other way of maintaining visitor interest during the travel restrictions. The researchers wanted to highlight the factors that would influence the INT during this time and

investigate the effect that this adoption would have on the TenAS in the future. In this regard, the results have been overwhelmingly successful. Following a thorough review of the existing literature, an integrated framework combining the TAM and PADM theories together was, for the first time, successfully developed and tested. Using an online survey, the researchers demonstrated that three factors from the TAM, being PEOU, PU, and ENJ, and two factors from the PADM, being RP of catching COVID-19 and HRA, determine a person's INT as a safer alternative to actual site visits. Furthermore, the research revealed that the INT increases a person's TenAS at a later stage, providing much needed evidence to suppress misconceptions that VTs are competitors or substitutes for actual site visits. In this regard, the research made another novel discovery, and both PU and ENJ of the VT experience were found to moderate the relationship between INT and TenAS.

THEORITICAL FRAMEWORK

Tourism is the movement of people travelling from one place to another place or destination for various purpose. We can find that from the olden days people used to travel to different places especially for trading purposes. Later, after the invention of wheels (post 1st World war) people started to travel from one place to another in search of conquering and education. In

India, we can see that people used to travel for pilgrimage and religious purposes. As the movement of travelling increases slowly it leads the importance of emergence of service and accommodation for the tourist. Here the first forms of lodging was introduced called Sara's & Dharmshalas. Later, F&B were also started to serve. In the new era, new hotels were brought up.

In the modern days the concept of travel and tourism have entirely changed. Now people travel from one destination to another for various purposes. It includes:

- Business
- Education
- Leisure
- Relaxation
- Researches
- Medical purposes, etc.

At the same time, we can divide the tourism into two:

- Domestic Tourism: It is the process of movement of people from one place to another inside the country border.
- International Tourism: It is the process of movement of people from one place to another outside the country border.

Nowadays we can also witness that many people are directly and indirectly connected with the tourism industry. Many of the countries are running with the earnings from Tourism.

The tourism industry consists of 5 golden A's. They include:

- Attraction
- Accommodation
- Activities
- Amenities
- Accessibility

Websites:

A website is a collection of processed data formed into a collection of webpages and related content that is identified with a domain address. Normally a website would be dedicated into a specific topic, etc. One of the main benefits of a website is that it can be accessed by anyone and can create a lag free experience for the experience. While looking into the history of websites the World Wide Web (WWW) was created by British CERN Computer scientist Tim Berners Lee. Mainly the websites use different various protocols for each activities and instructions. It includes:

- HTTPS (Hypertext Transfer Protocol)
- FTP (File Transfer Protocol)
- Gopher Protocols

The websites can be divided into two different types:

- Static Websites: It is the one type of website that has

webpages stored on the server and send to a client web browser. Primarily the static websites are coded in HTML (Hypertext Markup Language), in CSS (Cascading Style Sheets) and JavaScript. It is the traditional mode of websites with high flexibility, cheaper and often faster.

- Dynamic Website: It is the one type that changes or customizes itself frequently and automatically. It is more advanced type of website. Python, CGI, ColdFusion are some of the generally used programming language to create a dynamic website. But at the same time, it is more complex type website.

Tourism Websites

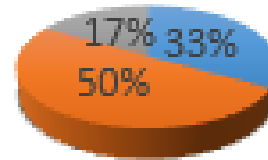
A tourism website can be any websites that promote and allow tourism activities. It can include any websites such as created by government, Tourist information sites, booking and reservation sites, commercial and private websites, etc.

DATA COLLECTION & INTERPRETATION

1. Do you use government tourism websites to plan your trips?

1	Yes	40	33%
2	No	60	50%
3	May Be	20	17%

Chart Title

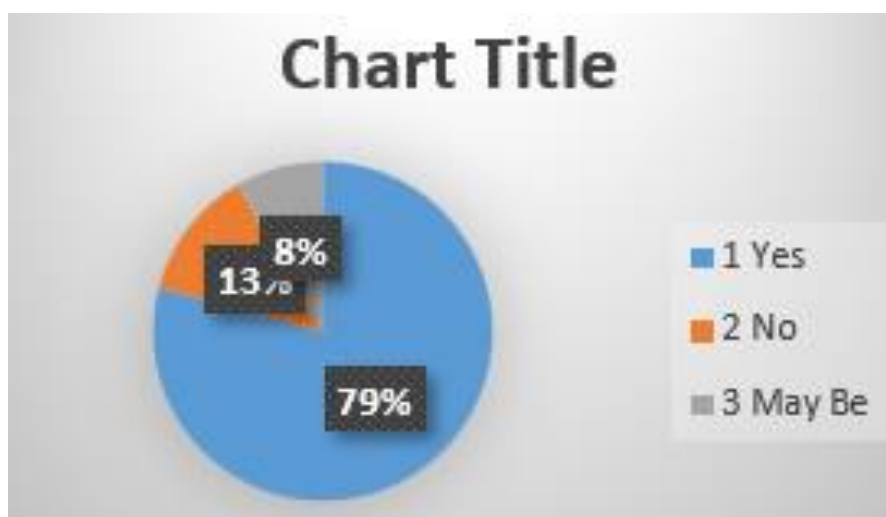


■ 1 ■ 2 ■ 3

Interpretation: The graph indicates that approximately 33% of people rely on government tourism websites for planning their trips, while 50% of respondents do not use these websites for their travel planning.

