

Multiplex Sustainability-Uncovering a more environment friendly industry

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Abstract

The interest in sustainability has increased dramatically in recent days and it is not limited to hospitality and tourism related industry. This paper aims to examine closely about Multiplex sustainability which refers to the environmental and social responsibility aspects of managing and developing multiplexes.

The purpose of this study is to identify the sustainable practices followed in multiplexes across the country. Environmentally, multiplex sustainability incorporates energy-efficient systems, environmentally conscious materials, and green technologies to minimize the ecological footprint of the building. It promotes the use of renewable energy sources, waste reduction strategies, and water conservation measures, aiming to create structures that are both resource-efficient and environmentally friendly.

In summary, the theoretical framework provides an understanding of sustainable practices, challenges and preview of saving cost by saving environment. multiplex sustainability is a comprehensive framework that balances environmental, economic, and social goals to create multifunctional buildings that are resilient, efficient, and community-oriented.

Keywords-Multiplex, Sustainability, Environment, carbon footprints, conservation

1. Introduction

Sustainability is the capacity to provide the basis for human needs now and in ways that allow for the future generations to have those needs met. It balances environmental health, economic viability, and social equity. The concept is often broken down into three main pillars:

- **Environmental sustainability:** The sustainable use of natural resources to maintain or conserve these, which considers reduced pollution, biodiversity preservation, and actions such as the popularization of renewable energy sources.
- **Sustainable Economics:** Economic systems to support perpetual economic expansiveness that can support improvement in environmental and social factors without adverse effect, through fair trade, responsible investment, and innovation that benefits society.
- **Social sustainability:** The promotion of human welfare through provisions for fair treatment, equality, and important needs such as education, healthcare, and employment. It also relates to respect for human rights and cultural diversity.

(Aleckal & Sarode, 2019) states that Sustainability, in all of its forms, becomes one of the undercurrents that lead to concerns.

Since millions of customers are becoming more interested in sustainability and green practices, which is impacting how they spend their money, these topics have been on the public agenda for a time. We are aware that managing a theatre involves juggling a lot of different aspects of the business, and staying on top of everything is never easy.

So, for this reason, in our opinion, technology should support more sustainable activities and a more sustainable future by making Film industry more frugal and ecologically conscious.

David Hancock, Chief Analyst for Film and Cinema at Omdia, who spent several months researching and writing

the recent report Sustainable Film and Cinema: Towards Net Zero, states that "under Scope 3 emissions, companies' carbon output will be evaluated based on both their direct and indirect production, so it is important for them to understand how their supply and customer chain is set up." It will be crucial to handle trash, pollution, and energy in addition to carbon emissions holistically.

The Global Sustainable Development Summit witnessed an engaging discussion on sustainability featuring Ms. Sangeeta Robinson, Chief Sustainability Officer of PVR INOX LIMITED. Ms. Robinson provided valuable insights into PVR Cinemas' approach to addressing ESG (Environmental, Social, and Governance) issues, shedding light on several noteworthy aspects. Also, how Cinema industry can contribute towards environment by adopting sustainability in the multiplex industry.

Of course, saving money and even lessening your carbon footprint aren't the main goals in the end. In the long run, it's also about safeguarding the environment and clearing the path for more sustainable behaviours, with the goal of accomplishing goals like the Sustainable Development Goals set forth by the UN. Therefore, we're looking at how technology aids waste and energy reduction in this piece, including anything from tiny tweaks to larger investments.

2. Literature review

Eggeling & Arnesson (2010) has stated in this paper that Green, ecologically friendly goods and services have seen a sharp rise in popularity recently. This trend extends beyond goods associated with travel. Thus, the aim of this research is to examine sustainability-related concerns in the hospitality sector in more detail. Since the term's sustainability, ecotourism, and sustainable tourism are frequently used synonymously, the theoretical foundation of this work clarifies related terminology. Additionally, the advantages of sustainable practices in the hotel sector are explored. The final section examines the function and significance of eco labelling.

Upadhyay et al(2013) highlights that in any industry, energy efficiency and sustainability are the main concerns. Energy use accounts for 3-6% of hotel operating expenses and 60% of CO2 emissions in the hospitality sector. This essay examines the several problems relating to energy use and sustainability in the hotel sector.

