

A Review on Eco-friendly Floral Practices in Hospitality Industry

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Abstract

Flower arrangement aims to connect with nature by capturing its splendour and framing it in a unique design. It adds positivity and ambience to any hospitality industry setting. Sustainable floristry meets current and future generations' environmental, social, and economic needs. The purpose is to identify unforeseen problems in the floristry and acknowledge them for a better and sustainable environment. The methodology used is an extensive literature review, drawing on numerous research papers from Google Scholar. This paper provides an overview of the historical evolution, sustainable approaches, technologies, techniques and suggestive methods for addressing environmental impact in the floral arrangements of the hospitality industry. With technology advancing rapidly, it is crucial to utilise it positively to not harm the environment. In the floristry industry, it is essential to adopt sustainable techniques to ensure that our actions do not have a negative impact on the ecosystem. On the basis of the review, the study has identified research gaps for which future research can be conducted. The research gaps identified were namely, life cycle assessments, socio-economic effects on neighbourhood development, IOT solutions and consumer's decision. The study also suggests future study on the basis of identified gaps.

Objectives

1. To trace the historical evolution of sustainable practices in flower arrangements using cut flowers
2. To analyse current trends and emerging practices in eco-friendly flower arrangement design
3. To explore the environmental impact of cut flower practices and customer awareness/preference for sustainable floral arrangements, informed by a narrative review

Methodology

This paper is a literature review referring to research papers from Google Scholar. The review conducted was a narrative review approach. The literature review focused on sustainability in flower arrangement practices which practically involve using cut flowers. The review evolved around historical evolution of flower arrangement, sourcing, current trends, eco-friendly design, impact on environment and customer awareness and preference. The research information was collected from various papers from sources various sources, namely, Researchgate and Scimago. The papers considered for conducting the review were from the year 2009 onwards.

Historical Evolution of Flower Arrangement Practices

To create a comfortable environment for both work and leisure, indoor plants must be added to residential and commercial spaces (Kosenko et al., 2020). In hotels, easy-to-maintain plants that thrive in tropical climates with good drainage are popular in Fields (Misra & Goyal, 2022). Understanding the historical roots of ornamental gardening, particularly the emerging movements of Green Urbanism, and the evolution of perceptions in various cultures and eras about the importance of nature as a habitat environment were the main topics of the examination of national and international publications (Kosenko et al., 2020). They provide the hotel with a more attractive visual appeal and much-needed vegetation in its concrete framework, which is what most hotels are made of (Misra & Goyal, 2022). They were converted from subjects of scientific study and fascination into cultural artefacts with significant aesthetic and symbolic significance, just as had happened before with developed

gardens (Sparke, 2020). New connotations associated with fashion, leisure, pleasure, consumerism, democratised luxury, or the array of pursuits that characterised the experience of urban modernity joined the traditional meanings and values that plants and flowers had conveyed in the home (Sparke, 2020). In hotels, landscaping boosts employee productivity and creativity, reduces noise, purifies the air, saves energy, offers privacy and property security, and raises the value of the building (Kayina et al., 2015). It is vital to investigate how the hotel business is doing in landscape gardening, given its development, excellent prospects for future expansion, and the numerous advantages that landscaping and interior landscaping can provide this sector (Kayina et al., 2015). Promoting the use of flowers and plants in hotel design is crucial as it shapes guests' initial opinions of the establishment (Advances in Business, Hospitality, and Tourism Research, 2018). Ikebana has evolved over seven centuries, producing various arrangement styles with distinct philosophical roots (Culbert, 1970). Japanese ikebana is a creative art form that brings the appeal and beauty of landscapes, lakes, and beaches indoors (Culbert, 1970).