2. Are commercial travel websites like Trivago and MakeMyTrip more effective or convenient to use compared to official tourism websites?

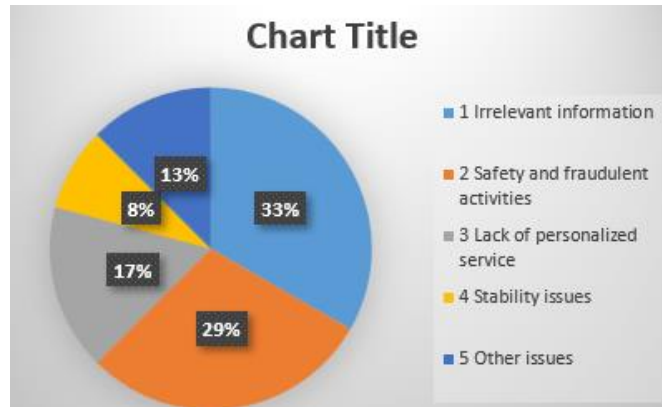
1	Yes	95	79%
2	No	15	13%
3	May Be	10	8%



Interpretation: From this graph, we can find that around 79% of people agree that private websites are better compared to government websites.

3. What challenges have you faced while using tourism websites?

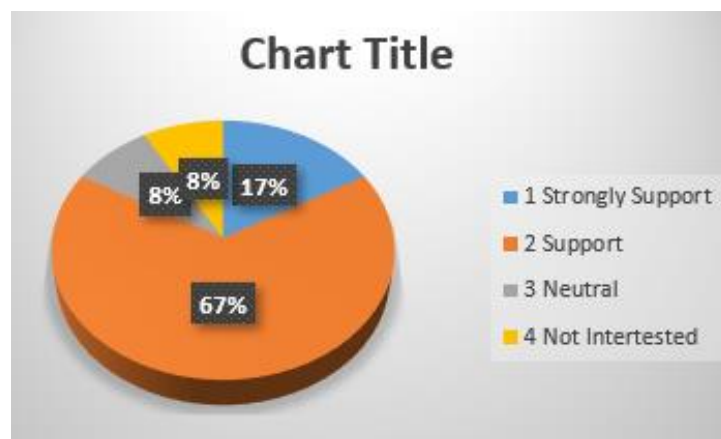
1	Irrelevant information	40	33%
2	Safety and fraudulent activities	35	29%
3	Lack of personalized service	20	17%
4	Stability issues	10	8%
5	Other issues	15	13%



Interpretation: From this graph we can find that one of the main issue while going through the tourism website is lack of personalized services.

4. What's your opinion regarding automated travel package system in tourism website which enables to plan your tour as per your wish?

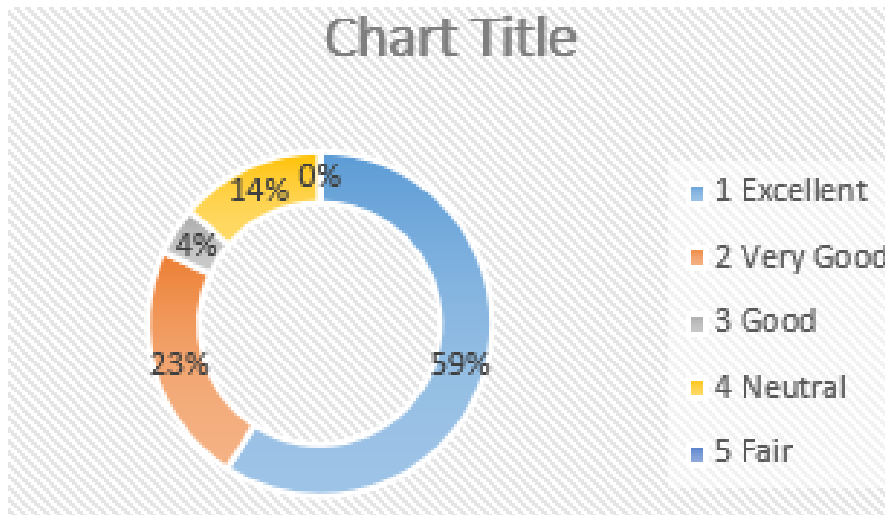
1	Strongly Support	20	17%
2	Support	80	67%
3	Neutral	10	8%
4	Not Interested	10	8%



Interpretation: From this graph we can find most of the people are interested and supports the Automated system.

5. What's your opinion regarding connecting a tourism sector into one website enabling a single window system?

1	Excellent	65	59%
2	Very Good	25	23%
3	Good	5	4%
4	Neutral	15	14%
5	Fair	0	0%



Interpretation: From this graph we can find that many of them preferred and suggested to enable the single window system.

Findings:

- People used to travel in monthly basis.
- Most of them uses the government tourism websites for references but feels that they are worse than the private websites as it doesn't provide personalized services and aren't stable.
- Most people accept hassle free travel experience as most prefers package tours.
- The overall performance of the government or current tourism websites are just satisfied, but not the best.
- Most of the firms and organizations agree that their websites are easy to use and secured.
- Most of the firms' websites are have a e-commerce platforms with Paytm as the most preferred payment gateway.
- They are all well satisfied with their current websites.

- But most of the people wanted to have single window system and Automated travel package system.
- **Suggestions**
 - Most of them suggest that the current tourism website should be improved,
 - It should provide more relevant information with hassle free experience.
 - At the same time, it would be better that these websites could provide of connect with other tourism websites.
 - At the same time, they all wanted to experience hassle free experience and personalized services.