Mysuru et al (2015) discussed that a hotel is a service industry that provides paid accommodation, usually on a rental basis" is one definition of a hotel. In the Indian setting, hotels are synonymous with restaurants because the best dining establishments are in close proximity to hotels. The range and kind of services offered closely relates to the quality and price of hotels. An effective waste management system and environmental preservation are essential components of every hospitality enterprise" An Ecotel hotel is a novel idea in hotel design, Ecotel promises to conserve and preserve the environment.

Aleckal & Sarode (2019) demonstrates the qualitative technique of research, this study aims to provide an overview of the many cutting-edge sustainable practices utilised in the hospitality sector before providing a brief viewpoint on these practices' future possibilities. In the hospitality sector, innovation and sustainability can be combined to reduce environmental impact and produce value for all stakeholders. The hospitality sector must continue to thrive in 2019 by putting an emphasis on innovation to meet the diverse demands of today's tech-savvy Millennials. In order to provide for a comprehensive overall interpretation, secondary data sources including books, papers, journals, and news stories were consulted for this exploratory research project.

Meeroff et al (2020) has stated that the hospitality industry is starting to realise how much it stands to gain by adopting sustainability initiatives and refining its business practices to assist the travel and tourism industry's efforts to protect and conserve natural resources while maintaining visitor expectations. This study aims to determine the variables that impact or affect how well specific methods perform in terms of waste reduction, energy efficiency, water conservation, and air quality improvement. This study details the financial, environmental, and social behavioural effects of the sustainability initiatives that the participating hotels have put in place.

Dahlke et al (2021) has discussed that how this study uses High-end hotels as an example to examine how the sustainable development goals are being applied in light of the COVID-19 pandemic. Due to national and international regulations, hotel facilities were unable to operate at full capacity. Therefore, it was appropriate and crucial for the authors to look at how the establishments satisfied their own goals and adhered to sustainable development principles during this difficult time. The fact that many of the projects and activities carried out by the facilities under observation are covered by the UN Sustainable Development Goals (SDGs) or are not relevant to them due to the pandemic is one of the most important findings. The study's findings made it possible to clearly identify specific recommendations for the continuous enhancement of hotel services in keeping with the concept of sustainable development.

Oriade et al (2021) mentions that there is a lot of disagreement on the topic of sustainability and how to manage it in the hotel industry, and there is conflicting data to back up various claims. Using Situated Cognition (SC), this study investigates how organisational culture affects hotel practitioners' understanding of and use of sustainability. As far as management practices pertaining to sustainability are concerned, the study's findings indicate a strong relationship between employees' knowledge of sustainability and organisational culture. But organisational

culture simply serves as an intermediary in the relationship that exists between management and national sustainability consciousness. The study recommends that owner-managers should be aware of the need of building a solid organisational culture, particularly to support their efforts in managing employee empowerment and sustainability.

Sorrell & Bovia (2021) states that this paper aims to clarify sustainability within the hospitality sector and explore the various ways in which sustainability can be used to enhance hospitality operations and brands. The hospitality business may not be completely reaping the benefits of sustainability, despite the fact that its value is widely acknowledged. In order to help companies and property owners better understand the benefits of sustainability and use it as a differentiator to propel business recovery and growth, this paper examines the most relevant trends and best practices in the sector.

Lamba & Mohan (2023) states in recent years, A lot of hotel chains have made commitments to reduce their environmental impact by implementing eco-friendly practices, demonstrating the high focus that the hospitality sector has put on sustainability. Sustainable practices have two advantages for hotels: they increase resource efficiency and reduce expenses; also, they serve as a marketing tool to attract today's eco-aware travellers.