Current Trend in Sustainable Flower Arrangement Practices

Upgrading transportation and telecommunications services will be the industry's primary emphasis to address profit sustainability challenges and increase sector sustainability (Mebrat et al., 2022). A favourable opinion of the hotel would be formed in the minds of the visitors based on their impression of the hotel's adoption of green practices and their belief that it engages in eco-friendly activities, such as sustainable gardening techniques. This might result in the intention of return visits to the (Elshaer et al., 2023). To appeal to the increasing number of clients with an environmental gardening identity, hotels should use and promote sustainable gardening techniques (Elshaer et al., 2023). Selecting local staff and working with suppliers close to the hotel are ideal ways to incorporate environmental and social concerns (Scholz et al., 2020). Hotel management is efficient when managing supplies with less packing and buying essential, high-quality items (Scholz et al., 2020). Indoor plants are often introduced into residential and commercial spaces to create a welcoming environment for both work and play (Kosenko et al., 2020). With increasing urbanisation, the global experience with decorative garden plants indicates man's constant desire to become one with nature (Kosenko et al., 2020). Common sense and total freedom of expression are the cornerstones of any well-designed floral arrangement (Habel, 1964). When considering

where the floral arrangement will ultimately be placed in the hotel, consideration should be made to its size and proportion (Habel, 1964). The housekeeping department may make flower arrangements in a hotel or be offered a contract (Jagmohan, n.d.). Although the local climate favours the open field production approach, there is a growing tendency in the cut flower business to raise flowers under controlled environmental conditions to improve quality and output via efficient water, fertiliser, and pesticides (Lan et al., 2022).

Sustainable Sourcing of Flowers

Examining sustainability issues along the blooming potted plant value chain lays the groundwork for creating sustainability assessment techniques that consider the sustainability field's environmental, social, and economic aspects (Havardi-Burger et al., 2020). The increased costs of adopting social innovations as social standards cannot be avoided, as they have become a market requirement (Havardi-Burger et al., 2020). It is essential to collaborate with a nearby producer who has extensive experience in cultivating and shipping fragrant plants for many generations (Sahota, 2013). Companies that are breaking new ground in the food and pharmaceutical sectors have already demonstrated their dedication to the ethical acquisition of biodiversity (Sahota, 2013). The origin of products, the resources utilised in their manufacturing, and the amount of waste generated during production are increasingly important factors for companies to consider (Gaul, Emily. 2014). The emerging sustainable trends were centred on sourcing flowers locally and reusing various products to reduce waste (Gaul, Emily. 2014). The most efficient distribution method is the direct distribution system, which provides the hotel's target market with the highest Margin value (Swabawa & Nurjaya, 2019). Farmers use two cropping patterns - continuous and intermittent - for their planting needs (Swabawa & Nurjaya, 2019). The primary use of temporary work arrangements in the cut flower industry greatly restricts its ability to enhance social well-being (Moosbrugger, n.d., 2019). The industry's economic benefits are restricted due to its excessive reliance on European markets and the global cut flower value chain being dominated by buyers (Moosbrugger, n.d., 2019).

Environmental Impact of Conventional Flower Industry

Although the flower business can boost the economy, its unpredictability encourages expansion into other sectors (Leipold & Morgante, 2012). In addition to limiting any economy's long-term growth, low savings rates prevent families from setting aside money to

purchase a first home or vehicle or launch a company (Leipold & Morgante, 2012). Ethiopia, for instance, has experienced severe environmental problems due to cultivation activity, such as water scarcity, chemical pollution, climate change, and land degradation (Lan et al., 2022). Different flowers have different requirements and growing methods, and growers are in charge of different phases of the process, from planting to harvesting (Lan et al., 2022). Environmental regulations are unclear, and the degree of environmental harm—both temporally and spatially—is not acknowledged (McGill, 2012). Flower farms use excessive resources and release significant waste into the environment, which might impact the ecosystem and its constituent parts (Hawera et al., 2021). The evaluation of emissions to the environment included wastewater released into the environment, pesticide application, energy use, fertiliser, and biomass residue fires in farms Fields(Hawera et al., 2021). The intense use of chemical fertilisers and pesticides, higher water requirements than conventional farming, and closely observed waste management systems in floriculture contribute to increased environmental concerns (Getu, 2009). Water contamination, deterioration of soil and water quality, health risks to humans and animals, air pollution, harm to aquatic life, water logging, and salinisation are a few of the negative consequences of fertilisers (Getu, 2009). Programs that compel producers to use specific chemicals may also impact the production of the domestic chemical sector (Davies, 2000)