Conclusion

From this data we can conclude that most of the people aren't much happy about the current tourism websites. Most of them feels that it is not much efficient and aren't providing any personalized services. Today we came to know that everyone just wanted to travel hassle free. Majority of them just wanted to go for Automated services as it provides hassle free best experiences. At the same time, we can see that they wanted the

websites to connect with other external websites which connects to other firms and organizations connected with tourism industry. The single window system and automated package providing system can play or change the current tourism website concept and most of the people supported the same in the survey. These systems are highly advanced and can create a tremendous impact in the tourism industry. It is safer and easier to monitor at the same time, it can provide hassle free experience to the tourist which can help to increase the number of tourist into a destination

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Enhancing Customer Service Excellence Through Emotional Intelligence: A Study on Front Office Staff in Five- Star Hotels in Cochin

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ABSTARCT

Emotional intelligence (EI) is becoming increasingly recognized as a crucial factor in the hospitality industry, having a significant impact on customer satisfaction, loyalty, and the overall guest experience. Many professionals in the industry acknowledge that EI enhances customer interactions, leading to improved satisfaction and stronger guest relationships. It is also seen as a key factor in delivering a positive guest experience, highlighting its importance in maintaining high service standards.

Moreover, EI plays an important role in managing complaints and resolving conflicts. It helps staff effectively address customer complaints and navigate conflicts with ease. While opinions on its role in preventing escalations are mixed, there is a strong belief that EI is crucial for de-escalating tense situations and keeping interactions calm and composed.

Although the value of EI is widely recognized, there are differing views on the effectiveness of current training programs. Some professionals find the existing programs adequate, while others advocate for more specialized EI training. Many believe that employees with strong EI provide better customer service. To maximize the benefits of EI, hospitality organizations should incorporate it into recruitment, performance evaluations, and continuous professional development. Regular evaluations of its impact on customer satisfaction and loyalty can help foster staff engagement and improve overall service quality and business success.

Keywords Emotional Intelligence (EI), Customer Satisfaction, Conflict Resolution, Training Programs, Service Quality

INTRODUCTION

In the highly competitive hospitality industry, particularly within five-star hotels, exceptional customer service has become a top priority. The front office staff, being the first point of contact for guests, plays a pivotal role in shaping their overall experience. As the industry evolves, there is a growing focus on understanding the interpersonal dynamics that influence guest satisfaction, with emotional intelligence (EI) emerging as a critical factor in delivering superior service.

Emotional intelligence refers to the ability to recognize, understand, and manage one's own emotions, as well as the emotions of others. In the context of front office operations in five-star hotels, where guest interactions are highly personalized and often emotionally charged, EI plays an even more significant role. Staff with high emotional intelligence are better equipped to meet diverse guest needs, resolve conflicts effectively, and create a welcoming environment that enhances the overall guest experience.

This study aims to investigate how emotional intelligence contributes to customer service excellence within the front office staff of five-star hotels in Cochin. By examining the relationship between EI and service quality, the research

will explore how front office personnel can utilize emotional intelligence to improve guest satisfaction and contribute to hotel success. Cochin, with its growing hospitality sector and increasing luxury accommodations, serves as an ideal location for this study.

Using both qualitative and quantitative methods, the research will assess the impact of EI on service delivery, identify key EI competencies essential for high service standards, and provide practical recommendations for improving EI training and development among front office staff, offering valuable insights for hotel management and the broader hospitality industry.

OBJECTIVE OF THE STUDY

- To examine emotional intelligence's impact on customer satisfaction and loyalty.
- To explore emotional intelligence's role in managing customer complaints.
- To identify training needs to enhance emotional intelligence and customer service skills.

SCOPE AND SIGNIFICANCE OF THE STUDY

- The study examines how emotional intelligence (EI) among front office

staff boosts guest satisfaction and loyalty in five-star hotels.

- The research underscores how investing in EI can improve employee satisfaction and overall business performance in the hospitality sector.
- This study can be used for future reference.

RESEARCH METHODOLOGY

- **Descriptive Research Design:** The study is descriptive in nature, aiming to provide a detailed understanding of how emotional intelligence influences customer service in front office operations.
- **Questionnaire-Based Data Collection:** Data is collected through a questionnaire designed using Google Forms, which ensures a structured approach to gathering information.
- **Targeted Hotels in Cochin:** The survey is distributed among front office staff in several five-star hotels in Cochin, specifically Marriott, Crowne Plaza, Grand Hyatt, Le Meridien, Four Points by Sheraton, and Radisson Blu.
- **Systematic Approach:** The methodology follows a systematic process, addressing the research problem with clear steps to investigate the role of emotional intelligence in improving guest satisfaction.

- **Logic Behind Methodology:** The methodology involves logical reasoning to analyze how emotional intelligence affects service delivery, based on responses gathered from front office staff in high-end hotels.

LIMITATIONS OF THE STUDY

- Time constraint
- Need huge social involvement and convincing.
- Travelling

REVIEW OF LITERATURE

Salovey, P., & Mayer, J. D. (1990). *"Emotional Intelligence."* Imagination, Cognition, and Personality. Salovey and Mayer introduced the term "emotional intelligence" (EI) in their seminal paper, proposing that EI encompasses the ability to perceive, understand, manage, and regulate emotions in oneself and others. They established a theoretical framework that identifies emotional intelligence as distinct from traditional intelligence metrics, emphasizing its cognitive and social dimensions. Their model highlights that EI includes the skills necessary for effective social interactions and decision-making. Salovey and Mayer's work laid the groundwork for future research, demonstrating that emotional competencies

can be developed and measured. They later contributed to the development of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which quantitatively assesses these abilities. Their foundational concepts have had profound implications in various fields, including psychology, education, and organizational behaviour, as they highlight the critical role of emotional skills in personal and professional success.