Khatter (2023) has used literature review as its main research approach, this study attempts to explore how hospitality businesses might start their journey towards environmental sustainability. The concept of environmental sustainability is examined in this study in relation to the hotel sector and its wide spectrum of stakeholders. The objective of this research is to ascertain the obstacles faced by the sector in achieving sustainability objectives and suggest possible approaches for cultivating a sustainable future. Environmental deterioration has resulted from a substantial growth in industrial activity in recent decades, particularly the hotel business, without proper regard for the repercussions on the environment. Concerns about environmental sustainability are shared by those involved in the hospitality sector, and a thorough grasp of its long-term improvements are required for the implications. Environmental sustainability is becoming increasingly important as the world's population grows, as does industrial activity, and as signs of climate change, environmental degradation, and global warming are noted. Businesses in the hospitality industry have made a significant effort in recent years to reduce the environmental impact of their operations. The challenges facing the hospitality industry in attaining environmental sustainability will be examined in this study. It will also suggest new approaches to improve customer satisfaction and service, build the organization's brand, and create new revenue streams and a competitive edge. The study's conclusions have ramifications for a wide range of hospitality industry stakeholders, including establishments, visitors, and other pertinent parties, in addition to the larger environmental context.

Singh et al (2023) All United Nations members adopted the 2030 Agenda for Sustainable Development in 2015. To achieve peace and prosperity for the world and its inhabitants, it seeks to forge international cooperation. The goal of the 17 SDGs is to improve everyone's quality of life in the globe by 2030. This study will assess how hotels, particularly SDG6, achieve the Sustainable Development Goals. Data from 57 hotels in the star category were gathered and examined in Rajasthan, India. The findings show that everyone's hygiene, sanitation, and water conservation made a substantial contribution to sustainable development. Research indicates that hotels with varying star ratings make distinct contributions to SDG 6 through the adoption of sustainable practices aimed at achieving the environmental SDGs.

Das (2018) highlighted that this article discusses the adoption of sustainable supply chain management strategies by manufacturing and process-oriented enterprises in India, and the subsequent effects on business performance in terms of sustainability. Sustainable supply chain management techniques are included in this study and are categorised as exogenous variables. Operations practices, supply chain integration, socially inclusive workplace practices, socially inclusive community practices, and environmental management practices are some of these approaches. This study examined five categories of company performance, which were considered to be endogenous variables: competitiveness, operations performance, community-centered social performance, employee-centered social performance, and environmental performance.

Madan Shankar et al.(2017) states that growing technological developments in the manufacturing industry are pressuring companies to reconsider and revamp their current processes in order to meet the demands of environmental concerns and globalisation. Manufacturers' priorities changed as a result of stakeholder pressure and growing customer awareness; in the modern corporate world, financial gains were no longer the top priority. Lean, green, agile, and sustainable manufacturing techniques are only a few of the creative approaches that were consequently introduced into the field of manufacturing systems. Although the major advantages of sustainable manufacturing have been highlighted recently with regard to the triple bottom line (social, environmental, and financial), most manufacturing strategies still only take into account one or two of these issues.

3. Research Methodology

4. This study is based on review of literature using secondary data collected from comprehensive literature and other published materials, Research papers from journals, Websites, Internet sources, govt. and non-govt. publications, Articles to develop a solid theoretical foundation based on empirical evidence.

This Study has a theoretical review of Secondary data to provide a conceptual framework towards the concept of Sustainability in multiplex industry.

5. Multiplex Sustainability

Multiplex sustainability refers to the integration of multiple sustainability principles into the development and operation of multiplex buildings, which are complex structures typically combining various functions such as residential, commercial, and recreational spaces. This concept emphasizes a holistic approach to environmental, economic, and social sustainability

5.1 What cinemas are doing to promote sustainability

In case of multiplex theatres, sustainability would be about eco-friendly practices right from construction, while operating to management so as to reduce the ecological cost of chains of multiplex cinema. Multiplexes are consumers of very large amounts of energy and resources because of enormous scale air conditioning, lighting, electronics, and use of disposables. Here are key ways multiplexes can adopt sustainable practices:

1. The Effort

The light sources are energy efficient, converting used electricity.

- **HVAC:** Energy-saving in this use, heating, ventilation, and air conditioning are recommended in order to reduce the use of energy while at the same time maintaining the audience in comfort.
- **Energy Smart Management:** Actions conducted through automation and sensors which turn off lights and air conditioners in uninhabited areas save energy.

2. Water Conservation

- **Low-flow Fixtures:** Conserving water requires installation of low-flow faucets, toilets, and urinals.
- **Harvesting Rainwater:** Multiplexes can be designed with rainwater harvesting systems, whereby the collected water could find uses for non-potable activities like cleaning and gardening.