Eco-Friendly Floral Design Techniques

All producers must invest in practices that improve quality, lower waste and pollution, and provide more control over the production climate (Van Liemt, 1999). Growers are responsible for ensuring that what they grow is free from illness and that, when harvested, it is handled with care Liemt (Van Liemt, 1999). In the cut flower industry, developing natural, eco-friendly preservation solutions has to be given top priority (Nguyen & Lim, 2021). Several aspects, including the prevention of bacterial development, the extension of vase life, the increase of water uptake, the improvement of fresh weight, and the promotion of a positive water balance, will influence the handling of environmentally friendly preservation solutions for cut flowers (Nguyen & Lim, 2021). The management of flower waste can involve turning it into edible herbal goods like incense sticks, fragrances, home décor, and natural colours. Composts and biogas Fields are used for cotton and silk products (Srivastav & Kumar, 2021). When floral waste is disposed of appropriately, it may decrease pollution in the environment

and achieve around 60% of the UN's sustainable development objectives (Srivastav & Kumar, 2021). When sugar is added, the loss of carbohydrates from chopped stems is replaced, maintaining the respiratory pool and extending the Vase's life (Kumar & Deen, 2017). Several variables influence the cut flower vase's life, including water absorption, decreased transpiration rate, and enhanced water balance (Kumar & Deen, 2017). Flower producers need to get technical information about handling, packing, quality control, and flower preservation after harvest from certified individuals through conferences, seminars, and training in the Fields (Gauchan et al., 2010). Two simple but often neglected ways to help flowers survive are removing them to an excellent location and providing the vases with fresh water (Fox, 1963). Maintaining the proper moisture content at all times (Fox, 1963).

Challenges of Sustainable Floristry Business

The rising cost of electricity and the rise of flower shops were two of the most significant issues facing retailers in the second cluster (Kenanoğlu, 2023). Standardising and qualifying cut flower production for domestic and foreign markets is essential. Additionally, growers should receive training on how to develop high-quality flowers (Kenanoğlu, 2023). Flower companies have very high standards for freight forwarders, clearing agents, warehousing facilities, and airport facilitators to minimise product rejection, losses, and shelf life shortening in the auction (Mebrat et al., 2022). Along with growers, the government's initial aversion to sustainability also contributes to all sustainability concerns in the flower industry, particularly the social and environmental ones (Mebrat et al., 2022). When creating, floral businesses most often reuse their containers and ribbons, avoid using floral foam, compost all of their plant debris, and use live plants in their arrangements (Gaul, 2014). Flowers are sourced locally whenever feasible, but when this isn't possible, businesses get their flowers from importers who have earned a sustainable certification (Gaul, 2014). The creative practice of audit shadowing, adopted by local NGOs and trade unions, is encouraging and hopeful. However, there are still significant issues that need to be resolved (Riisgaard, 2011). Kenyan and other southern hemisphere growers typically choose the less strict national producer association standards, if any standards are chosen at all, and only adopt "higher bar" requirements in response to buyer demand (Riisgaard, 2011). Flowers grown in accordance with the Slow Flower Movement do offer special sustainable benefits, such as enhancing biodiversity, offering a distinctive assortment and serving as a gathering place, and enhancing

the local way of life, environment, and society (Thörning et al., 2022). Growers have the challenge of producing floriculture sustainably, given that the world's population is expected to reach 9 billion people by the year 2050, up from its current estimated 6.4 billion (Wani et al., 2018).