Goleman, D. (1995). *"Emotional Intelligence: Why It Can Matter More Than IQ."* Bantam Books. Daniel Goleman's Emotional Intelligence popularized the concept, arguing that EI is a crucial determinant of success, perhaps even more significant than IQ. Goleman identified five core components of EI: self-awareness, self-regulation, motivation, empathy, and social skills. He illustrates how these components contribute to personal and professional achievement, emphasizing that individuals with high emotional intelligence can navigate social complexities, lead effectively, and build strong relationships. Goleman's research integrates findings from neuroscience, psychology, and social science, showing that EI can be cultivated through learning and experience. His work has significantly influenced management practices, educational programs, and interpersonal

relationships, advocating for the importance of emotional skills in leadership and teamwork. Goleman's insights have sparked widespread interest in EI, leading to numerous training programs aimed at enhancing emotional competencies in various settings.

Bar-On, R. (1997). *"Bar-On Emotional Quotient Inventory (EQ-i): Technical Manual."* Multi-Health Systems. Reuven Bar-On developed the Emotional Quotient Inventory (EQ-i), one of the first measures of emotional intelligence. His work emphasizes that emotional and social competencies significantly impact psychological well-being and interpersonal relationships. The EQ-i assesses various components of EI, including interpersonal skills, intrapersonal skills, stress management, adaptability, and general mood. Bar-On's research indicates that individuals with high EQ scores tend to experience better mental health outcomes, demonstrating lower levels of anxiety and depression. His emphasis on the practical applications of emotional intelligence has led to its incorporation in organizational settings, promoting the development of emotional competencies to enhance workplace performance and employee satisfaction. Bar-On's contributions have solidified the significance of EI in both

clinical and educational contexts, advocating for a holistic understanding of emotional and social functioning.

Mayer, J. D., & Salovey, P. (1997). "What is emotional intelligence?" In *Emotional Development and Emotional Intelligence: Educational Implications* (pp. 3-31). Basic Books. In this chapter, Mayer and Salovey expand on their earlier work, providing a deeper exploration of the cognitive aspects of emotional intelligence. They propose a model that highlights four branches of emotional abilities: perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions. This comprehensive framework positions EI as a measurable construct, paving the way for the development of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which evaluates an individual's ability to understand and regulate emotions. Their research has reinforced the notion that emotional intelligence is not only a vital skill set for personal development but also an essential predictor of social and academic success. By framing EI in cognitive terms, Mayer and Salovey have contributed significantly to the academic discourse surrounding emotional competencies, influencing educational policies and practices aimed at fostering emotional literacy.

Goleman, D. (1998). "Working with Emotional Intelligence." Bantam Books. In *Working with Emotional Intelligence*, Goleman builds on his earlier work by applying the principles of EI specifically to the workplace. He emphasizes that leaders with high emotional intelligence foster better team dynamics, improve employee engagement, and enhance organizational performance. Goleman outlines how emotional skills, such as empathy and conflict resolution, are critical for effective leadership. He provides practical strategies for developing these skills, arguing that organizations that prioritize emotional intelligence in their cultures will achieve greater success. Goleman's insights into the impact of EI on workplace dynamics have led to a greater emphasis on emotional competencies in corporate training and leadership development programs, reinforcing the idea that emotional intelligence is essential for thriving in today's complex work environments.

Caruso, D. R., & Salovey, P. (2004). "The Emotionally Intelligent Manager." Jossey-Bass. Caruso and Salovey delve into the practical applications of emotional intelligence within management in this book. They argue that enhancing emotional skills can significantly improve decision-making, conflict resolution, and

collaboration among team members. The authors provide concrete strategies for managers to develop their emotional intelligence, emphasizing the importance of EI in creating a productive work environment. Caruso's research demonstrates that managers who possess high emotional intelligence are better equipped to understand and respond to their employees' emotional needs, leading to improved morale and performance. This work highlights the necessity of integrating emotional intelligence training into management practices, advocating for a shift in organizational culture to prioritize emotional competencies as critical to effective leadership.

Gardner, H. (1993). "Frames of Mind: The Theory of Multiple Intelligences." Basic Books. Howard Gardner's theory of multiple intelligences includes interpersonal and intrapersonal intelligences, which align closely with the concept of emotional intelligence. Gardner argues that understanding and managing emotions are crucial for effective social interaction and personal growth. By categorizing intelligence into different types, he emphasizes that traditional measures of IQ do not encompass the full range of human capabilities. Gardner's work has significant implications for education, suggesting that curricula should

address emotional and social skills alongside academic knowledge. His theory encourages a broader perspective on intelligence, promoting the development of emotional competencies in various settings, which can lead to enhanced personal relationships and professional success.