3. Waste Management

- **Recycling Programs:** Promote the method of waste management using separate waste bins for paper, plastic, and aluminium.
- **opt for any disposable, or compostable, supplies instead.** Single-use plastics with alternatives that are biodegradable, compostable, or reusable include cups, straws, and popcorn bags.
- **Food Waste:** Work to decrease food waste by establishing a collaboration with groups for the donation or alternate use of leftover concession stand food.

4. Green Energy

- **Solar Panels:** These can power the multiplex using renewable resources, which should be established on the roof or parking structures.
- **Renewable Energy Credits (RECs):** Multiplexes can buy RECs, which will help zero out their electric use and underwrite further renewable projects.

5. Materials for Sustainable Construction

- **Green Building Certifications:** A new multiplex can be designed and constructed with LEED (Leadership in Energy and Environmental Design) or other green building standards. The use of sustainable materials, including recycled steel, low-VOC paints, and eco-friendly insulation, shall help reduce the environmental impact.
- **Insulating and double-glazed windows:** Properly insulated and double-glazed windows can greatly help in the reduction of heating and cooling demands.

6. Community Involvement and Awareness

- **Environment-friendly campaigns:** Marketing campaigns, posters, or short films to sensitize the audience on sustainability efforts.
- **Collaborations:** Partnerships with local organizations in environmental projects such as tree planting drives to depict support for the community.

7. Carbon Offsetting

Multiplex chains might compute their carbon footprints and make investments in initiatives that support carbon reduction, such as forestry, renewable energy, or other initiatives. Participating in such activities reduces multiplexes' detrimental environmental effects and integrates them into significant initiatives to combat climate change. Additionally, it may appeal to customers who are concerned about the environment and desire a more sustainable image.

5.2 Sustainable practices in PVR INOX limited

PVR Cinemas, one of India's largest multiplex chains, has been actively adopting sustainable practices in its operations to reduce its environmental footprint. As the cinema industry consumes significant energy and resources, implementing eco-friendly initiatives is crucial for reducing operational costs and appealing to environmentally conscious customers. Here are some key sustainable practices PVR Cinemas has adopted:

1. Energy Efficiency

- **LED Lighting:** PVR has implemented energy-efficient LED lighting across its multiplexes, which significantly reduces energy consumption compared to traditional lighting systems.
- **Smart Energy Management Systems:** Automated systems are used to control lighting, air conditioning, and other energy-intensive equipment. These systems ensure that energy is used efficiently and only when necessary, such as turning off lights and cooling systems in unused screens or during non-peak hours.
- **Energy-efficient Air Conditioning:** High-efficiency HVAC systems are installed to reduce energy consumption, with regular maintenance to ensure optimal performance.

2. Renewable Energy

- **Solar Power:** PVR has invested in solar energy by installing solar panels in some of its multiplexes, reducing reliance on non-renewable energy sources.
- **Green Energy Procurement:** PVR actively explores purchasing renewable energy from offsite renewable energy projects, such as solar or wind power plants, contributing to lower carbon emissions.

3. Water Conservation

- **Low-flow Fixtures:** Water-saving technologies, including low-flow faucets, toilets, and urinals, have been installed to minimize water consumption in restrooms.
- **Water Recycling:** Certain PVR properties have integrated systems to treat and recycle greywater, which is used for non-potable purposes like cleaning and landscaping.

4. Waste Management

- **Recycling Initiatives:** PVR has introduced waste segregation systems to encourage recycling of paper, plastic, and aluminium across its cinemas. Dedicated bins are placed in public areas to promote responsible waste disposal by patrons.

- **Reduction of Single-use Plastics:** The company has been transitioning away from single-use plastic items such as straws, cups, and packaging materials, replacing them with biodegradable or reusable alternatives.
- **Digitalization:** PVR has also reduced paper consumption by digitizing tickets, receipts, and marketing materials, encouraging the use of mobile apps and online ticketing systems.

5. Sustainable Sourcing

- **Eco-friendly Packaging:** PVR is working to introduce sustainable packaging for food and beverages, opting for compostable or biodegradable materials instead of plastic.
- **Local Sourcing:** Where possible, PVR sources food items and beverages locally to reduce the carbon footprint associated with transportation.