Consumer Awareness and Preference

The floristry sector is another one where digitalisation is becoming more and more significant (Wellbrock et al., 2023). Despite the fact that sustainability often affects consumer behaviour, many shoppers ignore sustainable labelling while they are purchasing flowers (Wellbrock et al., 2023). Consumer demand for a sustainable substitute for the traditional cut-flower industry is shown in the rise of the Slow Flower Movement (Thörning et al., 2022). Producers indicate steady and rising customer demand, suggesting a developing domestic cut-flower market (Thörning et al., 2022). The goal of florists' sales marketing campaigns may be to persuade customers to utilise more flowers for home décor and as gifts (Garbarino, 1963). This data may be utilised to create marketing efforts that highlight the attractiveness of floral gifts and select pairings that will appeal to different market segments (A. L. Rihn, 2010). The opinions of various age cohorts on the frequency of giving flowers as gifts, the sources of gift ideas, their appreciation, their impressiveness, and their risk to help florists and other stakeholders in the floral industry boost demand for their products by drawing in younger consumers (A. L. Rihn, 2010). Customers believe that the staff members are knowledgeable about how to handle the flowers and preserve their freshness for as long as possible. As a result, customers think their flowers are better than those from generalist retail establishments (A. Rihn et al., 2015). For customers, the quality of the cut flowers is crucial (A. Rihn et al., 2015). The study's findings suggest that floral arrangements in settings might forecast certain aspects of the visitor experience (Chen et al., 2019).

Future Direction in Sustainability Arrangement

It is hoped that in the future, we will be able to continue using floral designers' talents to beautify our planet through coalitions and cooperation on a national and international level (Wu et al., 2023). The government must act quickly to promote sustainability by introducing various programs, and extension agents must inform growers of the significance of sustainability in attaining objectives without endangering the health of people or the environment (Wani et al., 2018). Future research ought to investigate why, in contrast to the

acceptance of production technology, social media's underlying technology is viewed with less scepticism (Thörning et al., 2022). It is imperative to convince farmers of the benefits of sustainable floral methods and to emphasise the significance of living in harmony with the natural world(Wani et al., 2018). Flowers are sourced locally whenever feasible, but when this isn't possible, businesses get their flowers from importers who have earned a sustainable certification (Gaul, 2014). Put procedures in place that keep an eye on importers' accuracy and dependability to make sure the business is receiving the best and most sustainable items. Future studies ought to look at sustainable methods used in other nations (Gaul, 2014). The benefits of cooperative business for aggregating the enterprise to fetch better market and money for farmers, merchants, and exporters, as well as the best quality product for end consumers, are clearly explained by the model that is explained. In the near future, floristry company partners may benefit from this business strategy (Bhinde, 2019). Numerous sustainability issues can be resolved across the value chain by innovations that are motivated by sustainability. The use of environmental innovations is typically linked to higher expenses, manufacturing risk, and implementation complexity (Havardi-Burger et al., 2020). The implementation of sustainability innovations and the identification of those that can significantly enhance sustainability performance along the value chain can both be aided by this knowledge (Havardi-Burger et al., 2020). Given the significance of flowers in human culture and their connections to benefits for the economy, the environment, and society, it is critical to keep an eye on their sustainability. This includes not only the Slow Flower Movement but also potential future connections to knowledge and technological advancements used in traditional cut-flower production (Thörning et al., 2022).

Role of Technology in Sustainable Flower Arrangement

Numerous sustainability issues can be resolved across the value chain by innovations that are motivated by sustainability. The use of environmental innovations is typically linked to higher expenses, manufacturing risk, and implementation complexity (Havardi-Burger et al., 2020). Adopting social innovations as societal standards comes with a cost, yet it's impossible to avoid since they've become necessary for the market (Havardi-Burger et al., 2020). Other options include modifying prices and implementing a pricing strategy, enhancing distinction, highlighting the distinctive qualities of the flowers, and outlining the principles that set the slow flower system apart from traditional floriculture (Thörning et al., 2022). There is no