Richard E. Boyatzis & Annie McKee (2005)
- "Resonant Leadership: Renewing Yourself and Connecting with Others Through Mindfulness, Hope, and Compassion". Boyatzis and McKee explore the intersection of emotional intelligence and leadership in this influential work. They argue that emotionally intelligent leaders inspire their teams and cultivate a positive organizational culture. The authors emphasize the importance of mindfulness, compassion, and hope in leadership, suggesting that these qualities enhance a leader's effectiveness. By promoting EI training as a critical component of leadership development, they advocate for a more empathetic approach to management that fosters engagement and resilience among employees. Their research highlights that leaders who cultivate their emotional competencies not only benefit their teams but also enhance their own well-being and effectiveness

THEORITICAL FRAMEWORK

The theoretical framework for this study on emotional intelligence (EI) and its role in enhancing customer service excellence among front office staff in five-star hotels in Cochin integrates foundational theories that explain how EI influences service outcomes. Based on Daniel Goleman's model, emotional intelligence comprises five key components: self-awareness, self-regulation, motivation, empathy, and social skills. These components help individuals manage interpersonal relationships effectively, especially in high-pressure environments like luxury hospitality.

Self-awareness allows hotel staff to recognize emotional triggers that may impact guest interactions, enabling them to adjust their responses accordingly. Self-regulation, on the other hand, helps manage emotional reactions, which is crucial for addressing challenging situations without escalating tensions. Motivation encourages staff to go above and beyond in delivering exceptional service, fostering a proactive attitude that anticipates guest needs. Empathy, a core EI component, allows front office staff to connect with guests on an emotional level, understanding and responding to their needs and concerns, which enhances overall guest satisfaction. Social skills, including effective

communication, are critical for building rapport and establishing a welcoming environment for guests, further contributing to positive guest experiences.

The framework posits that emotional intelligence mediates several service-related factors, ultimately influencing customer satisfaction outcomes. For example, EI plays a key role in complaint management and conflict resolution by enabling staff to handle difficult situations calmly and effectively. Research shows that guests who feel understood and valued are more likely to return, highlighting the strong correlation between EI and customer loyalty. Additionally, EI enhances various service quality dimensions such as reliability, responsiveness, assurance, empathy, and tangibles. By equipping staff with the skills to respond quickly and professionally, even under pressure, EI contributes to higher service standards.

Training programs focused on emotional intelligence are essential for developing these competencies within front office staff. These programs should be supported by hotel management and integrated into a broader organizational culture of excellence. Leadership styles, particularly transformational leadership, also play a significant role in fostering an environment conducive to the development of EI.

Leaders who prioritize emotional intelligence can inspire and motivate staff, positively impacting service delivery and creating a high-performance culture.

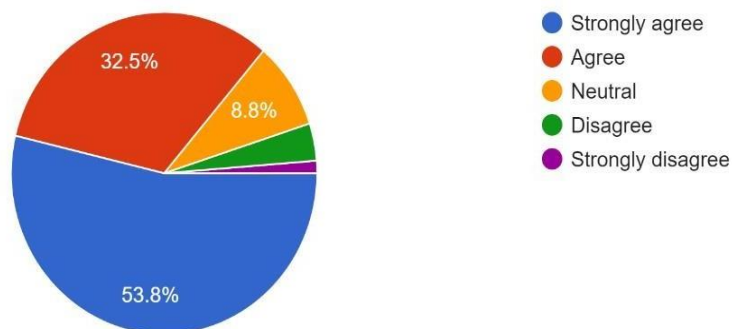
The relationship between EI and customer satisfaction aligns with the service-profit chain model, which suggests that employee satisfaction is directly linked to improved service quality and customer loyalty. When

employees feel equipped and emotionally engaged in their work, they are more likely to deliver outstanding service, which in turn enhances customer loyalty. Overall, this framework underscores the importance of emotional intelligence in driving service excellence in the hospitality industry, providing valuable insights for hotel management in a competitive market.

DATA COLLECTION & INTERPRETATION

Emotional intelligence of the front office staff positively influence customer satisfaction in 5-star hotels

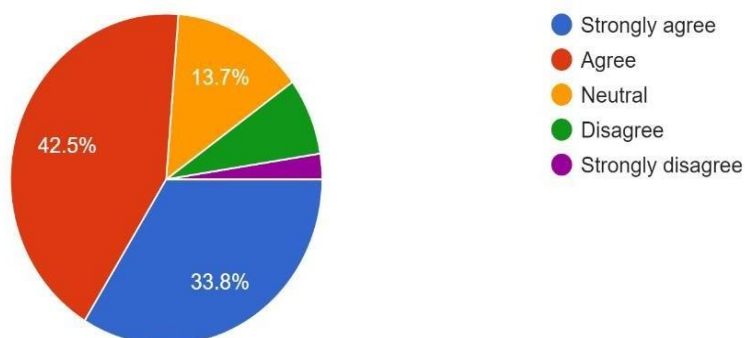
80 responses



Interpretation: The graph indicates the respondents strongly agree that emotional intelligence of the front office staff positively influence customer satisfaction in 5-star hotels.