6. Green Building Practices

- **LEED Certification:** Some PVR multiplexes are built following green building standards such as LEED (Leadership in Energy and Environmental Design), which ensures energy efficiency, water conservation, and the use of sustainable materials in construction.
- **Sustainable Construction Materials:** PVR uses eco-friendly materials such as recycled steel, low-VOC paints, and energy-efficient insulation during the construction or renovation of its theatres.

7. Public Engagement and Awareness

- **Sustainability Campaigns:** PVR engages customers by promoting sustainability awareness through in-cinema advertisements and short films, educating patrons on environmental issues like waste segregation, water conservation, and energy efficiency.
- **Eco-friendly Rewards:** PVR encourages customers to adopt sustainable practices through initiatives like discounts on food and beverages for using reusable cups or bringing their own bottles.

8. Carbon Footprint Reduction

- **Electric Vehicle (EV) Charging Stations:** In some locations, PVR has installed EV charging stations to promote the use of electric vehicles, reducing emissions from transportation.
- **Carbon Offsetting:** PVR may invest in carbon offset projects such as reforestation or renewable energy initiatives to mitigate the environmental impact of its operations.

9. Sustainable Events and Partnerships

- **Green Screenings:** PVR has hosted special eco-friendly movie screenings that focus on environmental themes and sustainability, aligning with global awareness campaigns like Earth Day.
- **Collaborations:** PVR has partnered with environmental organizations and governmental bodies to enhance sustainability efforts, such as waste management programs and green certifications.

By integrating these sustainable practices, PVR Cinemas is contributing to environmental conservation, reducing energy costs, and enhancing its brand reputation as a responsible corporate citizen in the entertainment sector. This approach aligns with growing consumer demand for eco-conscious businesses and helps PVR lead the charge in making the cinema industry more sustainable.

5.2. PVR INOX Ltd promotes Sustainability- #YourTurnToAct

In an innovative and disruptive sustainability initiative, PVR INOX Limited, the largest and most upscale movie theatre exhibitor in India (after merging with INOX Leisure Limited), has teamed up with Bollywood actress and environmental activist Bhumi Pednekar to educate its patrons about the negative effects of climate change and to encourage them to adopt sustainable lifestyles that will help preserve the environment.

Six iterations of a multi-media consumer campaign have been released by the brand, each showcasing a single PVR project and featuring Bhumi Pednekar issuing a "call to action" via the campaign's hashtag, #YourTurnToAct. Mr. Sanjeev Kumar Bijli, Executive Director, PVR INOX Limited, and Ms. Bhumi Pednekar launched the campaign today at PVR Plaza in New Delhi. PVR is going to donate significant screen time to this program, which aims to encourage sustainable behaviour among moviegoers, at all of its theatres across India.



Source-

<https://anewsofindia.com/2023/03/19/pvr-cinemas-launches-a-sustainability-campaign-as-part-of-its-commitment-to-combat-climate-change/>

5.3 Sustainable practices in Cinépolis

Cinépolis has implemented various sustainability practices to reduce its environmental footprint and enhance social responsibility. These initiatives include energy-efficient technologies, such as laser projectors, which consume 40% less energy than traditional projectors, reducing both power usage and cooling needs. The company also focuses on green building designs and renovations, using energy-saving materials and systems to improve the overall efficiency of their cinemas (Cinépolis).

On the social front, Cinépolis runs programs like *"Let's All Go to Cinépolis,"* which provides underprivileged children with access to educational and inspiring films. This initiative, launched in 2014, has reached over 45,000 children, aligning with the company's broader CSR commitment to community engagement and empowerment (The CSR Universe).

These steps reflect Cinépolis' effort to balance sustainability with social impact, striving to reduce its carbon footprint while making a positive difference in the communities it serves.

5.4 The Sustainability Challenge for Cinemas

Part of the moviegoing experience is definitely the concessions. Likewise, operational objects such as ticket stubs or little paper receipts are. They produce a lot of waste, though. You already know you have too much on your plate, even without adding the requirement to clean the theatre fast in between shows or to keep a range of offerings to suit the tastes of your patrons. The good news is that there has been significant advancement in both practical and regulatory aspects. Examples of the former include the use of refillable containers by movie theatres, upgraded eating experiences, encouragement of recycling, and many more. One example of the latter is Europe's ban on single-use plastic.