argument made for why product marketing should be carried out without regard to technological advancements like social media and instead through the usage of outdated techniques (Thörning et al., 2022). The second objective was to give a brief synopsis of the global flower industry. This topic takes up the majority of this report (Jo Wijnands, 2005). Industrial organization-based theories are more appropriate for assessing sustainable development (Jo Wijnands, 2005). The creative practice of audit shadowing, which is being adopted by local NGOs and trade unions, is encouraging and hopeful, but there are still significant issues that need to be resolved (Riisgaard, 2011). Because of their more significant clout, certain chain actors—like retailers—can compel other chain actors to cooperate. Here, non-governmental organisations (NGOs) establish the ground rules by bringing specific sustainability issues to the public eye and pressuring other link participants and commercial standard groups to respond (Jo Wijnands, 2005). We conducted an evaluation experiment on CADO, the software that supports flower arranging simulation, and we recommend it for beginners in Kado (Yokokubo et al., 2012). CADO is an Android application that can be used to take pictures of flowers, create flower arrangement ideas, and assist with the actual process of constructing flower arrangements (Yokokubo et al., 2012).

Research Gaps

1. To measure the environmental impact of various floral arrangement techniques, including both conventional and sustainable methods (e.g., comparing water and energy consumption, carbon emissions, chemical usage, etc.), research could concentrate on performing life cycle assessments (LCAs) or environmental impact assessments (EIAs) (Hawera et al., 2021; Getu, 2009).
2. Research could look into the long-term socioeconomic effects of sustainable floriculture on neighborhood development, employment opportunities, and income stability (Mebrat et al., 2022; Wani et al., 2018).
3. Study topics might include the success of technologies like Internet of Things (IoT) solutions for monitoring environmental conditions in flower production or CAD software for creating simulations of arrangements, as well as the obstacles and enablers to technology adoption among florists (Thörning et al., 2022; Yokokubo et al., 2012).
4. Studies could look into how consumers feel about sustainability in the floral business and what they know, think, and do. They could also look into how successfully

educational efforts and labeling initiatives work to influence consumers' decisions to buy (Wellbrock et al., 2023; Thörning et al., 2022).

5. To measure the environmental impact of various floral arrangement techniques, including both conventional and sustainable methods (e.g., comparing water and energy consumption, carbon emissions, chemical usage, etc.), research might focus on performing life cycle assessments (LCAs) or environmental impact assessments (EIAs). (Getu, 2009; Hawera et al., 2021).
6. Research might look into the long-term socioeconomic effects of sustainable floriculture on community development, employment opportunities, and income . (Wani et al., 2018; Memorat et al., 2022).
7. Studies might look into how consumers feel about sustainability in the floral business . (Thörning et al., 2022; Wellbrock et al., 2023)

Managerial Implications

The review provides important insights for the flower arrangement business. As per the review more importance is given to local produces and seasonal blooms which in turn decreases transportation and encourages to local producers. In terms of focusing eco-conscious customers, methods like waste reduction, composting of flower leftovers are embraced. Social media marketing plays an important role to access the customer base and differentiate the business. In addition, collaboration with NGOs and trade unions helps to manage in implementing sustainable practices throughout the supply chain.

Conclusion

The study conducted a review of literature which focused on parameters namely, historical evolution of flower arrangement practices, current trends, sustainable sourcing, and environmental impact of conventional flower industry, eco-friendly design techniques, and challenges in sustainability, consumer awareness and preferences, future in sustainability arrangement and role of technology. The study directed to various research gaps where research can be done in the future. The research gaps identified were life cycle assessments, socio-economic effects on neighbourhood development, IOT solutions and consumer's decision.

Based on the identified research gaps, further research can be done to measure the environmental impact of flower arrangement techniques like carbon emissions, water and energy consumption, chemical usage, etc. Research also can be done to analyse the socioeconomic effects like employment opportunities offered to the society. With the emerging Internet of Things (IoT), research can be done to understand the usage of IoT in monitoring environmental conditions in flower arrangement. Consumer's being the main stakeholder, research can be done to understand the preference and feel in regards to sustainable flower arrangement.

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