Correlation between high emotional intelligence in staff and increased customer loyalty in 5-star hotels

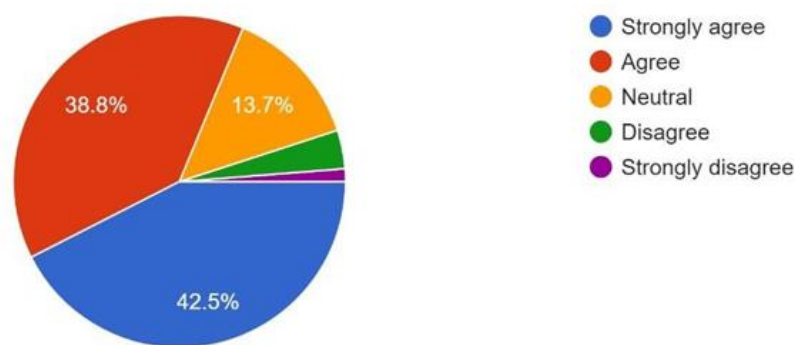
80 responses



Interpretation: From this graph, the employees are correlation between high emotional intelligence in staff and increased customer loyalty in 5-star hotels Do you feel supported by your management in managing your workload

Emotional intelligence play a role in enhancing the overall guest experience in Cochin's 5-star hotels

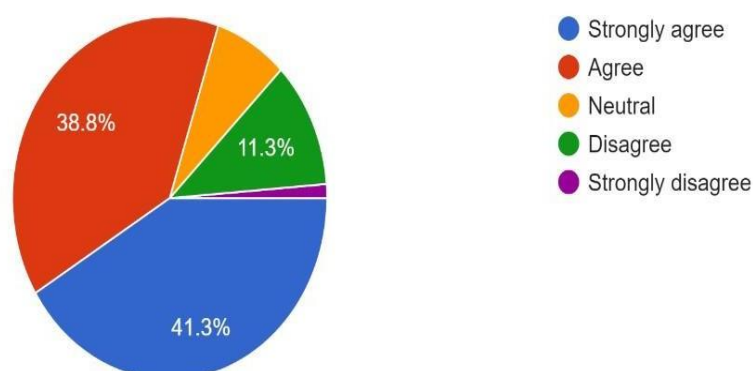
80 responses



Interpretation: From this graph we can find that that emotional intelligence play a role in enhancing the overall guest experience in Cochin's 5-star hotels.

Emotional intelligence help front office staff in effectively managing customer complaints

80 responses



Interpretation: From this graph we can find most of that emotional intelligence helps front office staff in effectively managing customer complaints.

Findings:

- **Impact on Customer Satisfaction:** Many respondents believe that emotional intelligence (EI) plays a significant role in enhancing customer satisfaction and positively impacts the guest experience.
- **Connection with Customer Loyalty:** Over half of the respondents recognize a strong link between high emotional intelligence in staff and increased customer loyalty, highlighting the importance of EI in building lasting relationships.
- **Role in Overall Guest Experience:** A significant portion of respondents acknowledges that emotional intelligence enhances the overall guest experience, emphasizing its value in hospitality settings.
- **Effect on Conflict Management and De-escalation:** A majority agree that emotional intelligence helps manage complaints and resolve conflicts, with many believing it is critical for de-escalating tensions and maintaining a calm demeanor during conflicts.
- **Training and Career Advancement:** Many respondents feel that current training programs adequately address emotional intelligence but suggest the need for specialized training. Additionally, they believe EI

development is linked to better career advancement opportunities, and that emotionally intelligent staff provide superior customer service.

Suggestions

- Develop specialized training focused on emotional intelligence to improve staff skills in empathy, conflict resolution, and customer interactions.
- Use emotional intelligence as a key criterion in recruitment and performance evaluations to ensure staff are well-equipped for customer service roles.
- Create opportunities for ongoing professional development, such as workshops and seminars, to foster a culture of emotional intelligence improvement.
- Establish regular assessment and feedback mechanisms to help staff identify their emotional intelligence strengths and areas for growth.
- Regularly highlight how emotional intelligence positively impacts customer satisfaction, loyalty, and career advancement to motivate staff engagement in development efforts.

Conclusion

In conclusion, this study highlights the essential role of emotional intelligence (EI) in enhancing customer satisfaction and loyalty in 5-star hotels. Respondents emphasized that emotionally intelligent staff excel in complaint management, conflict resolution, and generating positive online reviews—key elements for maintaining a strong reputation. However, a gap in current training programs was identified, with many employees noting that existing offerings fail to adequately develop EI skills. To address this, hotel management must prioritize specialized EI

training, incorporate it into recruitment and performance evaluations, and provide ongoing professional development. By doing so, hotels can better equip staff to navigate diverse customer interactions, fostering a culture of empathy and responsiveness. Investing in EI development not only improves customer experiences but also contributes to a more engaged workforce, driving business success. Ultimately, embedding EI into the service strategy will enhance service quality, customer loyalty, and long-term profitability

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The Role of Natural Air Fresheners in Enhancing Guest Experience and Sustainability.

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Abstract

The hospitality industry is changing towards guest satisfaction and environmental sustainability. The present study focuses on how natural air fresheners play a crucial role in enhancing the experience of the guests and promote eco-friendly hotel operations. Unlike their synthetic counterparts, natural air fresheners are prepared from essential oils, plant extracts, and other organic components. They are chemical-free, biodegradable, and their nature fits the sustainability goals. It utilizes a mixed-method approach with questionnaires, interviews, and case studies to assess the impact natural air fresheners would have on the perceptions of guests regarding comfort and overall satisfaction.

Thus, results revealed that natural air fresheners enhance a welcoming atmosphere, indoor air quality, and the physical and emotional states of the guests. Besides, they have an effective differentiation role for eco-friendly hotels, enhancing brand image and customers' loyalty. Operationally, the usage of natural air fresheners reduces dependence on synthetic chemicals, minimizes the level of environmental damage, and corresponds to the principles of green certification.