Because projectors, HVAC systems, and the theatre's general equipment require a lot of power, a multi-screen movie theatre would require a substantial quantity of renewable energy to be carbon neutral. Consumables can still result in waste, even though most theatres use significantly less raw materials for exhibition than they did in earlier decades due to the lack of need to make celluloid prints, for example. Consider the simple fact that your projectors' xenon bulbs will eventually need to be changed.

These problems are made worse by the fact that films must appeal to Generation Z, a group that is both extremely concerned about sustainability and consumes a lot of media. A rising percentage of younger shoppers claim that judgements about what to buy are influenced by inaction on climate change. That implies that if the film business hopes to engage this generation, the days of unsorted trash cans at movie theatres have to end. Actually, you may differentiate your theatre by emphasising that it is the most environmentally friendly choice available in the neighbourhood. This will undoubtedly attract attention.

5.5 Saving Money While Caring for the Environment

The aforementioned examples demonstrate that adopting sustainable methods not only benefits the environment but also saves money for movie theatres. As a movie theatre operator, there are a plethora of additional options to

contemplate, encompassing both software and hardware solutions. To get you going, here are just a few:

Hardware-focused decisions

Selecting laser projectors with lower power consumption and heat generation can result in financial savings and a reduced carbon footprint.

- Make use of gadgets that are made to last and be readily repaired so they can be used again rather than being thrown away.
- Recycle or repair outdated projection equipment rather than tossing it away; you could even donate it to a nonprofit theatre organisation.

Delivery chain solutions

Elect to use e-delivery rather than paper DCPs

- Work with vendors and logistics companies who place a high priority on sustainability in their operations. Examples of such practices include employing renewable energy sources and electric or hybrid delivery vehicles
- To cut emissions from transport and boost local economy, use localised suppliers.
- To cut down on waste, use recyclable or biodegradable packaging materials and maximise package sizes.

Digital and cloud-based solutions

Take use of cloud services that are powered by renewable energy sources, since some providers have advanced this technology considerably.

- Make the most of cloud computing by utilising virtual servers rather than physical ones and shutting off unnecessary resources to reduce energy use and carbon emissions.
- Make use of cloud services that place a high priority on data security and privacy, as these are frequently linked to more sustainable and effective operations.

Not every one of these procedures might be a workable answer for the sector as a whole. The best ways to encourage sustainability and save resources, including money, can be decided by each theatre.

6. Conclusion

Sustainability in multiplex cinemas plays a crucial role in contributing to environmental conservation and promoting a greener future. By incorporating energy-efficient technologies, such as LED lighting, energy-saving appliances, and renewable energy sources like solar power, multiplexes are significantly reducing their carbon footprint. This shift not only lowers greenhouse gas emissions but also helps decrease the overall demand for non-renewable energy resources, contributing to a more sustainable energy landscape. In addition to energy efficiency, many multiplexes are adopting environmentally friendly building materials and designs. Utilizing materials with low environmental impact, such as recycled or sustainably sourced wood and eco-friendly insulation, reduces the strain on natural resources. Green building certifications like LEED (Leadership in Energy and Environmental Design) are increasingly being pursued by cinema chains, ensuring that new and existing facilities are constructed and operated with minimal environmental damage. Multiplexes are becoming more sustainable with the implementation of water-saving techniques including rainwater harvesting systems and low-flow plumbing fixtures. Reducing water consumption not only helps conserve a vital resource but also decreases the energy needed for water treatment and transportation. Waste reduction is another critical aspect of sustainability in multiplexes. Many theatres are implementing recycling programs for paper, plastic, and other materials used in daily operations. Some are even exploring composting options for food waste. Additionally, reducing the use of single-use plastics, urging patrons to bring reusable bags, and endorsing digital tickets over paper ones all contribute to reducing the amount of waste produced.

Overall, the move toward sustainability in multiplexes is not only reducing their environmental impact but also setting a precedent for the entertainment industry and beyond. These efforts contribute to the global fight against climate change, resource depletion, and pollution, driving positive change for both the environment and society.

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