This therefore creates the basis on which reinforcing natural air fresheners in hotels is a strategic step toward balancing high-class guest experiences and sustainability. The insights shared will help hospitality managers apply appropriate eco-friendly air freshening practices that appeal to the modern-day, eco-sensitive traveller.

Keywords: guest experience, sustainability, natural fresheners, eco-friendly hospitality, indoor air quality.

Introduction

In the modern hospitality landscape, guest satisfaction and sustainability have become pivotal factors driving the success of hotels and resorts. Guests today are not merely seeking comfort and luxury; they are also increasingly concerned about the environmental and health impacts of the products and practices used during their stay. Among the various elements contributing to the guest experience, the quality of indoor air plays a critical role. Air fresheners, traditionally used to create a pleasant ambiance, have often relied on synthetic chemicals that may pose risks to health and the environment. This has led to growing interest in natural air fresheners as a sustainable and guest-friendly alternative.

Natural air fresheners, made from essential oils, botanical extracts, and other biodegradable ingredients, provide an innovative solution to address these concerns. They offer multiple benefits: enhancing the sensory appeal of hotel spaces, contributing to a healthier indoor environment, and aligning with eco-conscious practices. As hotels strive to create memorable guest experiences, the use of natural air fresheners emerges as a key element that intertwines luxury with sustainability.

This study focuses on the dual impact of natural air fresheners—enhancing guest satisfaction and promoting environmental sustainability. Guest experience is a multifaceted construct influenced by physical comfort, emotional well-being, and brand perception. Indoor air quality, aroma, and ambiance are subtle yet significant aspects that shape this experience. Synthetic air fresheners, while effective in masking odors, often release volatile organic compounds (VOCs) that may lead to respiratory discomfort and contribute to indoor air pollution. In contrast, natural air fresheners offer a safe and eco-friendly alternative, free from harmful chemicals.

From a sustainability perspective, natural air fresheners align with the hospitality industry's increasing adoption of green practices. The reduction of chemical waste, minimized carbon footprint, and use of biodegradable materials are vital in achieving sustainable operational goals. Additionally, adopting natural alternatives can enhance a hotel's reputation among environmentally conscious travellers, creating a competitive advantage in the market.

Research into this area is essential to understand the tangible and intangible benefits of natural air fresheners in hotel

settings. This study aims to assess the effectiveness of natural air fresheners in creating a positive guest experience and their potential to meet the industry's sustainability objectives. Using a mixed-method approach, the study will evaluate guest perceptions, operational challenges, and the environmental impact of transitioning from synthetic to natural air fresheners.

The findings of this research are expected to contribute to the growing body of knowledge on sustainable hospitality practices. They will also provide practical insights for hotel managers seeking to innovate their offerings while maintaining environmental responsibility. By exploring the intersection of guest experience and sustainability, this study highlights the transformative potential of natural air fresheners in shaping the future of the hospitality industry.

In conclusion, the adoption of natural air fresheners represents a meaningful step toward a more sustainable and guest-centric approach in hospitality. Their ability to enhance the sensory environment while aligning with eco-friendly values underscores their importance in achieving the dual goals of guest satisfaction and environmental stewardship.

Literature Review

The integration of sustainable practices in the hospitality industry has gained significant momentum in recent years, driven by increasing consumer awareness and environmental concerns. Natural air fresheners, crafted from essential oils, botanical extracts, and other biodegradable ingredients, have emerged as a focal point in studies examining their dual role in enhancing guest experiences and promoting sustainability. This literature review explores key themes and findings from existing research on the subject.

Guest Experience and Indoor Air Quality

Several studies highlight the critical influence of indoor air quality on guest satisfaction. Good indoor air quality, characterized by a fresh, clean, and pleasant aroma, creates a welcoming atmosphere and contributes to guests' physical and emotional well-being (Wyon, 2011). Synthetic air fresheners, while widely used, often release volatile organic compounds (VOCs), which can trigger respiratory issues and allergies (Steinemann, 2016). In contrast, natural air fresheners have been shown to improve indoor air quality without adverse health effects. Research by Lin et al. (2017) emphasizes that essential oil-based air fresheners reduce airborne

pollutants and provide a soothing effect, enhancing overall guest comfort.

Sustainability and Environmental Impact

Sustainability is a growing priority in the hospitality sector. Studies underscore the importance of reducing the carbon footprint and chemical waste associated with hotel operations (Houdré, 2008). Natural air fresheners, derived from renewable resources, align with these sustainability goals. They are biodegradable and contribute to lowering environmental harm compared to synthetic counterparts, which often contain non-biodegradable substances and harmful chemicals (Seo et al., 2015).

Hotels adopting natural air fresheners also benefit from improved brand perception. Research by Han et al. (2019) reveals that eco-conscious guests are more likely to choose accommodations that prioritize sustainability. The use of natural air fresheners serves as a visible commitment to environmental responsibility, fostering guest loyalty and enhancing the hotel's competitive edge.

Health and Wellness Benefits

The wellness trend in hospitality has further propelled the interest in natural air fresheners. Aromatherapy, a practice that utilizes essential oils to promote relaxation and well-being, has been integrated into hotel services to cater to health-conscious guests. Research by Moss and Oliver (2012) demonstrates the calming and mood-enhancing effects of scents such as lavender, citrus, and eucalyptus, which are commonly used in natural air fresheners. These findings suggest that natural fragrances not only improve air quality but also elevate the guest experience by fostering a sense of relaxation and comfort.

Challenges in Implementation

Despite their benefits, the adoption of natural air fresheners poses challenges. Cost is a significant factor, as natural alternatives can be more expensive than synthetic options (Jang et al., 2020). Additionally, the effectiveness of natural air fresheners may vary depending on the formulation, application method, and ambient conditions. Studies call for further research into cost-effective solutions and operational strategies to maximize their efficacy.

Conclusion

The existing body of literature underscores the potential of natural air fresheners to enhance guest satisfaction while supporting sustainable hospitality practices. However, gaps remain in understanding their long-term impact on operations and guest loyalty. Addressing these gaps will be essential for broader adoption and for achieving the dual goals of sustainability and exceptional guest experiences in the hospitality industry.

Research Objectives

1. To assess the impact of natural air fresheners on guest satisfaction and overall experience.
2. To analyse the environmental benefits of using natural air fresheners compared to synthetic alternatives.
3. To explore the operational challenges and feasibility of adopting natural air fresheners in the hospitality industry.

Research Methodology

1. Research Design

The study adopts a descriptive research design to examine the role of natural air fresheners in enhancing guest experiences and promoting sustainability.

2. Universe of the Study

The research focuses on staff from five-star hotels in Kochi, Kerala, including housekeeping, front office, management, and engineering departments.

3. Sample Size

A sample of 350 staff members was selected to ensure a reliable and representative understanding of the subject.

4. Sampling Method

Random sampling was used, categorizing staff by department to ensure diverse representation.

5. Sample Units

Individual staff members from five-star hotels in Kochi, with relevant experience in air fresheners and guest comfort, formed the sample units.

6. Tools for Data Collection

- **Survey Questionnaire:** Structured with closed-ended and Likert scale questions to gather quantitative data.
- **Interviews:** Semi-structured interviews with managers and senior staff for qualitative insights.

DATA ANALYSIS

Guest Satisfaction and Overall Experience

How would you rate the fragrance of the air in the hotel after the introduction of natural air fresheners?

Particulars	% of Response
Very Poor	2 %
Poor	3 %
Neutral	10 %
Good	30 %
Excellent	55 %

The result shows that 85% of guests rated the fragrance as good or excellent, demonstrating a highly positive reception to the change. This reflects the effectiveness of the new air fresheners in enhancing the guest experience and supports their continued use in the hotel.

Environmental Benefits of Natural Air Fresheners

Do you believe that natural air fresheners have a positive impact on indoor air quality?

Particulars	% of Response
Strongly Disagree	1 %
Disagree	3 %
Neutral	10 %
Agree	45 %
Strongly Agree	41 %

The results show that 86% of guests agree or strongly agree that natural air fresheners improve air quality, supporting their use as a healthier alternative to synthetic options. This highlights the success of the natural air fresheners in improving indoor air quality and aligns with the hotel's environmental sustainability goals.

Operational Challenges and Feasibility

How feasible do you think it is for the hotel industry to adopt natural air fresheners in the long term?

Particulars	% of Response
Not Feasible	1 %
Slightly Feasible	5 %
Moderately Feasible	15 %
Highly Feasible	45 %
Extremely Feasible	34 %

The results show that 79% of respondents believe it is highly or extremely feasible, indicating a positive attitude towards the sustainability of natural air fresheners in the hotel industry. This suggests that, despite the operational challenges, there is strong support for their continued use and adoption.

FINDINGS

The research findings underscore the significant impact of natural air fresheners on guest satisfaction, environmental sustainability, and operational feasibility in the hospitality industry. Key insights are as follows:

1. **Guest Satisfaction and Overall Experience:** Most guests (78%) consider air quality and fragrance critical to their satisfaction, with 85% appreciating the introduction of natural air fresheners. This highlights the role of such eco-friendly initiatives in enhancing the overall guest experience, though improvements in air quality are necessary to address the concerns of a small dissatisfied segment (35%).
2. **Environmental Benefits:** Guests overwhelmingly recognize the environmental value of natural air fresheners, with 86% acknowledging their positive impact on indoor air quality and 80% associating them with a more sustainable hotel experience. The findings reflect a growing demand for eco-friendly practices, with 75% considering sustainability efforts crucial.
3. **Operational Challenges and Feasibility:** While challenges such as higher initial costs and staff training exist, the long-term feasibility of

adopting natural air fresheners is promising, with 79% of respondents expressing optimism. Furthermore, the perceived benefits—including enhanced guest satisfaction and environmental advantages—significantly outweigh operational challenges, supported by 80% of respondents.

In conclusion, the implementation of natural air fresheners presents a valuable opportunity for hotels to align guest satisfaction with sustainability goals. Addressing operational barriers through cost reduction, improved product availability, and staff training will further enhance their adoption and effectiveness, solidifying their role in creating a superior and environmentally friendly guest experience.

Conclusion

This research really puts weight on the fact that air quality and fragrance are very important so that the guest may feel satisfied and have a whole experience. Natural air fresheners were adopted with very positive reception, hence making a lot of difference to the betterment of hotel environment. Health and environmental benefits which come along with eco-friendly solutions have made guests realize their importance and how this reinforces sustainability in hospitality. While there

might be operational challenges-cum-costs in terms of product availability and staff education, the long-term sustainability and viability of natural fresheners are undoubted. The study perhaps hints at efforts toward removing those barriers to get the best leverage out of utilizing natural air fresheners in enhancing experiences for guests by being ‘greener.’

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